

**“Burden and prevention of Viral
Hepatitis in Turkey.”**

Viral Hepatitis Prevention Board Meeting
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Content

This pre-meeting document is a list of selected abstracts/ references from a Pubmed MEDLINE search on different search terms. The references are ranged by publication year (most recent first) and for each year in alphabetical order of the first author's name.

1.Hepatitis in Turkey.....pag.3

Pubmed MEDLINE search on {(Turkey OR Turkish) AND (Hepatitis OR HAV OR HBV OR HCV OR HDV OR HEV)} in all fields and published since 2007 was performed. A second search on these results was performed in Endnote with 'Epidemiology' or 'Prevalence' or 'Prevention' or 'vaccin*' or 'control' or 'Diagnostics' or 'surveillance'. Only the references and the abstracts related to the Turkey were selected.

2.Hepatitis Bibliography of the Speakerspag.48

Pubmed MEDLINE search on Name of the speaker in [Author]-field and 'Hepatitis' in [all fields]. If more than 10 references only the most recent articles are shown.

1. Hepatitis in Turkey

Pubmed MEDLINE search on {(Turkey OR Turkish) AND (Hepatitis OR HAV OR HBV OR HCV OR HDV OR HEV)} in all fields and published from 2007 on, was performed. A second search on these results was performed in Endnote with {'Epidemiology' or 'Prevalence' or 'Prevention' or 'vaccin*' or 'control' or 'Diagnostics' or 'surveillance'}. After a manual search only the references and the abstracts really related to Turkey were selected and the abstracts only related to treatment were deleted. In total 104 references are mentioned in this background document, the references are ranged by publication year (most recent first) and for each year in alphabetical order of the first author's name.

Afsar B, Elsurer R, Eyileten T, Yilmaz MI, and Caglar K.

Antibody response following hepatitis B vaccination in dialysis patients: does depression and life quality matter?

Vaccine 27: 5865-5869, 2009.

Previously, it was demonstrated that antibody production against hepatitis B virus (HBV) surface antigen (anti-HBs) achieved in hemodialysis patients is suboptimal. Decreased health-related quality of life (HRQOL) and depression is common among hemodialysis patients. This study evaluated whether HRQOL and depressive behavior are associated with antibody response against HBV surface antigen in hemodialysis patients. Depressive symptoms and HRQOL were assessed by Beck Depression Inventory (BDI) and Medical Outcomes Study Short Form (SF-36), respectively. Patients were separated into non-seroconversion (anti-HBs antibody titers <10 IU/L) and seroconversion (anti-HBs antibody titers > or =10 IU/L) groups. Among 188 patients, 37 (19.7%) were diagnosed as nonresponsive to vaccination (anti-HBs antibody titers <10 IU/L). Anti-HBs response is positively associated with Physical Component Summary Score of SF-36 (odds ratio: 1.44; P: 0.009) and albumin (odds ratio: 10.615, P: 0.007), and negatively with BDI score (odds ratio: 0.903, P: 0.007). We concluded that HRQOL and depression is closely related with antibody response following HBV vaccine in hemodialysis patients.

Ahmed J, Bouloy M, Ergonul O, Fooks A, Paweska J, Chevalier V, Drosten C, Moormann R, Tordo N, Vatanserver Z, Calistri P, Estrada-Pena A, Mirazimi A, Unger H, Yin H, and Seitzer U.

International network for capacity building for the control of emerging viral vector-borne zoonotic diseases: ARBO-ZOONET.

Euro Surveill 14: 2009.

Arboviruses are arthropod-borne viruses, which include West Nile fever virus (WNV), a mosquito-borne virus, Rift Valley fever virus (RVFV), a mosquito-borne virus, and Crimean-Congo haemorrhagic fever virus (CCHFV), a tick-borne virus. These arthropod-borne viruses can cause disease in different domestic and wild animals and in humans, posing a threat to public health because of their epidemic and zoonotic potential. In recent decades, the geographical distribution of these diseases has expanded. Outbreaks of WNV have already occurred in Europe, especially in the Mediterranean basin. Moreover, CCHF is endemic in many European countries and serious outbreaks have occurred, particularly in the Balkans, Turkey and Southern Federal Districts of Russia. In 2000, RVFV was reported for the first time outside the African continent, with cases being confirmed in Saudi Arabia and Yemen. This spread was probably caused by ruminant trade and highlights that

there is a threat of expansion of the virus into other parts of Asia and Europe. In the light of global warming and globalisation of trade and travel, public interest in emerging zoonotic diseases has increased. This is especially evident regarding the geographical spread of vector-borne diseases. A multi-disciplinary approach is now imperative, and groups need to collaborate in an integrated manner that includes vector control, vaccination programmes, improved therapy strategies, diagnostic tools and surveillance, public awareness, capacity building and improvement of infrastructure in endemic regions.

Akcam FZ, Uskun E, Avsar K, and Songur Y.

Hepatitis B virus and hepatitis C virus seroprevalence in rural areas of the southwestern region of Turkey.

Int J Infect Dis 13: 274-284, 2009.

OBJECTIVES: Most previous studies on the frequency of hepatitis B virus (HBV) and hepatitis C virus (HCV) have analyzed data obtained from blood donors and risk groups. Few studies have been conducted in the field in rural and urban areas of Turkey. The aim of this study was to determine the seroprevalence of HBV and HCV and to investigate the association with risk factors. **METHODS:** Between January 2006 and March 2007, 2852 people aged 18 years and over were chosen in three districts using simple random sampling, and blood samples were drawn from them. The card test technique, which is highly sensitive, was applied to blood samples for the qualitative assessment of hepatitis B surface antigen (HBsAg), anti-hepatitis B surface antigen antibodies (anti-HBs), and anti-hepatitis C virus antibodies (anti-HCV). The ELISA technique was then applied only to positive samples for confirmation. In addition, participants answered survey questions on risk factors for infection with HBV and HCV. **RESULTS:** Our results showed that 71 (2.5%) were HBsAg-positive, 462 (16.2%) were anti-HBs-positive, and 29 (1.0%) were anti-HCV-positive. Further survey results showed that seropositivity increased with some of the risk factors. **CONCLUSIONS:** Studies on seropositivity that depend on field analyses reflect the true population more accurately. We conclude that such field studies and public education activities for hepatitis B and C are essential.

Alim A, Artan MO, Baykan Z, and Alim BA.

Seroprevalence of hepatitis B and C viruses, HIV, and syphilis infections among engaged couples.

Saudi Med J 30: 541-545, 2009.

OBJECTIVE: To evaluate seroprevalences of hepatitis B and C viruses, human immunodeficiency virus (HIV), and syphilis infections among engaged couples. **METHODS:** This is a cross-sectional study of all engaged couples enrolled at 20 Health Centers and one Maternity Center of Sivas Health Directorate between May and September 2005 in Sivas, a central Anatolian city, in Turkey. Seroprevalences of hepatitis B (HB) surface antigen (HBsAg), hepatitis B surface antibody (anti-HBs), anti-hepatitis C virus (HCV), anti-human immunodeficiency virus (anti-HIV), and syphilis was assessed. Serum samples of 1,332 participants of 666 couples were investigated. **RESULTS:** Age range of subjects was 15-74, and most (38.4%) were between 25-29 years. Out of 1,332 individuals, 22 (1.7%) were HBsAg positive, 18 (1.4%) were anti-HBs positive, one (0.1%) was anti-HCV positive, one (0.1%) was HIV positive, and one (0.1%) was syphilis positive. There was no statistical differences between their seroprevalence positivities regarding gender and age groups ($p>0.05$). **CONCLUSION:** In our country, couples should obtain a marriage certificate that includes a health report that contains the tests mentioned above. We

think that this is a very good screening model for important infections. In couples all around the world, screening of these infections needs to be performed before marriage to be aware of the risks.

Aydin B, Tanyel E, Colak B, Fisgin N, and Tulek N.

Infection control implementations at forensic medicine practice: a national survey in Turkey.

Am J Forensic Med Pathol 30: 167-170, 2009.

Because forensic medicine workers have a greater occupational risk for infectious diseases, strict rules and measures against infections must be implemented at every stage of forensic medicine practices. In this study, we aim to evaluate the infection control implementations in forensic medicine practices in Turkey. A questionnaire survey was mailed to forensic medicine specialists and residents between April and June 2005. The questionnaire consisted of 36 questions whose designed was based on standard precautions and protective barriers against infectious risks. In all, 111 doctors from 27 different cities responded to the questionnaire. Of those doctors who responded, 43.2% reported performing external examination anywhere. The percentage of doctors performing external examinations who regularly wore gloves, masks, and gowns, and washed hands with a disinfectant were 81.5%, 24.7%, 30.9%, and 81.5%, respectively. The percentage of doctors performing autopsies who regularly wore masks, protective eye-wear, gloves, special gloves, and special boots were 59.6%, 10.6%, 98.9%, 71.3%, and 36.2%, respectively. Only 2 negative pressure rooms were reported. According to these results, precautionary measures against infectious risks in forensic medicine practice in our country are insufficient. Conditions to facilitate and to improve the compliance with infection control procedures must be prepared.

Bayram A, Ozkur A, and Erkilic S.

Prevalence of human cytomegalovirus co-infection in patients with chronic viral hepatitis B and C: a comparison of clinical and histological aspects.

J Clin Virol 45: 212-217, 2009.

BACKGROUND: Human cytomegalovirus (HCMV) is a common pathogen of severe disease in patients with impaired immune functions. Reactivation of HCMV in immunocompetent host is usually asymptomatic, but may deteriorate the prognosis of patient with chronic illness. **OBJECTIVES:** This study was conducted to detect HCMV infection in patients with chronic hepatitis B virus (HBV) and chronic hepatitis C virus (HCV) infections and to point out the effects of HCMV-HBV and HCMV-HCV co-infections on liver histology. **STUDY DESIGN:** Expression of HCMV DNA was determined in liver tissue biopsies by real-time quantitative polymerase chain reaction (qPCR) method. There were 44 chronic HBV, and 25 chronic HCV patients within the study group. Control group consisted of 36 patients with hepatologic malignancies. **RESULTS:** HCMV infection was demonstrated in 52.3% of chronic HBV, and 36% of chronic HCV patients. Although alanine aminotransferase (ALT) levels of HCMV-infected HBV patients were decreased slightly, they were increased in HCV patients. Histologic activity scores (necroinflammation and fibrosis) of HCMV-positive patients were higher than that of HCMV-negatives in both HBV and HCV groups. Intrahepatic HBV DNA or HCV RNA loads of the corresponding study groups were decreased in HCMV-infected patients. **CONCLUSION:** We conclude that HCMV infection is common in chronic HBV and HCV patients, who can be regarded as patients at high risk for HCMV disease. Though the histological changes were more marked in liver, replication of HBV and HCV were inhibited in HCMV-positive cases.

Czaja AJ, and Bayraktar Y.

Non-classical phenotypes of autoimmune hepatitis and advances in diagnosis and treatment.

World J Gastroenterol 15: 2314-2328, 2009.

Non-classical manifestations of autoimmune hepatitis can delay diagnosis and treatment. Our aims were to describe the clinical phenotypes that can confound the diagnosis, detail scoring systems that can ensure their recognition, and outline advances in treatment that can improve their outcome. Prime source and review articles in English were selected through Medline from 1970-2008 and assimilated into personal libraries spanning 32 years. Acute severe or asymptomatic presentations and atypical histological findings, including centrilobular zone 3 necrosis and concurrent bile duct changes, are compatible with the diagnosis. Cholangiographic abnormalities may be present in children and adults with the disease, and autoimmune hepatitis must be considered in patients without autoantibodies or with antimitochondrial antibodies and no other cholestatic features. Asymptomatic patients frequently become symptomatic; mild disease can progress; and there are no confident indices that justify withholding treatment. Two diagnostic scoring systems with complementary virtues have been developed to evaluate patients with confusing features. Normal liver tests and tissue constitute the optimal end point of treatment, and the first relapse is an indication for long-term azathioprine therapy. Cyclosporine, tacrolimus and mycophenolate mofetil are promising salvage therapies, and budesonide with azathioprine may be a superior frontline treatment. We conclude that the non-classical phenotypes of autoimmune hepatitis can be recognized promptly, diagnosed accurately, and treated effectively.

Karaaslan H, and Yurdaydin C.

Viral hepatitis at the Black Sea region: the problem of viral hepatitis in Turkey revisited.

Turk J Gastroenterol 20: 1-2, 2009.

Karakoc AE, Berkem R, and Beyaz E.

Detection of hepatitis B virus deoxyribonucleic acid using real-time polymerase chain reaction method in pooled-plasma samples of Turkish blood donors.

Clin Lab 55: 229-234, 2009.

BACKGROUND: The extent and the number of routine tests performed for blood donor screening to avoid infections transmitted through blood transfusion have been gradually increasing worldwide and is determined nationally. Following the publication of the new "blood and blood components regulation", the blood banking and transfusion system is through a reorganization stage in Turkey. The national guideline including the donor screening algorithms is to be published which requires national data to be created. The aim of this study is to investigate HBV DNA in pooled plasma samples of blood donors in Turkey, which is a middle endemicity country for HBV infection. **STUDY DESIGN AND METHODS:** Presence of HBV DNA was investigated using real-time polymerase chain reaction (RT-PCR) method in 187 pooled plasma samples prepared from 4484 blood donors, whose screening tests were found to be negative. The seropositivity for HBsAg of the blood donors in the study blood center is 2.2%. **RESULTS:** The rate of false-positivity of the RT-PCR method was found to be 1.6% for the mini pools and 0.04% for the individual blood

donors. HBV DNA was not detected in any of the donor bloods. **CONCLUSION:** The hospital blood centers in Turkey still have a high proportion of first time donors and replacement donors; also seropositivity of HBsAg in Turkish blood donors is high compared to Europe and US. Our data pointed to the high false positivity rate of RT PCR method which needs to be evaluated in creating national donor screening algorithms.

Keskin M, Dolar E, Dirican M, Kiyici M, Yilmaz Y, Gurel S, Nak SG, Erdinc S, and Gulden M.

Baseline and salt-stimulated paraoxonase and arylesterase activities in patients with chronic liver disease: relation to disease severity.

Intern Med J 39: 243-248, 2009.

BACKGROUND: It has been recently reported that serum paraoxonase (PON1) and arylesterase (ARE) activities may be significantly reduced in patients with chronic liver disease. The aim of the study was to investigate the relations between serum PON1 and ARE activities and the degree of liver damage in patients with chronic liver injury. **METHODS:** We studied a total of 75 patients with chronic liver disease (50 patients with cirrhosis and 25 patients with chronic hepatitis) and 25 healthy comparison subjects. Baseline and salt-stimulated PON1 and ARE activities were determined in all study participants. **RESULTS:** Baseline and stimulated PON1 and ARE activities were significantly lower in patients with chronic liver disease than in controls. Cirrhotic patients in Child-Pugh classes B and C subgroups had significantly reduced PON1 and ARE activities compared with Child-Pugh class A patients (both P-values <0.01). Receiver operating characteristic curve analysis showed that serum ARE activity was the most efficient test for identifying the presence and severity of chronic liver injury. **CONCLUSION:** Baseline and stimulated PON1 and ARE activities are reduced in patients with chronic liver disease. Serum ARE activity could be a suitable biomarker for the evaluation of the presence and severity of chronic liver damage.

Kurugol Z, Koturoglu G, Aksit S, Ozacar T, Kayimbasoglu S, Ozbalikci S, Ercal G, Gulluelli E, Bakkaloglu F, Dogan E, Garabli H, Ercal H, and Mert C.

Seroprevalence of hepatitis B infection in the Turkish population in Northern Cyprus.

Turk J Pediatr 51: 120-126, 2009.

This study was conducted to determine the seroprevalence of hepatitis B virus (HBV) infection in the Turkish population in Northern Cyprus. The secondary aim of this study was to assess the impact of the universal infant hepatitis B vaccination program, which started in 1998. A total of 600 persons 1- to 30-years-old were selected for the study with cluster sampling. The information on sociodemographic characteristics was gathered for each participant and in 585 of them, hepatitis B surface antigen (HBsAg), anti-hepatitis B surface antigen antibody (anti-HBs) and anticore antibody (anti-HBc) were tested. The overall prevalence of anti-HBc and HBsAg carriage was 13.2% and 0.85%, respectively. Old age and low parental educational level were the major independent risk factors for HBV transmission. Seroprevalence of both anti-HBc and anti-HBs antibodies was similar in children 1-7 years of age. After 8 years of age, anti-HBc seroprevalence increased significantly with age, while anti-HBs prevalence decreased ($p < 0.001$). Anti-HBc prevalence increased from 7.0% in children aged 1-7 years to 17.9% in persons aged 16-20 years. None of the children under 12 years of age were HBsAg-positive, while 1.9% of persons aged 16-20 years were HBsAg carriers. Anti-HBs seroprevalence exceeding 90% was found in the cohorts targeted by the routine hepatitis B

vaccination program, whereas 36.4% of young adults aged 21-30 years were anti-HBs-positive. The study shows that universal infant hepatitis B immunization has a substantial impact on the immunity in children. However, prevalence of HBV infection is still high in adolescent and young adults in Northern Cyprus. Therefore, catch-up immunization for these groups will help to reduce hepatitis B transmission.

Kuruuzum Z, Ozgenc O, Havuk A, Coskuner A, Ari A, and Celenkoglu N.

Rate of chronicity and time of disappearance of HBsAg following acute hepatitis B. *Hepatogastroenterology* 56: 466-469, 2009.

BACKGROUND/AIMS: Chronic hepatitis B is associated with significantly increased risk of developing cirrhosis, and hepatocellular carcinoma. It's, therefore, important to understand the incidence and risk factors associated with chronicity following acute hepatitis B. METHODOLOGY: Among 863 acute hepatitis patients admitted consecutively to the hospital, 320 with serum immunoglobulin M antibody to hepatitis B core antigen were classified as acute hepatitis B. Of these patients, serum samples were collected 3 and 6 months after clinical onset. RESULTS: Complete follow-up was achieved in 240 patients and 11 (4.6%) became chronic carriers. Only alcohol addiction other than epidemiological, clinical or biochemical parameters was found to be significantly associated with chronic evaluation. In serum samples collected from 205 of 240 patients 3 months after the onset of infection, hepatitis B surface antigen clearance was observed in 181 (88.3%). Number of patients increased to 194 (94.6%) at the end of 6 month and both of these rates were found to be highly significant. CONCLUSIONS: There is still no certain way of predicting the outcome of acute hepatitis B whether a newly infected patient will resolve the illness or not. Alcohol addiction seems to have an impact on the chronicity but additional research is needed.

Maral I, Dogruman-AI F, Bakar C, Ilhan MN, Yalinay-Cirak M, and Bumin MA.

Hepatitis B virus and hepatitis C virus seroprevalence in the elderly living in nursing homes. *J Investig Med* 57: 717-719, 2009.

BACKGROUND:: Communal living situations such as nursing homes create a risk for the spread of hepatitis B virus and hepatitis C virus (HCV). The aim of this study was to determine the seroprevalence of hepatitis B virus and HCV in the elderly living in 2 nursing homes in Ankara, Turkey. METHODS:: A total of 227 persons (mean age, 76.11 +/- 8.55 years) participated in this cross-sectional study. All individuals were investigated seroprevalence for hepatitis B surface antigen (HBsAg), anti-HBs immunoglobulin G (IgG), anti-hepatitis B core IgG, and anti-HCV IgG. RESULTS:: Positive seroprevalence was 11.9% for HBsAg, 48.0% for anti-HBs IgG, 25.1% for anti-hepatitis B core IgG, and 2.5% for anti-HCV IgG. Hepatitis B surface antigen positivity was 12.4% in males and 11.5% in females ($P > 0.05$); and the seroprevalence was 10.4% for those living in nursing homes for 1 year or less and 13.0% for those living in nursing homes for more than 1 year ($P > 0.05$). CONCLUSIONS:: The fact that nearly half of those living in nursing homes had not encountered hepatitis B infection or had not received hepatitis B vaccination indicates the need for administering hepatitis B vaccines in this group.

Miloglu O, Goregen M, Akgul HM, and Acemoglu H.

The prevalence and risk factors associated with benign migratory glossitis lesions in 7619 Turkish dental outpatients.

Oral Surg Oral Med Oral Pathol Oral Radiol Endod 107: e29-33, 2009.

OBJECTIVE: The aim of this study was to investigate the frequency of benign migratory glossitis (BMG) in a Turkish population with respect to gender, age, smoking, atopic and allergic diseases, dermatological diseases (psoriasis and seborrheic dermatitis), systemic diseases, and fissured tongue (FT). **PATIENTS AND METHODS:** The study was conducted on 7619 patients (3819 female, 3800 male) with various dental complaints, ranging in age from 4 to 60 years, recruited from the Department of Oral Diagnosis and Oral Radiology, Faculty of Dentistry, Ataturk University, Erzurum, Turkey. **RESULTS:** BMG was found in 1.5% (95% CI: 0.9-1.9) of all patients examined. Multivariate logistic regression indicated that age less than 30 (OR: 6.7 [95% CI: 2.9-15.5]), not smoking (6.3 [2.8-14.1]), and history of allergy or atopy (6.5 [3.3-12.5]) were significantly related to BMG. Of the patients with BMG, 34.5% (n = 40) had FT. No significant associations existed with gender, dermatological conditions (psoriasis and seborrheic dermatitis), or systemic diseases (diabetes mellitus, hematological disorders, cardiovascular disorders, hepatitis, gastrointestinal disorders, respiratory disorders, connective tissue disorders, and genitourinary disturbances). **CONCLUSION:** The present study demonstrated that BMG is more prevalent in young, nonsmokers, and atopic or allergic individuals.

Ozaras R, Ipekci S, Kumbasar H, Aybar Y, Tahan V, Mert A, Ozturk R, and Tabak F.

Does the presence of peripheral and intra-abdominal lymphadenopathy predict the etiology of acute hepatitis?

J Clin Gastroenterol 43: 196, 2009.

Ozaras R, and Tahan V.

Acute hepatitis C: prevention and treatment.

Expert Rev Anti Infect Ther 7: 351-361, 2009.

HCV can cause acute or chronic hepatitis and is a health problem all over the world. It is one of the leading causes of cirrhosis and hepatocellular carcinoma, and is a common indication for liver transplantation. Unrecognized patients with HCV infection may transmit the virus to uninfected people. The acute form of the disease leads to chronic hepatitis in the majority of cases. Since the success rate of treatment given in the chronic phase is much lower than that given in the acute phase, recognizing acute hepatitis is critical. Although HCV is less prevalent since 1990s in the Western world after improved blood-donor screening programs, needle-exchange facilities and education among intravenous drug users, it is still endemic in some regions, including African countries, Egypt, Taiwan, China and Japan. Acute HCV infection may be a challenge for the clinician; since it is often asymptomatic, detection and diagnosis are usually difficult. After an incubation period of 7 weeks (2-12 weeks), only a minority of patients (10-15%) report symptoms. The spontaneous clearance of the virus is more frequent primarily during the first 3 months of clinical onset of the disease, but may occur anytime during the 6 months of acute infection. This spontaneous resolution seems to be more frequent in symptomatic cases. Viremia persisting more than 6 months is accepted as chronic infection. The virus is transmitted more frequently through infected blood or body fluids. Detection of antibodies against HCV is not a reliable method of diagnosing acute HCV infection since the appearance of antibodies against HCV can be delayed in up to 30% of patients at the onset of symptoms. Thus, the diagnosis of acute hepatitis C relies on the qualitative detection of HCV RNA, which may appear as early as 1-2 weeks after

exposure quickly followed by highly elevated alanine aminotransferase. After a follow-up period of 8-12 weeks for allowing spontaneous resolution, treatment should be initiated. Pegylated interferon monotherapy for 24 weeks seems effective, and the therapy can be individualized according to the characteristics of the patient.

Ozer ZC, Efe E, Oncel S, Taskinsoy H, and Ulker M.

Hepatitis B-Hepatitis C seroprevalences and blunt-penetrating object injuries in housekeepers in Turkey: a survey study.

J Clin Nurs 18: 294-300, 2009.

AIM: This study aims to identify housekeepers' use of protective measures, provide data about hepatitis B virus (HBV) and hepatitis C virus (HCV) seroprevalences and HBV immunisation, and investigate blunt-penetrating injuries in patient care services, routine cleaning services and orderly services. BACKGROUND: Hospitals have been described as hazardous work environments with an increase in HBV-HCV seroprevalences and blunt-penetrating object injuries. This situation creates great risks and hazards for housekeepers in their jobs. DESIGN: Survey. METHODS: The study population was housekeepers who work in university hospitals. A total of 824 housekeepers were surveyed by using a 20-item questionnaire. The questionnaire included the sociodemographic characteristics of housekeepers and the risk level of the unit employed. Blood samples were taken from the housekeepers. RESULTS: Their mean age was 32.5 years. The majority of the housekeepers (52.5%) were women and graduates of primary school (51.1%). The mean length of employment was 2.6 years, 73% were working on medical/surgical units, 91.2% were working in routine cleaning and 70.9% had been injured with various blunt and penetrating objects while working in the hospital in the past six months. The obtained result for seroprevalence for HBV-HCV was 2.2%. Only 27.5% of the housekeepers had been immunised with Hepatitis B vaccine. A large percentage of housekeepers in this study had used universal precautions. CONCLUSION: This study showed high seroprevalence rates for HBV-HCV and blunt-penetrating object injuries in housekeepers. Therefore, more effort is necessary to increase the use of protective measures against HBV-HCV and blunt-penetrating object injuries in housekeepers. RELEVANCE TO CLINICAL PRACTICE: Hospitals need to take protective measures and implement innovative educational and support programmes organised for specific groups of housekeepers.

Pinarbasi B, Onel D, Cosan F, Akyuz F, Dirlik N, Cakaloglu Y, Badur S, Besisik F, Demir K, Okten A, and Kaymakoglu S.

Prevalence and virological features of occult hepatitis B virus infection in female sex workers who work uncontrolled in Turkey.

Liver Int 29: 227-230, 2009.

BACKGROUND: There is little information about the prevalence of occult hepatitis B virus infection (OHBVI). We have investigated the prevalence and virological features of OHBVI among female sex workers (FSWs) in Istanbul. METHODS: Hepatitis B surface antigen (HBsAg) was tested in FSWs who work uncontrolled and were admitted to Venereal Diseases Hospital. HBV DNA and anti-HBs were investigated in all the HBsAg-negative cases. Hepatitis B envelope (HBe) antigen, anti-HBe, anti-hepatitis B core (HBc) antigen, HBV genotype, S gene and precore (PC)/basic core promoter (BCP) mutations were determined in HBV DNA-positive sera. RESULTS: Two hundred and eighty-six volunteers were enrolled and 32.5% (n=93) of them had anti-HBs positivity. HBV DNA (range 30-209 copy/ml) was positive in 11 anti-HBs-negative and two anti-HBs-positive cases. The prevalence of OHBVI was 4.5%

(13/286). Anti-HBc was positive in 77% (10/13) of those with OHBVI and anti-HBe positivity was 53.8% (7/13). Only genotype D was present in all occult HBV-infected cases. One PC (G1896A) and one BCP (T1762/A1764) mutation was found, but S gene mutation was not detected in any of the samples. CONCLUSION: In this population, OHBVI may have a negligible role in the horizontal transmission because of a very low viral load, and PC and core promoter mutations are very rare.

Rizzetto M.

Hepatitis D: the comeback?

Liver Int 29 Suppl 1: 140-142, 2009.

Hepatitis D virus (HDV) infection has considerably diminished in Europe since the 1970-1980s. The prevalence rates of chronic hepatitis D in HBsAg carriers in Italy have declined from 25% at the beginning of the 1980s to 8% in the 1990s. Similar declines in prevalence have been reported in Spain, Taiwan and Turkey. Better public health standards, HBV vaccination and the effect of measures to control the spread of human immunodeficiency virus have brought about a decline in the numbers of HBsAg carriers and therefore a decline in the HBV-dependent HDV. However, HDV has not declined further in Europe in the last decade, as the pool of fresh infections in migrants from HDV-endemic areas is counterbalancing the shrinking cohort of long-standing domestic infections acquired in the epidemic of the 1970-1980s. Hepatitis D remains an important health problem outside Europe, and new foci of infection continue to be identified in developing countries.

Sac RU, Bostanci I, Dallar Y, Cihan G, and Atli O.

Hepatitis A seroprevalence and demographics in Turkish children in Ankara.

Pediatr Int 51: 5-8, 2009.

BACKGROUND: Hepatitis A virus (HAV) is the most common cause of hepatitis in childhood and an important public health problem. The objective of the present study was to determine the seroprevalence of hepatitis A and patient demographics in children between 1 and 15 years old who were admitted to a pediatric outpatient clinic in Ankara, Turkey. METHODS: Hepatitis IgM and G antibodies were determined in the sera of children who attended the outpatient clinic. Informed consent was obtained from all subjects or their parents. RESULTS: The mean age of the children (n = 335) was 7.9 +/- 2.1 years; 47.5% of them were girls. The overall anti-HAV IgG prevalence in children aged 1-15 years was 47.2%. The positivity of hepatitis A IgM was highest in the 6-10 years age group (22.7%; P < 0.001). HAV IgG was highest in the 11-15 years age group (69.4%; P < 0.001). A total of 95.6% of the children had social insurance, 49.3% were living in poverty. The socioeconomic level of 82.4% of subjects was low. The history of hepatitis in their families was 6.9%. CONCLUSIONS: Hepatitis A is intermediate endemic in Ankara and children must be vaccinated before school age, in addition to health education and improved sanitation.

Senturk H, Tabak F, Ozaras R, Erdem L, Canbakan B, Mert A, and Yurdakul I.

Efficacy of pre-S-containing HBV vaccine combined with lamivudine in the treatment of chronic HBV infection.

Dig Dis Sci 54: 2026-2030, 2009.

Treatment of chronic hepatitis B (CHB) is difficult. The response rate to interferon (IFN) as well as nucleoside analogs is not more than 30% in general. While interferon

has many side effects, development of resistance in most of the nucleoside analogs precludes long-term use. Both groups of drugs are most efficacious in patients who already had or develop strong cellular immunity with treatment. A pre-S2-containing vaccine was shown to enhance cellular immunity and suppress hepatitis B virus (HBV)-DNA in subjects with chronic hepatitis B. We aimed to test the efficacy of short-term use of a nucleoside analog in combination with a pre-S2-containing vaccine in patients with CHB. In this open study, 48 consecutive patients (32 males and 16 females, mean age +/- SD: 33 +/- 12 years) with CHB without cirrhosis were treated with 100 mg/day lamivudine and four weekly intramuscular injections of Genhevac B 20 mcg (six doses) for 24 weeks. While 19 patients were hepatitis B e antigen (HBeAg) positive (+ve), 29 patients were Anti-HBe/HBV-DNA +ve at the outset. Response was defined as seroconversion to anti-HBe in HBeAg +ve subjects and normalization of alanine aminotransferase (ALT) with loss of HBV-DNA in anti-HBe/HBV-DNA +ve subjects. HBeAg seroconversion occurred in 5/19 subjects (26%). Eighteen of 29 anti-HBe/HBV-DNA +ves responded. In the follow-up, while relapse was not observed in any of the patients who seroconverted, 11/18 from the anti-HBe/HBV-DNA +ve group relapsed, resulting in a sustained response (SR) rate of 24% in this group. All the relapses happened in the first 48 weeks of follow-up, with no relapse thereafter. Pretreatment high serum HBV-DNA was a strong negative predictor of sustained response (SR) in HBeAg +ve group. Pretreatment serum ALT over 2 x upper limit of normal and HBV-DNA less than 200 pg/ml appeared positive predictors. None of HBeAg +ve previous interferon failures responded. Twenty-four weeks of lamivudine and hepatitis B vaccine treatment induces SR in around 1/4 of the patients with CHB. Most of the responders had high ALT and relatively low DNA.

Suijkerbuijk AW, Lindeboom R, van Steenbergen JE, Sonder GJ, and Doorduyn Y.

Effect of hepatitis A vaccination programs for migrant children on the incidence of hepatitis A in The Netherlands.

Eur J Public Health 19: 240-244, 2009.

BACKGROUND: Since 1998 Municipal Public Health Services (MPHSs) in The Netherlands carried out Hepatitis A (HAV) vaccination programs for Turkish and Moroccan children to reduce import and secondary HAV infections. The aim of this study was to assess the effects of the programs on HAV incidence. **METHODS:** MPHSs were questioned about HAV vaccination programs for migrant children. Notification data of HAV over the period 1995-2006 were analysed. **RESULTS:** Since 1998, 19 MPHSs (58%) organized vaccination programs for Turkish and Moroccan children. A large variation in the range of activities in HAV vaccination programs was observed. In The Netherlands, HAV incidence declined, from 6.5 per 100,000 inhabitants in 1995 to 1.3 in 2005. HAV incidence in children of Turkish and Moroccan decent declined from 70.3 per 100,000 in 2000 to 13.5 per 100,000 in 2005. Regions where MPHSs organized vaccination campaigns had the steepest decline in HAV incidence. **CONCLUSION:** The decline in HAV incidence in The Netherlands coincided with that observed for the rest of Europe. Therefore, also other causes than the enhanced vaccination programs could have contributed to this effect. At present, low priority is placed on continuing these HAV vaccination programs, as in areas without enhanced programs the incidence also declined to very low levels. Because HAV is still endemic in Morocco and Turkey, it remains important that all travellers to these countries are vaccinated against HAV, regardless of their country of origin.

Talas MS.

Occupational exposure to blood and body fluids among Turkish nursing students during clinical practice training: frequency of needlestick/sharp injuries and hepatitis B immunisation.
J Clin Nurs 18: 1394-1403, 2009.

AIM AND OBJECTIVE: To describe the rate of needlestick/sharp injuries in nursing students, to estimate the rate of vaccination administration and to define nursing students' status using universal precautions for protecting from blood-borne infections. **BACKGROUND:** Nursing students have a high risk of occupational exposure to bloodborne pathogens because they may have insufficient background knowledge to recognise the level of risk posed by a particular patient and their inexperience with procedural skills and infection control procedures. **DESIGN:** This study was designed as a retrospective and descriptive survey. **METHODS:** The frequency and mechanism of needlestick/sharp injuries and hepatitis B immunisation were determined retrospectively by surveying students in three nursing schools. In November 2004, 473 students were questioned about needlestick/sharp injuries that they had sustained during their clinical practice and hepatitis B immunisations. **RESULTS:** Forty-nine per cent of the students who responded sustained injuries; of these 74% were injured while on wards. The highest number (72.2%) had been injured by hollow-bore needles; 65.2% who were injured were not wearing gloves at the time of injury; 27% of injuries were associated with recapping the needle; 43.9% reported their injuries to administrators and the rate of those receiving medical assistance after needlestick/sharp injuries was less than not seeking assistance; 67.7% had been vaccinated against hepatitis B. **CONCLUSION:** This study showed that nursing students frequently sustain needlestick/sharp injuries and hepatitis B immunisation rate was low. **RELEVANCE TO CLINICAL PRACTICE:** Findings will help in designing more intensive education programs directed at the students to increase their awareness of and compliance with Universal Precautions and in instituting policies so that they are fully immunised against hepatitis B before beginning clinical practice.

Tiftikci A, Atug O, and Tozun N.

Awareness of hepatitis C virus transmission routes among patients, their household contacts and health care staff: does perception match the reality?
Turk J Gastroenterol 20: 104-107, 2009.

BACKGROUND/AIMS: The worldwide seroprevalence of hepatitis C virus infection is around 3%. Since there is no effective vaccine, a major effort should be given to counselling both HCV-infected patients and those at risk of infection. Our aim was to determine the awareness of the transmission routes of hepatitis C virus in health care staff (HC staff), HCV-infected patients and their household contacts. **METHODS:** A reliable and valid self-report inquiry consisting of 14 questions was completed by 397 HC staff (75 first-year, 75 last-year medical students, 89 dentists, 71 pharmacists, 87 nurses), 68 HCV-infected patients and 62 household contacts. All subjects were asked about the various modes of transmission of hepatitis C virus. **RESULTS:** Ninety-seven percent of the HC staff, 85% of hepatitis C virus patients and 90% of household contacts were aware of the parenteral transmission of hepatitis C virus. Ninety percent of HC staff, 54% of hepatitis C virus patients and 66% of household contacts admitted the role of sexual transmission, with significant difference between the subgroups of HC staff ($p < 0.05$). Fifteen percent of the first-year medical students did not consider sexual contact as a mode of transmission. Sharing personal items such as toothbrushes, razors and nail scissors were considered as risk factors for transmission by 94% of HC staff, 44% of hepatitis C virus patients and 71% of their household contacts. Skin contact, sharing clothes and using the same toilet were

considered hazardous by 18%, 14% and 26% of the HC staff, respectively. Skin contact and using the same toilet were considered as risk factors (and/or were unknown) by 30% and 44% of the hepatitis C virus patients and by 36% and 51% of the household contacts, respectively. CONCLUSIONS: Transmission of hepatitis C virus by blood and blood products was better recognized in all groups tested, but the other means of infection were either overestimated (skin contact, sharing toilet and clothes) or under-recognized (blood-contaminated objects). More vigorous education programs are needed to increase awareness of hepatitis C virus in various risk groups in our country.

Tiftikci A, Atug O, Yilmaz Y, Eren F, Ozdemir FT, Yapali S, Ozdogan O, Celikel CA, Imeryuz N, and Tozun N.

Serum levels of adipokines in patients with chronic HCV infection: relationship with steatosis and fibrosis.

Arch Med Res 40: 294-298, 2009.

BACKGROUND AND AIMS: Hepatic steatosis and fibrosis are common histological findings in patients with chronic hepatitis C virus (HCV) infection. In this study we sought to determine whether serum levels of three adipokines (leptin, adiponectin and resistin) show any biochemical correlation with hepatic steatosis and fibrosis in patients with chronic HCV infection. METHODS: We examined a total of 51 patients with chronic HCV infection (22 males and 29 females, mean BMI: 27.4 \pm 5kg/m²) and 24 healthy control subjects (10 males and 14 females, mean BMI: 23.2 \pm 3kg/m²). Liver steatosis and fibrosis were scored on biopsies. Serum levels of leptin, adiponectin and resistin were determined by ELISA. RESULTS: HCV genotypes were 1b in 41 patients (80.4%), 3a in three patients (5.9%), 2a in two patients (3.9%), 1a in two patients (3.9%), 1c in one patient (2%), and 2b in one patient (2%). Serum levels of leptin, resistin, and the leptin-to-adiponectin ratio were significantly higher in patients with chronic HCV infection than in controls. Steatosis and fibrosis were detected in 33.3% and 70.5% of chronic HCV patients, respectively. No significant association with serum adipokine levels and degree of steatosis was evident. Low serum levels of resistin were associated with the presence of fibrosis independently of potential confounders. CONCLUSIONS: Patients with chronic HCV infection display elevated levels of adipokines in their sera. Reduced concentrations of resistin may be a biochemical marker of fibrosis in this patient group.

Uzun L, Say R, Unal S, and Denizli A.

Production of surface plasmon resonance based assay kit for hepatitis diagnosis.

Biosens Bioelectron 24: 2878-2884, 2009.

Hepatitis B surface antibody (HBsAb) imprinted poly(hydroxyethyl methacrylate-N-methacryloyl-L-tyrosine methyl ester) (PHEMAT) film on the surface plasmon resonance (SPR) sensor chip was prepared for diagnosis of HBsAb in human serum. Gold SPR chip surface was modified with allyl mercaptane and, then, HBsAb-imprinted PHEMAT film was formed on the chip surface. Surface characterization of the non-modified, allyl mercaptane modified and HBsAb-imprinted PHEMAT SPR chips were investigated with contact angle, atomic force microscopy (AFM). Kinetic studies were performed using HBsAb positive human serum. In order to determine the kinetic and binding constants, Scatchard, Langmuir, Freundlich and Langmuir-Freundlich models were applied to experimental data. Scatchard curve shows that HBsAb imprinted SPR chip has some surface heterogeneity, SPR chip obeyed the Langmuir adsorption model. The maximum detection limit was 208.2 mIU/mL. K(A)

and K(D) values are 0.015 mIU/mL and 66.0 mL/mIU, respectively. Control experiments of the SPR chip were performed using non-immunized, HBsAb negative serum. The control experiment results show that SPR chip does not give any noticeable response to HBsAb negative serum.

Yildirim B, Barut S, Bulut Y, Yenisehirli G, Ozdemir M, Cetin I, Etikan I, Akbas A, Atis O, Ozyurt H, and Sahin S.

Seroprevalence of hepatitis B and C viruses in the province of Tokat in the Black Sea region of Turkey: A population-based study.

Turk J Gastroenterol 20: 27-30, 2009.

BACKGROUND/AIMS: Viral hepatitis are considered a major health problem worldwide. There are only a few studies relevant to the epidemiology of these types of infection in the normal healthy population. In this study, we aimed to determine the seroprevalence of hepatitis B and hepatitis C as well as the frequency of isolated anti-HBc IgG positivity among a normal healthy population in a northern province of Turkey. **METHODS:** This study was conducted in 70 areas (12 urban and 58 rural) in the province of Tokat, which is in the Black Sea region of Turkey, with about 530,000 inhabitants 18 years and older. All urban regions and some rural regions selected by a cluster sampling method were included in the study. The study population of 1,095 subjects (541 male and 554 female; urban 555 and rural 540) was selected by a random sampling method among 530,000 individuals. All individuals were tested for HBsAg, anti-HBs, anti-HBc IgG, anti-HCV, and alanine aminotransferase.

RESULTS: The mean age of all participants was 41.4±17 years (range, 18-95). HBsAg, anti-HBs, anti-HBc IgG only, isolate and anti-HCV were detected in 60 (5.5%), 250 (22.8%), 132 (12.1%), and 23 (2.1%) individuals of the 1,095 total participants, respectively. We did not find statistically significant differences between hepatitis B and C markers for men versus women or those living in rural versus urban areas. The rate of HBsAg positivity in individuals with a history of marriage to close relatives was higher. **CONCLUSIONS:** We found that the seroprevalences of hepatitis B and C in a northern province of Turkey are similar to the averages reported in other studies that were conducted in a different region of our country. The history of marriage to close relatives was associated with hepatitis B.

Yilmaz Y, Dolar E, Ulukaya E, Akgoz S, Keskin M, Kiyici M, Yerci O, Oral AY, Gul CB, Gurel S, Nak SG, and Gulden M.

Elevated serum levels of caspase-cleaved cytokeratin 18 (CK18-Asp396) in patients with nonalcoholic steatohepatitis and chronic hepatitis C.

Med Sci Monit 15: CR189-193, 2009.

BACKGROUND: Caspase-cleaved cytokeratin 18 (CK18-Asp396) is released from hepatocytes during apoptosis. Recent studies have indicated that serum levels of CK18-Asp396 could be a clinically useful biomarker of chronic liver disease. To shed more light on the rate of hepatocyte loss by apoptosis in chronic liver disease, serum levels of CK18-Asp396 were examined in patients with nonalcoholic steatohepatitis (NASH) and chronic hepatitis C. **MATERIAL/METHODS:** Apoptotic CK18-Asp396 levels were quantified in sera from 35 patients with nonalcoholic steatohepatitis (NASH), 21 patients with chronic hepatitis C (HCV), and 18 healthy controls. **RESULTS:** Analysis of serum CK18-Asp396 levels showed an increasing trend starting from healthy controls (median: 54.5 U/l), to HCV patients (80.1 U/l), to patients with NASH (144.1 U/l, Kruskal-Wallis test: $P < 0.001$). Post hoc analyses revealed that CK18-Asp396 levels were significantly higher in the NASH patients than in both HCV patients ($P = 0.008$) and healthy controls ($P < 0.001$). Moreover, the

levels were significantly higher in patients with HCV than in control individuals ($P < 0.05$). In patients with chronic HCV infection there was a significant positive correlation between serum CK18-Asp396 levels and AST ($r = 0.442$, $P < 0.05$), the ultrasonographic grade of steatosis ($r = 0.446$, $P < 0.05$), and the histological steatosis score ($r = 0.759$, $P < 0.001$). **CONCLUSIONS:** Although subject to future confirmation, these pilot findings seem to indicate that serum levels of caspase-cleaved cytokeratin 18 (CK18-Asp396) are higher in patients with NASH than in those with chronic HCV infection. These data suggest that NASH patients have an increased hepatocyte loss by apoptosis compared with chronic hepatitis C patients.

Adam FU, Torun D, Yigit F, Ozelsancak R, Sezer S, Ozdemir FN, and Haberal M.

Determination of the impact of hepatitis C virus on insulin resistance and arterial stiffness in hemodialysis patients.

Ren Fail 30: 411-415, 2008.

AIM: It has been shown that Hepatitis C virus (HCV) seropositivity and carotis artery plaque formation are independently correlated in the general population. Insulin resistance is also a risk factor for atherosclerosis. The association between HCV and type 2 diabetes mellitus is known. Determination of the impact of HCV on insulin resistance and arterial stiffness in hemodialysis patients would help to prevent related cardiovascular complications. **METHODS:** Thirty-seven HCV(+) and 30 HCV(-) HD patients were enrolled in this study. All patients were non-diabetic. Insulin resistance was assessed by "HOMA-IR." Arterial stiffness was measured by "stiffness index b" and "elastic modulus." **RESULTS:** In the HCV(+) group, there were 20 males and 17 females, while the HCV(-) group had 19 males and 11 females. The mean age was 43.4 +/- 16.7 years and 44.5 +/- 16.8 years, respectively. The HOMA-IR was 1.50 in HCV(+) group and 1.31 in HCV(-) group ($p > 0.05$). Stiffness index b and elastic modulus measurements revealed no difference between groups. In the HCV(+) group, arterial stiffness parameters were correlated with age, white blood cell, thrombocyte, total and LDL cholesterol, uric acid, mean arterial pressure, diastolic blood pressure, and HOMA-IR. There was no association between arterial stiffness and the above-mentioned parameters in the HCV(-) group. **CONCLUSION:** We found that there was no association of arterial stiffness in HCV(+) patients with insulin resistance. Further studies with larger patient groups and more sensitive methods of detecting HCV are needed. This study is the first in literature on this issue.

Afsar I, Gungor S, Sener AG, and Yurtsever SG.

The prevalence of HBV, HCV and HIV infections among blood donors in Izmir, Turkey.

Indian J Med Microbiol 26: 288-289, 2008.

Ahishali E, Boztas G, Akyuz F, Ibrisim D, Poturoglu S, Pinarbasi B, Ozdil S, and Mungan Z.

Response to hepatitis B vaccination in patients with celiac disease.

Dig Dis Sci 53: 2156-2159, 2008.

Abnormal immune response to gliadin, genetic, and environmental factors play a role in the pathogenesis of celiac disease (CD). Non-responsiveness to hepatitis B virus (HBV) vaccination is related to genetic features. Certain human leukocyte antigen (HLA) genotypes are more prevalent among non-responders to HBV vaccination.

There is also a strong relationship between CD and these HLA genotypes. This study investigates the relationship between CD and non-responsiveness to HBV vaccination, with an emphasis on genotypic co-incidence. No statistically significant difference was noted between the ages and gender of CD patients and control subjects. Baseline serum IgA, IgM, and IgG levels of all CD patients were normal. Responsiveness to HBV vaccination was observed in 17 (68%) CD patients and all (100%) control subjects ($P = 0.006$). In conclusion, CD should also be sought in unresponders to HBV vaccine who are not immunosuppressed.

Akarca US.

Chronic hepatitis B. A guideline to diagnosis, approach, management, and follow-up 2007. Turkish Association for the Study of Liver.

Turk J Gastroenterol 19: 207-230, 2008.

Alacacioglu A, Somali I, Simsek I, Astarcioglu I, Ozkan M, Camci C, Alkis N, Karaoglu A, Tarhan O, Unek T, and Yilmaz U.

Epidemiology and survival of hepatocellular carcinoma in Turkey: outcome of multicenter study.

Jpn J Clin Oncol 38: 683-688, 2008.

OBJECTIVE: Hepatocellular cancer (HCC) is one of the important health problems in Turkey. We aimed to determine the clinical and demographic features of HCC in the Turkish population and to evaluate the prognostic and survival features. METHOD: Two hundred and twenty-one patients with HCC from five hospitals in Turkey are included in this study. RESULTS: In 44.4% of the 221 patients with hepatitis B virus and in 21.3% of the 221 patients with hepatitis C virus were found to be responsible for HCC etiology. It has been shown that HCC developed on cirrhosis basis in 74.2% of the patients. HCC was presented with single solitary nodule in 69.2% of the patients. Non-liver metastasis was present in 12.5% of the patients. In 21.7% of the patients, alpha-fetoprotein (AFP) levels were above the diagnostics level of 400 ng/ml. The median overall survival (OS) of 221 patients was 14 months. The median OS of the patients with Child-Pugh A class was significantly longer than that with Child-Pugh B and C classes. The OS of the individuals with normal AFP levels was also longer than that with high AFP levels. The OS of the patients with Stage I HCC according to tumor node metastasis (TNM) classification, the female patients and the treated patients group was found to be significantly good. CONCLUSIONS: In conclusion, the viral etiology (hepatitis B and C infections) in Turkish population is found to be an important factor in HCC development. The Child-Pugh classification, AFP levels, TNM classification, being female and treatment were determined to be important prognostic factors in HCC patients.

Altuglu I, Soyler I, Ozacar T, and Erensoy S.

Distribution of hepatitis C virus genotypes in patients with chronic hepatitis C infection in Western Turkey.

Int J Infect Dis 12: 239-244, 2008.

OBJECTIVE: The primary aim of this study was to determine the recent distribution of various genotypes of hepatitis C virus (HCV) in patients with chronic HCV infection in Western Turkey. Additional objectives were to determine whether there are any associations of genotype with gender and age, and to determine the nucleotide similarities and risk factors of non-1 HCV genotypes. METHODS: Serum samples

from 345 patients (176 male, 169 female; mean age 53.3±12.7 years, range 10-81 years) with chronic HCV infection were analyzed in this study. Viral genotypes were determined by a restriction fragment length polymorphism (RFLP)-based in-house assay. To confirm genotypes for the samples with band patterns other than genotype 1, the 5' UTR was amplified and sequenced. RESULTS: Genotype 1 was observed in 335 of the 345 patients (97.1%). Of these, 34 patients showed infection with subtype 1a (9.9%) and 301 with subtype 1b (87.2%). Genotypes 2, 3, and 4 were determined in 0.9%, 1.4%, and 0.6% of the patients, respectively. Patients infected with type 1 were significantly older than patients infected with non-1 genotypes; however no significant differences were recorded in gender distribution. CONCLUSIONS: Genotypes other than genotype 1 are quite rare; these are possibly acquired in other countries. Turkish patients with chronic hepatitis C still represent a rather homogenous group with genotypic diversity encountered rarely.

Aslan M, Horoz M, Nazligul Y, Bolukbas C, Bolukbas FF, Selek S, Aksoy N, and Erel O.

Serum paraoxonase and arylesterase activities for the evaluation of patients with chronic hepatitis.

Int J Clin Pract 62: 1050-1055, 2008.

The sensitivity of standard biochemical tests for liver function is low and insufficient for a reliable determination of the presence or absence of liver disease. The aim of the present study was to investigate serum paraoxonase and arylesterase activities and lipid hydroperoxide (LOOH) levels, and to find out that whether the measurement of serum paraoxonase and arylesterase activities would be useful as an index of liver function status in chronic hepatitis (CH). Forty-four patients with CH (24 CHB and 20 CHC) and 38 controls were enrolled. Serum paraoxonase and arylesterase activities were detected spectrophotometrically. LOOH levels were measured by the FOX-2 assay. Serum paraoxonase and arylesterase activities were significantly lower in patients with CH than controls ($p < 0.001$ for both), while LOOH levels were significantly higher ($p < 0.001$). Paraoxonase and arylesterase activities were inversely correlated with LOOH levels ($r = -0.394$, $p < 0.05$; $r = -0.362$, $p < 0.05$, respectively). Fibrosis scores of CH patients were significantly correlated with paraoxonase and arylesterase activities and LOOH levels ($r = -0.276$, $p < 0.05$; $r = -0.583$, $p < 0.001$ and $r = 0.562$, $p < 0.001$, respectively). Our results indicated that decrease in the activities paraoxonase and arylesterase may play a role in the pathogenesis of CH. In addition, serum paraoxonase and arylesterase activities measurement may add a significant contribution to the liver function tests.

Aykin N, Cevik F, Demirturk N, Demirdal T, Orhan S, and Naz H.

Anti-HCV positivity in sexual partners and offspring of patient with chronic hepatitis C. *Scand J Infect Dis* 40: 533-537, 2008.

We investigated the seroprevalence of HCV in stable sexual partners and offspring of chronic hepatitis C patients, and aimed to determine the risk factors involved. 191 anti-HCV and HCV RNA positive subjects who coinhabited with their spouse and/or offspring were included. Risk factors of index cases for disease transmission, liver biopsy results, anti-HCV and HCV-RNA in spouses and/or offspring were evaluated. Together with index cases, a total of 404 family members including 174 stable sexual partners and 230 offspring were included. The most common risk factors among index cases were dental procedures (73.8%), history of surgery (64.9%), and blood transfusions (24.1%). Anti-HCV positivity was established in 11 (2.7%) of the total 404 family contacts--6 sexual partners and 5 offspring. HCV seropositivity was

significantly higher in the spouses of index cases with severe hepatitis C compared to those with mild to moderate hepatitis C ($p=0.008$), but there was no statistically significant correlation between the severity of liver disease in index cases and anti-HCV positivity in their offspring. In conclusion, anti-HCV seropositivity in the spouses and children of patients who are HCV-RNA positive HCV carriers does not appear to be higher than the HCV seroprevalence in our country.

Basturk B, Karasu Z, Kilic M, Ulukaya S, Boyacioglu S, and Oral B.

Association of TNF-alpha -308 polymorphism with the outcome of hepatitis B virus infection in Turkey.

Infect Genet Evol 8: 20-25, 2008.

BACKGROUND AND AIM: Cytokines play important roles in the regulation of immune response. The aim of the study was to investigate the association of the cytokine gene polymorphisms with persistence of hepatitis B virus (HBV) infection and the development of end-stage liver disease (ESLD) due to HBV infection. **METHODS:** The study involved 27 patients with end-stage liver disease due to HBV infection, 23 HBV carriers and 60 healthy controls. All genotyping (TNF-alpha, TGF-beta, IL-10, IFN-gamma) experiments were performed using sequence specific primers (PCR-SSP) by using commercial kit according to manufacturers' instructions. **RESULTS:** The frequencies of TNF-alpha -308 G/G and TGF-beta1 codon 10-25 T/C-G/G polymorphisms were significantly higher in HBV-infected individuals (patients+carriers) when compared with those of healthy controls ($p: 0.02$ and $p: 0.004$, respectively). The frequency of TNF-alpha -308 G/G polymorphism was significantly higher in the patients than those of the healthy controls ($p: 0.02$), whereas the frequency of TGF-beta1 codon 10-25 T/T-G/G polymorphism was lower ($p: 0.028$). On the other hand, TNF-alpha -308 G/G and TGF-beta codon 10-25 T/C-G/G polymorphisms were significantly more common in HBV carriers than the control group ($p: 0.017$ and $p: 0.018$, respectively). In addition, TNF-alpha -308 G allele frequency was significantly more common in HBV-infected individuals (patients+carriers) than those of healthy controls ($p: 0.0007$). TNF-alpha -308 G allele frequency was also found to be higher in patients or carriers when compared with those of healthy controls ($p: 0.01$ and $p: 0.01$, respectively). Statistically significant differences were still kept after Bonferroni correction of the p-values for only TNF-alpha -308 G allele frequency in patients or carriers (P_c). **CONCLUSION:** Our study suggests that TNF-alpha gene polymorphism in patients infected with HBV would result in relatively inefficient inhibition of HBV and development of ESLD, and therefore, may be valuable predictor determinants for the development of ESLD in patients with chronic HBV infection.

Bayram AS, Koprucuoglu M, Aygun M, and Gebitekin C.

Pleurovenous shunt for treating refractory benign pleural effusion.

Eur J Cardiothorac Surg 33: 942-943, 2008.

We report the case of a 63-year-old female with hepatic cirrhosis due to chronic hepatitis C, successfully treated for refractory nonmalignant hepatic hydrothorax by using a long-term pleurovenous shunt (PVS). After failure of conventional treatment by mechanical pleurodesis, a PVS was inserted to drain the pleural fluid into the right subclavian vein. After 8 months of follow-up, the effusion is well controlled, and the shunt remains patent.

Baytan B, Gunes AM, and Gunay U.

Efficacy of primary hepatitis B immunization in children with acute lymphoblastic leukemia.

Indian Pediatr 45: 265-270, 2008.

BACKGROUND: Children with acute lymphoblastic leukemia (ALL) carry a high risk of hepatitis B virus (HBV) infection. The present study was conducted to see if prior routine hepatitis B vaccine received as a part of national immunization program could prevent HBV infection in these children. **METHODOLOGY:** Ninety-six children with ALL were screened for HBV. Children were divided into three groups according to their initial HBV serology; previously vaccinated children (Group I) (n=34) previously unvaccinated and seronegative children (Group II) (n=56), and unvaccinated but HBsAg negative and anti-HBs positive children (group III) (n=6). Sixty-seven of 96 (69.7%) children received vaccination. The schedule was initiated during the third month of maintenance therapy and each course consisted of three doses given at one month interval. **RESULTS:** Anti-HBs seroconversion following the first course of three doses of hepatitis B vaccination in group I, II and III was 57%, 33% and 100%, respectively. It increased to 97% in Group I, 62.5% in Group II, 100% in Group III. HBsAg positivity was found in 11 children (11.5%) and all of them developed chronic hepatitis B. Ten of them were in Group II whereas only one child was in Group I (P<0.04). **CONCLUSION:** This data reveals that routine HBV vaccination within the national immunization program plays an important role in decreasing subsequent hepatitis B infection in children with ALL.

Bozkurt H, Kurtoglu MG, Bayram Y, Kesli R, and Berktaş M.

Distribution of hepatitis C prevalence in individuals according to their age level in Eastern Turkey.

Eur J Gastroenterol Hepatol 20: 1249, 2008.

Cakaloglu Y, Akyuz F, Bozaci M, Ibrism D, Pinarbasi B, Demir K, Kaymakoglu S, Besisik F, Badur S, and Okten A.

Prevalence and clinical significance of SEN-H virus in chronic hepatitis B, C and delta infections in Turkey.

Turk J Gastroenterol 19: 104-108, 2008.

BACKGROUND/AIMS: SEN viruses are transmitted parenterally and can cause post-transfusion hepatitis. The prevalence and clinical significance of SEN viruses have been investigated in patients with chronic hepatitis C and B but not in D. We aimed to determine the prevalence and clinical significance of SEN viruses- H in patients with chronic hepatitis C, B and delta in Turkey. **METHODS:** SEN viruses-H was analyzed in 85 patients with chronic viral hepatitis (30 HCV, 30 HBV and 25 HDV) and 43 non-professional blood donors. HBV DNA, HCV RNA and HDV RNA were positive in patients with hepatitis B, C and D, respectively. SEN viruses-H DNA was detected by semi-nested polymerase chain reaction method (L2AS, C5S primer in first step, L2AS, D11 in second step) after extraction of DNA from sera (NucleoSpin blood; Macherey-Nagel GmbH & Co KG, Germany). **RESULTS:** SEN viruses-H DNA was found to be positive in 7/30 (23.3%), 10/30 (33.3%), 6/25 (24%), and 7/43 (16.2%) of patients with chronic C, B, and D hepatitis and healthy blood donors, respectively. There was no significant difference in clinical features and treatment response between SEN viruses- H-positive and -negative patients with chronic viral hepatitis. **CONCLUSIONS:** SEN viruses is more frequent in chronic hepatitis patients than in healthy blood donors. These results indicate that SEN viruses has no effect on the clinical course and treatment response of chronic viral hepatitis.

Cakir B, Uner S, Temel F, and Akin L.

Lot quality survey: an appealing method for rapid evaluation of vaccine coverage in developing countries - experience in Turkey.
BMC Public Health 8: 240, 2008.

BACKGROUND: Vaccine-preventable diseases cause significant morbidity and mortality worldwide and in developing countries in particular. Information on coverage and reasons for non-vaccination is vital to enhance overall vaccination activities. Of the several survey techniques available for investigating vaccination coverage in a given setting, the Lot Quality Technique (LQT) remains appealing and could be used in developing countries by local health personnel of district or rural health authorities to evaluate their performance in vaccination and many other health-related programs. This study aimed to evaluate vaccination coverage using LQT in a selected semi-urban setting in Turkey. **METHODS:** A LQT-based cross-sectional study was conducted in Kecioren District on a representative sample of residents aged 12-23 months in order to evaluate coverage for routine childhood vaccines, to identify health units with coverage below 75%, and to investigate reasons for non-vaccination. **RESULTS:** Based on self-reports, coverage for BCG, diphtheria-pertussis-tetanus (DPT-3), oral polio-3, hepatitis-3, and measles vaccines ranged between 94-99%. Coverage for measles was below 75% in five lots. The relatively high educational and socioeconomic status of parents in the study group alone could not minimize the "considerable" risk of vaccine-preventable diseases in the District and dictates a continuity of efforts for improving vaccination rates, with special emphasis on measles. We believe that administrative methods should be backed up by household surveys to strengthen vaccination monitoring and that families should be trained and motivated to have their children fully vaccinated according to the recommended schedule and in a timely manner. **CONCLUSION:** This study identified vaccine coverage for seven routine vaccines completed before the age of 24 months as well as the areas requiring special attention in vaccination services. The LQT, years after its introduction to health-related research, remains an appealing technique for rapid evaluation of the extent of a variety of local health concerns in developing countries, in rural areas in particular, and is very efficient in determining performance of individual subunits in a given service area. Training of local health personnel on use of the LQT could expedite response to local health problems and could even motivate them in conducting their own surveys tailored to their professional interests.

Cakir M, Akcay S, Karakas T, Gedik Y, Okten A, and Orhan F.

Prevalence of atopy in children with type 1 diabetes mellitus, hepatitis B virus carriers, and healthy children: role of T helper 1 (Th1)-type immune response.
Allergy Asthma Proc 29: 166-170, 2008.

The prevalence of allergic diseases such as asthma, hay fever, and atopic dermatitis has increased over the past few decades, especially in developed countries. They are characterized by a chronic inflammatory reaction mediated by T helper 2 (Th2) cells. Two common chronic diseases of childhood—an autoimmune disease, type 1 diabetes mellitus (DM), and a chronic viral infection, hepatitis B virus (HBV) carriers—are associated with a Th1-dominant and Th1-insufficient cytokine profile, respectively. The purpose of this study was to analyze the frequency of allergic disease in patients with type 1 DM and, in HBV carriers, to evaluate the role of Th1-type immune response in atopy and allergic disease. The study included patients with type 1 DM (group I, n = 52), HBV carriers (group III, n = 47), and a healthy

control group (group III, n = 209). Participants were screened for allergic disease and atopic sensitization. Symptoms of asthma, eczema, and atopy were found more commonly in HBV carrier children compared with those with DM and healthy controls. This study supports the Th1/Th2 model. The prevalence of allergic disease and atopy is decreased in Th1-mediated autoimmune disease, type 1 DM, and, conversely, is increased in insufficient Th1 response, chronic HBV carriers. Additional studies are needed to evaluate the effect of atopy and allergic diseases in glycemic control and long-term complications in patients with type 1 DM and the effect of atopy on progression of chronic HBV infection.

Ceyhan M, Yildirim I, Kurt N, Uysal G, Dikici B, Ecevit C, Aydogan A, Koc A, Yasa O, Koseoglu M, Onal K, Hacimustafaoglu M, and Celebi S.

Differences in hepatitis A seroprevalence among geographical regions in Turkey: a need for regional vaccination recommendations.
J Viral Hepat 15 Suppl 2: 69-72, 2008.

Hepatitis A is a worldwide vaccine-preventable infection. Recommendation of vaccination depends on the endemicity of the disease. The World Health Organization recommends universal hepatitis A vaccination in intermediate areas; however, there is no need of mass vaccination in high and low endemicity regions. Therefore, most of the countries are using a vaccination policy according to the endemicity characteristic representing the whole of the country. The endemicity of this infection varies due to sanitary and hygiene conditions and socioeconomic differences among the countries and in various regions of the same country. A sample of 1173 persons between the age of 0 and 91 years from nine randomly selected medical centres from five different geographical centres of Turkey were tested for the level of anti-hepatitis A virus (anti-HAV) immunoglobulin-G antibodies using an enzyme-linked immunosorbent assay. The overall prevalence of anti-HAV antibodies was 64.4% (1142/1173). While the rate of sero-positivity was over 80% in the 5-9 age group and more than 90% after 14 years of age in south-eastern and eastern regions, it was lower than 50% at the age of 5-9 years in central and western regions and remains under 80% in those areas. We conclude that the differences observed in HAV sero-positivity among various geographical regions in Turkey support a universal HAV immunization policy for children currently living in regions of intermediate endemicity.

Cil T, Altintas A, Pasa S, Bayan K, Ozekinci T, and Isikdogan A.

Lamivudine for the prevention of hepatitis B virus reactivation in hepatitis-B surface antigen (HBSAG) seropositive cancer patients undergoing cytotoxic chemotherapy.
Leuk Lymphoma 49: 939-947, 2008.

Hepatitis B virus (HBV) is one of the major causes of chronic liver disease worldwide. Cancer patients who are chronic carriers of HBV have a higher hepatic complication rate while receiving cytotoxic chemotherapy (CT) and this has mainly been attributed to HBV reactivation. In this study, cancer patients who have solid and hematological malignancies with chronic HBV infection received the antiviral agent lamivudine prior and during CT compared with historical control group who did not receive lamivudine. The objectives were to assess the efficacy of lamivudine in reducing the incidence of HBV reactivation, and diminishing morbidity and mortality during CT. Two groups were compared in this study. The prophylactic lamivudin group consisted of 37 patients who received prophylactic lamivudine treatment. The historical controls consisted of 50 consecutive patients who underwent CT without prophylactic lamivudine. They were followed up during and for 8 weeks after CT. The outcomes

were compared for both groups. Of our control group (n= 50), 21 patients (42%) were established hepatitis. Twelve (24%) of them were evaluated as severe hepatitis. In the prophylactic lamivudine group severe hepatitis were observed only in 1 patient (2.7%) of 37 patients ($p < 0.006$). Comparison of the mean ALT values revealed significantly higher mean alanine aminotransferase (ALT) values in the control group than the prophylactic lamivudine group; 154.64 ($p < 0.32$). Our study suggests that prophylactic lamivudine significantly decreases the incidence of HBV reactivation and overall morbidity in cancer patients during and after immunosuppressive therapy. Further studies are needed to determine the most appropriate nucleoside or nucleotide analogue for antiviral prophylaxis during CT and the optimal duration of administration after completion of CT.

Coskun O, Erdem H, Gul HC, and Eyigun CP.

Changes in hepatitis A prevalence rates between 1998 and 2007 in Eskisehir, Turkey.

Int J Infect Dis 12: e141, 2008.

Degertekin H, and Gunes G.

Horizontal transmission of hepatitis B virus in Turkey.

Public Health 122: 1315-1317, 2008.

Degertekin H, Yalcin K, Yakut M, and Yurdaydin C.

Seropositivity for delta hepatitis in patients with chronic hepatitis B and liver cirrhosis in Turkey: a meta-analysis.

Liver Int 28: 494-498, 2008.

BACKGROUND: Recent reports suggest a decline of delta hepatitis (DH) in the West as well as in the Far East. **AIM:** To study the DH seroepidemiology in Turkey.

METHODS: Statistical power analysis was utilized based on data available in a recent article using prevalence figure estimates. Binominal distribution was applied in order to assess the number of samples required to estimate the prevalence with a given precision. **RESULTS:** Out of 62 studies in the original study, 32 were eliminated because of insufficient power. A total of 6734 patients (5231 with chronic hepatitis and 1503 with cirrhosis) were analysed. Anti-HDV seropositivity among patients with chronic hepatitis B (CHB) and hepatitis B-induced cirrhosis was lowest in the west of the country and highest in the southeast (5 vs. 27%, $P < 0.0001$ and 20 vs. 46%, $P < 0.0001$) respectively. Compared with data obtained before 1995, after 1995, DH prevalence in patients with CHB and cirrhosis decreased from 29 to 12% ($P < 0.0001$) and from 38 to 27% ($P = 0.03$) in central and southeast Turkey and from 38 to 20% ($P < 0.0001$) and from 66 to 46% ($P < 0.002$) in west and southeast Turkey respectively. **CONCLUSION:** Despite the decrease of its prevalence in Turkey, DH remains a significant health problem in parts of the country with low socio-economic level.

Demir M, Serin E, Gokturk S, Ozturk NA, Kulaksizoglu S, and Yilmaz U.

The prevalence of occult hepatitis B virus infection in type 2 diabetes mellitus patients.

Eur J Gastroenterol Hepatol 20: 668-673, 2008.

AIM: The prevalence of occult hepatitis B virus (HBV) infection is relatively frequent among patients with immune suppression. The impairment of the immune system is well demonstrated in diabetics. We aimed to investigate the prevalence of occult HBV infection among hepatitis B core antibody (HbcAb)+/- hepatitis B surface antibody (anti-HBs) positive type 2 diabetes mellitus patients. MATERIALS AND METHODS: The study involved 100 HbcAb+/-anti-HBs type 2 diabetes mellitus patients and 100 age and sex matched, HbcAb+/-anti-HBs healthy blood donors. Exclusion criteria were positive serology for HBsAg, hepatitis C virus or HIV, diagnosis of malignancy or earlier organ transplantation history, use of immunosuppressive therapy. All patients were questioned about their past medical history and were tested for serum alanine aminotransferase and HBV DNA level. RESULTS: The diabetic patients did not differ significantly from healthy controls in terms of sex and age. HBV DNA was detected in 11% of the diabetic patients ($1 \times 10^{-5} \times 10$ copies/ml) and in 3% of the controls ($4 \times 10^{-1} \times 10$ copies/ml). The difference between groups was statistically significant ($P < 0.05$). The history of blood transfusion, surgery, and vaccination for HBV and alcohol use were similar in both groups ($P > 0.05$). The serum alanine aminotransferase levels in diabetic patients were close to those of controls (26.2 ± 16.4 IU/l vs. 23.9 ± 9.7 IU/l; $P > 0.05$). CONCLUSION: These data suggest that the prevalence of occult HBV infection is higher in diabetics compared with healthy controls and this may contribute to the increased prevalence of primary hepatocellular carcinoma in diabetics.

Dilli D, Bostanci I, and Dallar Y.

Do different vaccination regimens for BCG and hepatitis B affect the development of allergic disorders in early childhood?

J Asthma 45: 155-159, 2008.

AIM: To determine whether age at bacilli Calmette-Guerin (BCG) and hepatitis B vaccination has an effect on the development of atopy and allergic disorders in early childhood. METHODS: This was a cross-sectional study of 109 children aged between 24 and 36 months with respiratory system diseases. The study population was divided into two groups according to vaccination regimens: group 1, beginning hepatitis B vaccination at birth and receiving BCG vaccine at two months of age; group 2, receiving BCG vaccine at birth and beginning hepatitis B vaccination at two months of age. Atopic status was assessed by skin-prick tests (SPTs). RESULTS: There was no statistically significant difference in atopy between two groups ($p = 0.27$). However, the prevalence of recurrent wheezing was higher in group 1 (36.4%) than group 2 (16.3%) ($p = 0.04$). Logistic regression analysis identified receiving BCG vaccine at birth and beginning hepatitis B vaccination at the age of two months were protective for recurrent wheezing (odds ratio 0.5; confidence interval: 0.3-0.8; $p = 0.01$). CONCLUSION: We believe that the administration of BCG vaccine at birth and hepatitis B vaccine at two months may be protective against recurrent wheezing but doesn't prevent atopy.

Elsurer R, Afsar B, Sezer S, Arat Z, Ozdemir FN, and Haberal M.

Malnutrition inflammation score is associated with coronary artery disease in hepatitis C virus-infected hemodialysis patients.

Eur J Clin Nutr 62: 1449-1454, 2008.

OBJECTIVE: Hepatitis C virus (HCV) infection exerts diverse effects on atherogenesis. We investigated whether malnutrition inflammation score (MIS) is associated with the presence of coronary artery disease (CAD) in anti-HCV-positive hemodialysis (HD) patients. SUBJECTS/METHODS: Twenty-two anti-HCV-positive

HD patients with CAD and 61 anti-HCV-positive HD patients without CAD (as controls) were included. Data were obtained from hospital records, patients were evaluated for risk factors for CAD. The same physician performed MIS evaluation. RESULTS: MIS of anti-HCV-positive HD patients with CAD were significantly higher than patients without CAD (8.8+/-4.0 vs 6.5+/-2.6, P=0.02). In patients with CAD, basal (P=0.002) and peak C-reactive protein (P=0.03) and serum ferritin (P=0.01) concentrations were higher, serum albumin concentrations (P=0.003) were lower than those patients without CAD. MIS was positively correlated with age (r=+0.359, P=0.001) and viral load (r=+0.629, P<0.0001). In univariate logistic regression analysis, advanced age (odds ratios (OR)=1.093, confidence interval (CI): 1.039-1.150, P=0.001), hypertension (OR=3.143, CI: 1.084-9.116, P=0.035), diabetes mellitus (OR=5.344, CI: 1.343-21.269, P=0.017), low triglyceride (OR=0.992, CI: 0.984-0.999, P=0.026) and high MIS (OR=1.259, CI: 1.066-1.488, P=0.007) were associated with the presence of CAD. Multivariate logistic regression analysis identified age (OR=1.090, CI: 1.007-1.179, P=0.033) and MIS as the factors associated with the presence of CAD (OR=1.232, CI: 1.004-1.511, P=0.04). CONCLUSIONS: MIS may be associated with CAD in anti-HCV-positive HD patients.

Ergunay K, Gurakan F, Usta Y, Yuce A, Karabulut HO, and Ustacelebi S.

Detection of TT virus (TTV) by three frequently-used PCR methods targeting different regions of viral genome in children with cryptogenic hepatitis, chronic B hepatitis and hbs carriers.

Turk J Pediatr 50: 432-437, 2008.

This study was designed so that three sensitive and widely-used polymerase chain reaction (PCR) methods for the detection of TT virus or Torque Teno virus (TTV) would be simultaneously applied to a large number of subjects to evaluate performances of the various PCR protocols with different genotype sensitivities. Sera were collected from 92 children admitted to Hacettepe University Ihsan Dogramaci Children's Hospital Pediatric Gastroenterology Unit (17 cryptogenic chronic hepatitis, 17 asymptomatic HBs carriers, 18 chronic HBV patients and 40 healthy children). TTV DNA was detected via nested N22, nested 3'-UTR and 5'-UTR PCRs for all samples. Differences in TTV DNA detection prevalences were not statistically significant between the study groups with all TTV DNA and liver enzyme levels. A significant agreement between PCR methods that target UTR was observed. TTV detection rate increased with age, suggesting a non-parenteral, environmental exposure to the virus for the study population.

Gulcan A, Gulcan E, Toker A, Bulut I, and Akcan Y.

Evaluation of risk factors and seroprevalence of hepatitis B and C in diabetic patients in Kutahya, Turkey.

J Investig Med 56: 858-863, 2008.

AIM: To assess the prevalence of hepatitis B and C viruses among Turkish patients with type 1 and type 2 diabetes mellitus and to determine the risk factors affecting the prevalence in these patient groups. METHODS: This study included 630 diabetic and 314 nondiabetic patients. Serologic testing for anti-hepatitis C virus (anti-HCV) and HbsAg was done using a third-generation commercial enzyme-linked immunosorbent assay, and samples positive for anti-HCV and HbsAg were confirmed by a polymerase chain reaction assay. Diabetic patients were classified by HbsAg and anti-HCV status and were evaluated according to demographic features, diabetic characteristics and nondiabetic general risk factors, harmful habits, and aminotransferase (alanine aminotransferase and aspartate aminotransferase) levels.

RESULTS: HbsAg and anti-HCV seropositivity rates were 5.1% and 3.2% in diabetic patients and were 3.8% and 1.3% in control group, respectively. There was no statistically significant difference between the 2 groups with respect to either marker. Shared risk factors for both hepatitis infections were increased aminotransferase levels and history of hospital admission. In addition, long duration of diabetes mellitus, poor diabetic regulation, and insulin treatment usage were found to relate to HbsAg, whereas a history of blood transfusions and surgical procedures were found to associate with anti-HCV seropositivity. **CONCLUSIONS:** We determined that hepatitis B virus and hepatitis C virus infections were slightly but not significantly higher in diabetic patients compared with a normal population. If it is considered that different results might be obtained in various countries or even in various regions of same country, it may be concluded that multicenter and comprehensive studies are needed to elucidate true infection rates and to identify other risk factors affecting the prevalence of these infections.

Gulcan EM, Tirit I, Anil A, Adal E, and Ozbay G.

Serum neopterin levels in children with hepatitis-B-related chronic liver disease and its relationship to disease severity.

World J Gastroenterol 14: 6840-6843, 2008.

AIM: To evaluate serum neopterin levels and their correlations with liver function tests and histological grade in children with hepatitis-B-related chronic liver disease. **METHODS:** The study population comprised 48 patients with chronic active hepatitis B, 32 patients with hepatitis-B-related active liver cirrhosis and 40 normal controls. Serum neopterin was measured using an enzyme-linked immunosorbent assay. **RESULTS:** The mean +/- SD serum neopterin levels were 14.2 +/- 5.6 nmol/L in patients with chronic hepatitis, 20.3 +/- 7.9 nmol/L in patients with liver cirrhosis and 5.2 +/- 1.4 nmol/L in control group. Serum neopterin levels were significantly higher in patients with chronic hepatitis ($P = 0.005$) and cirrhosis patients ($P = 0.008$), than in control subjects. Cirrhotic patients had significantly higher serum neopterin levels than patients with chronic hepatitis ($P = 0.004$). There was a positive correlation between serum neopterin levels and alanine aminotransferase levels in patients with chronic hepatitis ($r = 0.41$, $P = 0.004$) and cirrhotic patients ($r = 0.39$, $P = 0.005$). Positive correlations were detected between serum neopterin levels and inflammatory score in patients with chronic hepatitis ($r = 0.51$, $P = 0.003$) and cirrhotic patients ($r = 0.49$, $P = 0.001$). **CONCLUSION:** Our results suggest that serum neopterin levels can be considered as a marker of inflammatory activity and severity of disease in children with hepatitis-B-related chronic liver disease.

Kandemir O, Tamer L, and Tasdelen B.

Effects of GSTT1, GSTM1 and GSTP1 gene polymorphism on the course of hepatitis B virus infection.

Hepatogastroenterology 55: 1729-1733, 2008.

BACKGROUND/AIMS: To investigate the effects of GSTT1, GSTM1 and GSTP1 gene polymorphism on the stage of hepatitis B infection. **METHODOLOGY:** This study included 116 healthy controls, 56 normal carriers of hepatitis B virus, 69 chronic hepatitis B patients and 20 cirrhosis patients. The polymorphism of GSTT1, GSTM1 and GSTP1 were determined with real time PCR with LightCycler instrument using hybridization probes in combination with the LightCycler DNA Master Hybridization Probes Kit (Roche Diagnostics). Multivariate binary logistics regression analyses were used for statistical evaluation. **RESULTS:** GSTP1 Ile/val genotype was significantly more frequent in the patients with chronic hepatitis B infection and in

the patients with cirrhosis ($p=0.049$ OR: 1.909, 95% CI 0.993-3.668 and $p<0.001$ OR: 15.238, 95% CI 1.971-117.782 respectively) than in the healthy controls. Similarly, GSTP1 val/val genotype was significantly more frequent in the patients with chronic hepatitis B infection and in the patients with cirrhosis ($p=0.006$ OR = 6.799, 95% CI 1.712-26.99 and $p<0.001$, OR: 62.857 95% CI 8.794-449.285 respectively) than in the controls. There was no significant difference in GST Ile/val frequency between the patients with chronic hepatitis B infection and normal carriers of hepatitis B virus, while GST val/val genotype was significantly more frequent in the patients with chronic hepatitis B infection ($p=0.030$, OR: 6.097, 95% CI 1.192-31.194). Both GST Ile/val and GST val/val genotypes were significantly more frequent in the patients with cirrhosis than in the normal carriers ($p=0.001$, OR: 12.160 95% CI 1.618-91.360 and $p<0.001$, OR: 32.154, 95% CI 4.585-225.513 respectively). In addition, there was a significant relation between GSTP1 gene polymorphism and hepatitis stage. In fact, as Ile/val and val/val genotype frequencies significantly increased so did the stage of the disease and tendency towards cirrhosis ($p<0.001$). The difference in the GSTP1 gene polymorphism did not significantly differ between the healthy controls and the normal carriers of hepatitis B virus. Also, none of the four groups was significantly different concerning the presence of GSTM1 and GSTT1 gene deletions. CONCLUSIONS: The results of this study suggested that GSTP1-val (105) gene polymorphism could be associated with the course of chronic hepatitis B infection.

Kara B, Doran F, Kara IO, Akkiz H, and Sandikci M.

Expression of c-kit protooncogen in hepatitis B virus-induced chronic hepatitis, cirrhosis and hepatocellular carcinoma: has it a diagnostic role?
Int J Clin Pract 62: 1206-1211, 2008.

AIM: There are more than 350 million people worldwide chronically infected with hepatitis B virus (HBV), who are at high risk for the development of hepatitis, cirrhosis and hepatocellular carcinoma (HCC). Because of the conflicting results about c-kit expression in HCC and the key role played by c-kit in gastrointestinal stromal tumours (GIST) and other solid tumours, the aim of this study was to determine c-kit expression in the course of hepatitis B infection. MATERIALS AND METHODS: Paraffin-embedded tissues in Cukurova University Faculty of Medicine Department of Pathology between January 2002 and February 2006 were searched retrospectively to investigate this issue. We performed immunohistochemistry on biopsies of 125 patients with HBV infection, grouped as: mild, moderate and severe hepatitis, cirrhosis and HCC, 25 patients in each of them, using anti c-kit monoclonal antibody. The severity of parenchymal inflammation and of interface hepatitis was semiquantitatively graded on a haematoxylin and eosin stained paraffin sections. Additionally, 50 more HCC, formed on HBV basis, were studied to determine the prevalence of c-kit overexpression. RESULTS: In cirrhotic liver, lower intensity of staining and rarely c-kit positivity were present. The greatest number of the c-kit positivity and higher intensity of staining was found in the livers of patients with severe hepatitis and HCC. In chronic hepatitis B infection, the staining intensity was parallel with the grade and stage of the disease. In the areas where fibrosis was seen, c-kit positivity was rare or absent. In the HCC specimens, c-kit positivity appeared both inside and around the cancerous nodes. C-kit expression was observed in 62 of 75 HCC tissue specimens (82%) ($p < 0.001$). CONCLUSIONS: C-kit positivity was observed in the mitotic, proliferating and also dysplastic hepatic cells. These results suggest that c-kit expression may be used as an early diagnostic indicator for HBV induced HCC.

Karabay O, Temel A, Koker AG, Tokel M, Ceyhan M, and Kocoglu E.

Influence of circadian rhythm on the efficacy of the hepatitis B vaccination.
Vaccine 26: 1143-1144, 2008.

Karakus S, Arin BE, Arat Z, Karakayali H, and Haberal M.

Impact of hepatitis serology on development of leukopenia after solid organ transplantation.

Transplant Proc 40: 199-201, 2008.

BACKGROUND: Homologous organ transplantation is an accepted therapeutic modality for end-stage disease of the kidney and liver. In posttransplantation periods leukopenia is a common problem with a wide range of differential diagnoses. Not only can it lead to an increased incidence of infections, but preclude the use of adequate immunosuppressive therapy and antimicrobial regimens because of their potential leukopenic side effects. One reason for leukopenia is viral hepatitis, which is frequently seen in transplant recipients. Herein this report, we searched for the relationship of leukopenic bouts among kidney and liver transplantation recipients to hepatitis serology. **METHODS:** We retrospectively evaluated the records of 569 patients who received solid transplants between January 1996 and October 2006. Because 27 patients did not come for follow-up examinations, their data were excluded, and 14 patients had 2 transplantations, yielding 556 primary transplantation cases for leukopenic attacks. **RESULTS:** Leukopenic attacks showed a strong relationship with hepatitis B virus (HBV) infection, but were independent of HBV DNA status ($P = .002$). No relationship with hepatitis C virus (HCV) infection status was found. **CONCLUSIONS:** Leukopenia is a common, important complication that can be seen during the posttransplantation period of recipients affecting both mortality and morbidity. HBV infection is a risk factor for development of leukopenia after transplantation. Adequate treatment of HBV infection in transplant recipients is important to obtain leukocyte counts in the normal range, allowing easier and safe antibacterial and immunosuppressive therapy in the posttransplantation period.

Kaya AD, Ozturk CE, Yavuz T, Ozaydin C, and Bahcebasi T.

Changing patterns of hepatitis A and E sero-prevalences in children after the 1999 earthquakes in Duzce, Turkey.

J Paediatr Child Health 44: 205-207, 2008.

AIM: Hepatitis A and E are enteric viral diseases that are characteristically found in developing countries. Sero-epidemiological data about both infections showed higher prevalence rates soon after the 1999 earthquakes in Duzce, Turkey. The aim of the present study was to evaluate the data 4 years after the earthquakes. **METHODS:** The study group included 589 children (72.3% boys) who were between the ages of 6 months and 17 years (mean age 11.5 years). The children were separated into three groups: Group 1 (ages 6 months to 5.9 years), Group 2 (ages 6.0-12.9 years) and Group 3 (ages 13.0-17.0 years). Serum anti-hepatitis A virus IgG and anti-hepatitis E virus IgG were determined using commercial enzyme-linked immunosorbent assay kits. The data were tested for statistical significance with the chi(2)-test. **RESULTS:** The sero-prevalence rates of hepatitis A and E were 63.8% and 0.3%, respectively. The sero-prevalence rates of both hepatitis A and E increased with age, and there was no significant difference between the genders. Hepatitis A infection was associated with socio-economic condition, crowded living environment, and education level of the family ($P < 0.01$). **CONCLUSIONS:** Hepatitis A infection is still common, whereas hepatitis E infection appears to be relatively rare in paediatric age groups in Duzce, Turkey.

Kiyici M, Yilmaz M, Akyildiz M, Arikan C, Aydin U, Sigirli D, Nart D, Yilmaz F, Ozacar T, Karasu Z, and Kilic M.

Association between hepatitis B and hepatocellular carcinoma recurrence in patients undergoing liver transplantation.

Transplant Proc 40: 1511-1517, 2008.

BACKGROUND/AIMS: Hepatitis B virus (HBV) and hepatocellular carcinoma (HCC) recurrences affect both patient and graft survivals post-orthotopic liver transplantation (OLT) in HBV patients with HCC. We analyzed the relationship between HBV and HCC recurrence in a large cohort of HBV-OLT patients with versus without HCC. **METHODS:** Two hundred eighty-seven HBV patients with OLT (72 also with HCC) were included in the study. Mean follow-up in the post-OLT period was 31.7 +/- 24.7 (range, 3-119) months. **RESULTS:** Post-OLT HBV recurrence observed in 10.1% of patients was more prevalent among the HCC group; 23.6% versus 5.5% in patients with and without HCC, respectively. The mean interval for the development of HBV recurrence was 39.5 +/- 28.5 (range, 2-99) months. Among 72 HCC patients, 8 patients (11.1%) had recurrent HCC, and 7 of them also had HBV recurrence. The mean interval for the development of HCC recurrence was 11.2 +/- 7.85 (range, 2-23) months after OLT. OLT patients with HCC with tumors exceeding the Milan criteria had worse 1-, 3-, and 5-year survival rates than patients with HCC meeting the Milan criteria. HBV and HCC recurrence-free survivals were significantly lower in patients with HCC and HBV recurrence, respectively. In the 7 patients with both HCC and HBV recurrence, mean HBV recurrence time was 9.42 +/- 6.75 months and mean HCC recurrence time was 9.57 +/- 6.75 months. There was a strong correlation between HBV and HCC recurrence times. Cox proportional hazards regression analysis showed that only HCC recurrence was a significant independent predictor of HBV recurrence ($P < .001$; hazard ratio [HR] = 26.94; 95% confidence interval [CI] = 10.81-67.11). On the other hand, HBV recurrence ($P = .013$; HR = 5.80; 95% CI = 1.45-23.17) and nodule count ($P = .014$; HR = 13.08; 95% CI = 1.70-100.83) were significant predictors of HCC recurrence. **CONCLUSIONS:** HBV and HCC recurrences demonstrate a close relationship in patients with OLT.

Kuruuzum Z, Yapar N, Avkan-Oguz V, Aslan H, Ozbek OA, Cakir N, and Yuce A.

Risk of infection in health care workers following occupational exposure to a noninfectious or unknown source.

Am J Infect Control 36: e27-31, 2008.

BACKGROUND: The major concern after occupational exposures is the possible transmission of blood-borne pathogens, especially hepatitis B virus (HBV), hepatitis C virus (HCV), and human immunodeficiency virus (HIV). This study was undertaken to evaluate the risk of infection after exposure to blood or body fluids of an unknown or an HBV-, HCV-, and HIV-negative source and to determine the epidemiologic characteristics of these incidents in health care workers. **METHODS:** The survey was conducted over a 6-year period at a university hospital in Turkey, using a questionnaire to elicit demographic and epidemiologic information. Serologic tests for HBV, HCV, and HIV were performed and repeated after 3 months. **RESULTS:** Of the 449 incidents, complete follow-up was achieved in 320 (71.3%), and no seroconversion was observed for HBV, HCV and HIV. Most of the incidents occurred in medical (34.7%) and surgical (25.4%) work areas. The most frequent type of exposure was percutaneous injury (94%), most commonly caused by handling of garbage bags (58.4%), needle recapping (16.5%), and invasive interventions (13.4%). **CONCLUSION:** Infection risk seems to be extremely low for HCV and HIV,

because of low endemicity, and for HBV in groups immunized against HBV.

Normann A, Badur S, Onel D, Kilic A, Sidal M, Larouze B, Massari V, Muller J, and Flehmig B.

Acute hepatitis A virus infection in Turkey.

J Med Virol 80: 785-790, 2008.

Anti-HAV IgM positive serum samples from acute phase hepatitis A patients from various areas in Turkey were tested for viral RNA by RT-PCR (reverse transcriptase polymerase chain reaction), using primer pairs from two different regions of the HAV genome. The PCR products amplified from both genomic regions underwent phylogenetic analyses. A comparison of the regions showed the same genotyping results, and the RT-PCR-2 in the 5'NCR demonstrated greater sensitivity compared to RT-PCR-1 in the VP1-P2A region. The majority of the isolates belonged to genotype IB and are related closely to each other; however, two isolates related even more strongly to the HAV HM175 strain. Two (n = 37) RT-PCR positive sera were classified under genotype IA. A surprising finding emerged for the mean levels of serum transaminases AST and ALT: higher levels were found in patients under 10 years of age compared to older patients. Anti-HAV IgM levels were determined quantitatively and, in addition, the HAV-RNA genome equivalents were ascertained by real time RT-PCR. No evidence was found for an association between viral load and the higher transaminase levels in the younger group.

Ocak S, and Eskiocak AF.

The evaluation of immune responses to hepatitis B vaccination in diabetic and non-diabetic haemodialysis patients and the use of tetanus toxoid.

Nephrology (Carlton) 13: 487-491, 2008.

AIM: The aim of this study was to investigate whether haemodialysis (HD) patients suffering from diabetes mellitus could be considered at risk for the development of the protective antibodies to hepatitis B (HB) vaccination and, to evaluate the effectiveness of tetanus toxoid (TT) administered 2 days before HB vaccination. METHODS: Forty-nine HD patients were divided into two groups: group A (19 diabetic patients) and group B (30 non-diabetic patients). A dose of 40 microg recombinant HB vaccine was injected intramuscularly to the patients at 0, 1, 2 and 6 months. RESULTS: After the completion of the course, the patients in group A were found to have a lower protective antibody rates than the patients in group B (57.8% vs 70%) ($P > 0.05$). After the administration of additional booster doses during 12 months, the protective antibody to hepatitis B surface antigen (HBsAb) levels were detected in 78.9% and 96.6% of the patients in group A and group B, respectively ($P > 0.05$). The patients not having protective HBsAb levels were administered TT and HB vaccines, and after course, all of them have produced protective HBsAb levels. CONCLUSION: The present study showed that diabetic patients on HD may carry a greater risk of not seroconverting than non-diabetic ones for antibody response to HB vaccination. The use of TT 2 days before HB vaccination may be a useful and effective method of enhancing the immune response to HB vaccination, especially in the patients with diabetes mellitus on HD.

Okan V, Yilmaz M, Bayram A, Kis C, Cifci S, Buyukhatipoglu H, and Pehlivan M.

Prevalence of hepatitis B and C viruses in patients with lymphoproliferative disorders.

Int J Hematol 88: 403-408, 2008.

The etiology of most lymphoproliferative disorders remains unclear, though several hypotheses have been proposed. One of the conjectured mechanisms is infection of a tumor clone by an oncologic virus. Recently, evidence has arisen implicating both hepatitis B and, even more so, hepatitis C viruses in the pathogenesis of lymphoproliferative disease. Based on this information, we surveyed the prevalence of hepatitis B and C virus in patients with lymphoproliferative disease. A total of 334 newly-diagnosed lymphoproliferative disease patients (200 males, 134 females) and 1,014 (133 females, 881 males) healthy controls were randomly recruited from the university blood bank. Serologic evaluation for hepatitis B and C viruses was conducted and confirmed using PCR analyses. Those with hepatitis B and/or C, controls, and subgroups of patients with lymphoproliferative disease were compared using Pearson Chi-square analysis. Among patients with lymphoid tumors, the seropositivity of HbsAg and/or anti-HCV was 8.7% (29/334), and among the controls 6.1% (49/802), however this difference did not achieve statistical significance ($P = 0.23$, OR: 1.36, 95% CI: 0.82-2.26). We found no significant gender- or age-related differences for either hepatitis B or C seropositivity. There were no significant differences between the seropositivity rates of hepatitis B, C, or both in either NHL or Hodgkin's lymphoma. However, in the diffuse large cell lymphoma and follicular lymphoma subgroups, the HbsAg seropositivity rate was significantly higher than that in the controls ($P = 0.017$, $P = 0.048$, respectively), as was the seropositivity rate for hepatitis C in those with diffuse B cell lymphoma versus controls ($P = 0.008$). We did not identify any significant difference in the combined prevalence of hepatitis B or C seropositivity between patients with lymphoproliferative disorders and controls. However, significant differences were revealed among certain patient subgroups versus the controls. These two viruses could play a role in the development of certain specific lymphoproliferative disorders. Nevertheless, larger epidemiological studies are necessary and should focus, particularly on specific patient subgroups.

Onal IK, Ersoy O, Aydinli M, Yonem O, Harmanci O, Sokmensuer C, and Bayraktar Y.

Hepatic granuloma in Turkish adults: a report of 13 cases.
Eur J Intern Med 19: 527-530, 2008.

BACKGROUND: Hepatic granuloma (HG) is a well defined histopathological finding with a heterogeneous clinical presentation. Diagnosis of a specific clinical entity is not possible every time. Descriptive studies may shed light on the various etiologies also common and distinctive findings among these patients. **METHODS:** We reviewed the results of the liver biopsies of 592 patients. Characteristics of the patients with HG were extracted from the hospital charts. Laboratory studies included biochemical tests, hepatitis C virus (HCV) antibody, Brucella agglutination tests, tuberculin skin test. According to the diagnostic clues further tests (thoracic computed tomography (CT), ultrasonography, organ biopsy in addition to liver, antimitochondrial antibody, hepatitis B surface (HBs) antigen, venereal disease research laboratory (VDRL)) were performed. **RESULTS:** HG was found in 13 of the 592 patients (2.2%). Primary biliary cirrhosis (three cases) was the most frequent cause followed by sarcoidosis, miliary tuberculosis and BCGitis (Bacillus Calmette Guerin) (two cases each). Two patients with HG could not be diagnosed. Only three patients had remarkable physical examination findings. Alkaline phosphatase and gamma-glutamyl transpeptidase were the most frequently elevated enzymes. Abdominal ultrasonography provided no specific diagnostic clue in any patient. Localization of the HGs was portal in 6 patients, parenchymal in 5 patients and both portal and parenchymal in 2 patients. Three exits were due to BCGitis, miliary tuberculosis and fungal infection. **CONCLUSIONS:** Tuberculosis is still among the most common etiologic factors. BCGitis has a fulminant rather than an indolent course. Abdominal

ultrasonography could be used to rule out obstructive jaundice rather than to reach a specific diagnosis. Involvement of portal area by HG in most of the cases might cause obstruction of the biliary canaliculi and elevation of the cholestatic enzymes. Follow up of the difficult cases may be the best approach since the presence of HG was not proved as a bad prognostic factor for any disease.

Polat A, Akca H, and Dagdeviren E.

Severe thrombocytopenia after hepatitis B vaccine in an infant from Turkey.
Vaccine 26: 6495-6496, 2008.

Recombinant hepatitis B vaccine has been used widely in the world since 1991. The side effects of hepatitis B vaccine are seen rarely. In this paper, we present clinical and laboratory progress of an infant who gets severe thrombocytopenia after the second dosage hepatitis B vaccine. Our case is different from other cases because our patient is very young, the number of platelet is the lowest in the literature, and intravenous immunoglobulin (IVIG) are used in the treatment. Although it is a severe thrombocytopenia, the patient has recovered without any bleeding.

Pullukcu H, Ertem E, Karaca Y, Yamazhan T, Sertoz RY, and Altuglu I.

Efficacy of accelerated hepatitis B vaccination program in patients being actively treated for hematologic malignancies.
Int J Infect Dis 12: 166-170, 2008.

BACKGROUND: The goal of this study was to conduct an accelerated vaccination program and to determine its efficacy in patients susceptible to hepatitis B virus (HBV) receiving chemotherapy because of their hematologic malignancies. **METHODS:** Over a one-year period, a total of 327 patients who were diagnosed as having a hematologic malignancy were serologically analyzed in terms of HBV infection. Of those found to be susceptible to HBV infection, a total of 42 patients consisting of 16 females and 26 males were enrolled in the accelerated vaccination program. All the patients were administered a 20-microg yeast-derived recombinant hepatitis B vaccine on days 0, 14, and 28. Anti-HBs titers above 10IU/l at 1 and 3 months after the final dose were accepted as protective. **RESULTS:** A total of 146 (44.6%) patients were susceptible to HBV, while 13 (4.0%) were carriers, 28 (8.6%) were vaccinated, and 113 (34.5%) had had a previous HBV infection. A total of 42 patients (16 females and 26 males, mean age 34.5+/-10.9 years) were enrolled in the vaccination program. Overall, 23.8% (10/42) of the patients in the program had developed anti-HBs at one month after the last vaccination. **CONCLUSIONS:** Poor results obtained by different vaccination programs suggest the need for alternative strategies to prevent the disease.

Sayiner AA, Ozcan A, and Sengonul A.

Naturally occurring MHR variants in Turkish patients infected with hepatitis B virus.
J Med Virol 80: 405-410, 2008.

Major B-cell epitopes are located at the major hydrophilic region (MHR) of hepatitis B virus (HBV) surface antigen (HBsAg). The genotypes, subtypes, and naturally occurring amino acid (aa) substitutions of MHR were analyzed in 81 Turkish adult patients (41 inactive HBsAg carriers and 40 patients with chronic hepatitis B) by direct sequencing of the S gene fragment. All the isolates were genotype D according to the phylogenetic analysis. The most common HBsAg subtype was ayw2, followed

by ayw3 while one isolate specified ayw4 by encoding Leu127. MHR variants were detected in 22 of the 81 (27.2%) isolates. The prevalence was significantly higher in the chronic hepatitis B group (42.5%) compared to inactive HBsAg carriers (12.2%). Twenty-two samples had a total of 26 amino acid substitutions involving 14 positions. The majority of the patients had a single variation. Most of the amino acid substitutions were located at the HBs1 region of the MHR, while 9 of the 26 were in the classic "a" determinant (aa 124-147). When samples with "a" variants were evaluated by two different commercial HBsAg tests, only the isolate with Ser143Leu variation had a decreased reactivity in the assay using monoclonal antibodies for capture and detection. In conclusion, the findings of the study was in accordance with previous studies showing HBV genotype and subtype homogeneity (genotype D/ayw) in Turkey. Naturally occurring MHR and "a" determinant variants were common, especially among chronic hepatitis B patients. The influence of detected "a" variants on diagnostic assays was limited.

Yenicesu I, Dilsiz G, and Ozturk G.

Reduction of hepatitis B seroprevalence in blood banking units by combined utilization of self-exclusion forms and clinical evaluation of blood donation candidates in Turkey.

Trop Doct 38: 112-113, 2008.

In this retrospectively designed study, we evaluate the influence of the permanence and qualifications of health-care professionals on blood disposal rates due to hepatitis seropositivity. We observed a decrease of 44.2% in the number of blood units being rejected due to the donor's hepatitis B seropositivity in the second study period in which self-exclusion forms and where blood donation candidates were evaluated by a family physician. However, a similar decrease of the disposal rate due to hepatitis C seropositivity was not observed. This is especially important in countries which cannot afford many of the expensive modern laboratory tests. A comprehensive evaluation of self-exclusion forms and a brief examination prior to donation will greatly increase transfusion safety. Unfortunately, there are blood banks in Turkey which employ no physicians at all.

Yildiz L, Baris S, Aydin O, Kefeli M, and Kandemir B.

Bcl-2 positivity in B and C hepatitis and hepatocellular carcinomas.

Hepatogastroenterology 55: 2207-2210, 2008.

BACKGROUND/AIMS: This study aims to investigate the expression of bcl-2 in the chronic hepatitis B, C and hepatocellular carcinoma. **METHODOLOGY:** In this study, 23 chronic hepatitis C, 17 chronic hepatitis B and 29 hepatocellular carcinoma cases were examined. Liver biopsies have been immunohistochemically stained for the expression of bcl-2. Positive staining was semi-quantitatively graded from + to +++. **RESULTS:** Two out of 23 hepatitis C cases and 3 out of 17 hepatitis B cases were found to express bcl-2, staining was more intense in areas adjacent to active inflammatory process. Of the 29 hepatocellular carcinoma cases 6 stained positively for bcl-2; 9 biopsies in this group had also non-neoplastic liver tissue, and, of these 6 stained positively for bcl-2. Of the latter 6 bcl-2 positive biopsies 3 also showed tumoral staining while in the remaining 3, neoplastic elements were bcl-2 negative. **CONCLUSIONS:** As the present study is a cross-sectional study, no causative relation between bcl-2 positivity and hepatocellular carcinoma can be implied, however high incidence of bcl-2 activity in the non-neoplastic liver parenchyma of the HCC cases suggest that bcl-2 activation may be involved in the development of at least some cases of hepatocellular carcinoma. Case control and/or prospective

studies are needed to show whether bcl-2 positivity in a chronic hepatitis case has a predictive value for the development of hepatocellular carcinoma.

Akkaya O, Kiyici M, Yilmaz Y, Ulukaya E, and Yerci O.

Clinical significance of activity of ALT enzyme in patients with hepatitis C virus.
World J Gastroenterol 13: 5481-5485, 2007.

AIM: To investigate serum alanine aminotransferase (ALT) levels in relation to the clinical, biochemical, ultrasonographic and histological characteristics of patients with hepatitis C virus. METHODS: Duration of disease, HCV-RNA, liver steatosis, and the hepatitis activity index (HAI) were correlated with serum ALT in 36 patients with HCV. ALT values were also investigated in 16 control subjects without any liver diseases. RESULTS: In bivariate analyses, ALT levels correlated with duration of HCV infection ($P < 0.01$), HCV-RNA ($P < 0.05$), and the HAI ($P < 0.01$). Among the components of the HAI, ALT concentrations were significantly associated with periportal bridging/necrosis ($P < 0.01$) and fibrosis ($P < 0.05$). In multivariate analysis, periportal bridging/necrosis ($\beta = 0.508$; $P < 0.01$), duration of HCV infection ($\beta = 0.413$; $P < 0.01$), and HCV-RNA ($\beta = 0.253$; $P < 0.05$) were independently associated with ALT activity. The normal ALT activity for men and women was < 23 IU/L and < 22 IU/L, respectively. CONCLUSION: In patients with HCV, alterations in the liver tissue as reflected by ALT elevation are mainly associated with periportal bridging/necrosis, viral load and duration of disease. A cut-off value < 23 IU/L distinguished with high diagnostic accuracy healthy controls from patients with HCV.

Altuglu I, Ozacar T, Sertoz RY, and Erensoy S.

Hepatitis delta virus (HDV) genotypes in patients with chronic hepatitis: molecular epidemiology of HDV in Turkey.
Int J Infect Dis 11: 58-62, 2007.

OBJECTIVE: Analysis of hepatitis delta virus (HDV) isolates from around the world has indicated that there are at least three phylogenetically distinct genotypes with different geographic distributions. The aim of this study was to determine the distribution of HDV genotypes by direct sequencing in patients with chronic delta hepatitis in Izmir, Turkey. DESIGN AND METHODS: Serum samples from 32 chronic hepatitis patients (21 males, 11 females; mean age 44.2 years, range 23-70 years) with anti-delta positivity were analyzed for hepatitis B and C serologies. After reverse transcription, cDNA of partial delta antigen was amplified by in-house nested PCR. The products of the HDV PCR were bidirectionally sequenced with internal primers using Big Dye Terminator DNA Sequencing Kit (Applied Biosystems, CA, USA) and ABI Prism 310 Genetic Analyzer (Perkin Elmer, USA). Nucleotide sequences of HDV were compared with previously reported sequences and aligned by using ClustalW (1.82). RESULTS: HDV-RNA was positive in 26 (81.3%) of 32 anti-delta positive samples. Comparison of the HDV sequences with published sequences of HDV genotypes I, II, and III indicated that all were closely related to HDV genotype I isolates. Similarity among isolated sequences ranged from 84% to 96%. CONCLUSION: HDV genotyping was successfully performed by direct sequencing of the amplicons obtained from routine HDV-RNA screening PCR tests. All of the HDV isolates from the chronic delta hepatitis patients included in this study were found to be genotype I.

Arslan O.

Whole blood donor deferral rate and characteristics of the Turkish population.

Transfus Med 17: 379-383, 2007.

Whole blood (WB) donors are deferred for several reasons, either permanently or temporarily. In this retrospective study, we quantified the rate of and reasons for donor deferral among Turkish donors. Computer records of the last 5 years were analysed to quantify the deferral rate and reasons. Deferrals were categorized as temporary short-term (1-56 days), long-term (57-365 days) and multiple years or permanent (more than 365 days). Deferred donors were also analysed according to gender, age and education level. A total of 95 317 persons were admitted for WB donation: 89.1% of them were male donors and 59.9% were in the 30 to 49-year old age category. Rates of deferral for temporary short-term, long-term, permanent or for unknown reasons were 66, 22.5, 10 and 1.5% respectively. Female donors were deferred more frequently than male donors (25.8 vs. 13.3%, $P < 0.0001$). The deferral rates were significantly different among the different age groups ($P < 0.0001$). Donor education level had no effect on the deferral rates ($P > 0.05$). The main reason for deferral was common cold and/or sore throat or elevated temperature (20.4%) in male donors and low haemoglobin (51.6%) in female donors. Although the three uppermost reasons for deferral in women were identical for all age categories, these varied in the male group (high-risk sex partner for the younger group vs. hypertension and low haemoglobin for the older group). Although permanent and temporary deferral rates are similar between the Turkish population and western countries, leading causes vary widely.

Aydin U, Yazici P, Sozbilen M, Kece C, Tamsel S, and Kilic M.

Patient with hepatocellular carcinoma on the waiting list for liver transplantation: abdominal seeding due to prior surgery: a case report.

Transplant Proc 39: 1688-1690, 2007.

Hepatocellular cancer (HCC) is the most common primary malignant hepatic tumor that accounts for over 80% of primary liver tumors. Hepatic resection is a well-accepted therapy for HCC, but 70% to 100% of patients, depending on patient selection, baseline tumor characteristics, and follow-up duration, develop cancer recurrence after resective surgery. Orthotopic liver transplantation is considered more appropriate in cases with HCC related to cirrhosis. Both procedures may result in recurrence. In some cases, diagnosis of recurrent HCC is difficult because of unexpected localization of the tumor. For these patients, aggressive diagnostic tests might be useful for appropriate therapy. We report a case of a 48-year-old man undergoing resection for HCC, who experienced early recurrence of HCC in the pelvic region.

Bayan K, Yilmaz S, Tuzun Y, and Yildirim Y.

Epidemiological and clinical aspects of liver cirrhosis in adult patients living in Southeastern Anatolia: leading role of HBV in 505 cases.

Hepatogastroenterology 54: 2198-2202, 2007.

BACKGROUND/AIMS: Liver cirrhosis is the terminal condition of liver disorders resulting from various causes. Literature lacks data on epidemiological and clinical aspects of liver cirrhosis in Turkey. We aimed to evaluate the main features of liver cirrhosis in this study. **METHODOLOGY:** We included in the study a total of 505 patients referred to Dicle University Hospital in the last five years and evaluated retrospectively. Demographic features, etiology, clinical findings, disease severity, complications and mortality rates were all recorded. **RESULTS:** Of the patients, 136 (27%) were female and 369 were (73%) male. Mean age was 50.4. The etiologic

spectrum consisted of 368 HBV (72.9%), 41 HCV (8.1%), 12 alcohol (2.4%). Rate for cryptogenic cirrhosis (CC) was 11.1% with mean age of 45.4. HDV superinfection was present in 17.8%. Most of the patients were in Child-Pugh class B. Number of decompensated cirrhosis cases was 278 (55%). Hepatocellular cancer (HCC) was seen in 8.9% of patients and 88% had HBV with a mean age of 60. HCC was seen more commonly in HDV superinfected patients ($p = 0.035$). In-patient mortality was observed in 13.2%. **CONCLUSIONS:** HBV is the leading etiological factor of liver cirrhosis in Southeastern Anatolia and strict measures must be taken against perinatal or horizontal transmission of contagious pathogens. Alcohol had a marginal role in cirrhosis in our region. Although HDV superinfection is decreasing with time, it may increase HCC risk. Patients with cryptogenic cirrhosis were younger and had lower Child-Pugh scores.

Bayram A, Eksi F, Mehli M, and Sozen E.

Prevalence of hepatitis E virus antibodies in patients with chronic hepatitis B and chronic hepatitis C.

Intervirology 50: 281-286, 2007.

OBJECTIVES: To investigate the prevalence of hepatitis E virus (HEV) among patients with chronic hepatitis B and chronic hepatitis C, serum samples were collected between January and December 2004 from patients with chronic hepatitis B and chronic hepatitis C. **METHODS:** There were 190 adult patients with chronic hepatitis B virus (HBV) and 174 with chronic hepatitis C virus (HCV) infection in the study group. As the control group, a cohort of 178 age- and sex-matched individuals without known liver disease was selected. **RESULTS:** Anti-HEV IgG antibodies were positive in 26/190 (13.7%) of chronic HBV and 94/174 (54%) of chronic HCV patients. In the control group anti-HEV positivity was 15.7% (28/178). There was no difference in the percentage of chronic HBV patients and control group who were positive for anti-HEV antibody, but the presence of HEV infection was significantly higher in chronic HCV patients. **CONCLUSIONS:** Our findings suggest that HEV and HCV might share a common route of transmission in our region. We recommend that preventive measures against HEV should be undertaken in chronic HCV patients as superinfection with HEV can cause a more severe pattern of disease in chronic hepatitis patients.

Bereket-Yucel S.

Risk of hepatitis B infections in Olympic wrestling.

Br J Sports Med 41: 306-310; discussion 310, 2007.

OBJECTIVE: First, to investigate the prevalence of the hepatitis B virus (HBV) and occult HBV infection (OC-HBV) in Turkish Olympic wrestlers. Second, to examine the relationship between HBV DNA values in sweat and blood. **METHODS:** A total of 70 male Olympic wrestlers were recruited as the study sample. **RESULTS:** As a result of the standard monoclonal antibody based hepatitis B surface antigen (HBsAg) detection, none of the Olympic wrestlers carried HBsAg in this study. On the other hand, according to real time PCR for serum HBV DNA detection in this study, 9 (13%) of the wrestlers had OC-HBV infection. Eight (11%) of the participants had HBV DNA in their sweat. In addition, there was a significant relationship between HBV DNA values in the blood and sweat of the wrestlers ($r = 0.52$, $p < 0.01$). **CONCLUSIONS:** In addition to bleeding wounds and mucous membranes, sweating may be another way of transmitting HBV infections in contact sports. An HBV test should be done and each wrestler should be vaccinated at the start of his career.

Cakir M, Karakas T, Orhan F, Okten A, and Gedik Y.

Atopy in children with chronic hepatitis B virus infection.
Acta Paediatr 96: 1343-1346, 2007.

AIM: To investigate whether immune responses against chronic HBV infection in children have an effect on prevalence of allergic diseases and atopy. METHODS: Children with chronic HBV infection [HBV carriage (group 1) and chronic hepatitis (group 2)] were screened for allergic diseases. The results were compared with age-matched controls (group 3). RESULTS: The frequencies of doctor-diagnosed 'asthma', 'allergic rhinitis' and 'eczema' were 29.4%, 7.8% and 7.8% in group 1; 7.8%, 5.2% and 5.2% in group 2 and 12.4%, 9% and 2.8% in group 3, respectively. 'History of ever wheezing', doctor-diagnosed 'asthma' and 'eczema' were more common in group 1 than group 3 ($p < 0.05$ for all parameters), and 'history of ever wheezing' and 'doctor-diagnosed asthma' were more common in group 1 than group 2 ($p < 0.05$ for all parameters). Atopy was more common in group 1 (35.2%) than both groups 2 (15.7%) and 3 (18%) ($p < 0.05$ for all parameters). Vertical transmission was more common in patients with versus without atopy in HBV carrier group (33.3% vs. 9%, $p < 0.05$). CONCLUSION: Immune responses in chronic HBV infection associated with carrier state may also lead to allergic diseases, which suggests the necessity of following these patients for the allergic diseases along with their viral reactivation.

Celebi Kobak A, Karasu Z, Kilic M, Ozacar T, Tekin F, Gunsar F, Ersoz G, Yuzer Y, and Tokat Y.

Living donor liver transplantation from hepatitis B core antibody positive donors.
Transplant Proc 39: 1488-1490, 2007.

Liver allografts from donors previously exposed to hepatitis B virus (HBV) carry the risk of transmission of HBV infection to immunosuppressed recipients. However, exclusion of donor candidates with the serologic evidence of resolved hepatitis B-HBV surface antigen (HbsAg) negative and HBV core antibody (anti-HBc) positive is not feasible in countries endemic for HBV. AIM: Our aim was to assess the safety of living donor liver transplantation from anti-HBc positive donors. MATERIALS AND METHODS: In our institution, 152 transplants were performed between June 1999 and April 2004. Fifty-six (37%) of the living donors were anti-HBc positive. Twenty of these liver grafts were transplanted to HbsAg-negative recipients. We excluded four HBsAg negative recipients who died because of early complications after transplantation. Lamivudine (100 mg/day) was given for prophylaxis of de novo HBV infection. RESULTS: The mean follow-up time for 16 HBsAg-negative recipients was 21.7 (7-48) months. None of them experienced de novo HBV infection. CONCLUSION: The use of liver allografts from anti-HBc-positive living donors is reasonably safe in HBsAg-negative recipients under lamivudine prophylaxis.

Demirturk N, Demirdal T, Aktepe OC, Aykin N, Orhan S, and Cevik F.

Serum neopterin levels in patients with HBV infection at various stages.
Hepatogastroenterology 54: 903-905, 2007.

BACKGROUND/AIMS: Neopterin (NPT) level is elevated in a number of situations in which cellular immunity is active. In the present study, levels of serum NPT were measured in patients who were in different phases of hepatitis B virus (HBV) infection in order to determine if the NPT level can be considered a predictor for the stage of this infection. METHODOLOGY: A total of 120 patients were included in the study, patients were divided equally in four groups; each group consisted of 30 patients.

Group I were non-replicative HBV carriers, Group II were immune to HBV, Group III were chronically infected with HBV, and the Group IV were healthy controls. Five ml of blood was drawn from each patient and serum NPT levels were measured by the ELISA technique. RESULTS: Mean NPT levels were found to be 14.80 +/-11.20 nmol/L, 19.73 +/- 18.40 nmol/L, 24.73+/-20.77 nmol/L, and 8.66 +/- 10.03 nmol/L in Group I, II, III and Group IV (the control group) respectively. The mean NPT levels were significantly higher in Group I, II and III than in the control group (Group IV) ($p = 0.036$, $p = 0.010$ and $p = 0.001$ respectively). CONCLUSIONS: Serum levels of NPT are elevated in all the patients in Group I, II and Group III as an indicator of cellular immunity which is activated in different levels. However, an increased level of NPT does not seem to be a sufficient indicator in determining the immunopathogenetic stages of this infection.

Horoz M, Aslan M, Selek S, Koylu AO, Bolukbas C, Bolukbas FF, Celik H, and Erel O.

PON1 status in haemodialysis patients and the impact of hepatitis C infection.
Clin Biochem 40: 609-614, 2007.

OBJECTIVES: Paraoxonase-1 (PON1) activity has been reported to decrease in both haemodialysis patients and patients with HCV infection. We aimed to investigate paraoxonase and arylesterase activities, and lipid hydroperoxide levels (LOOH) in haemodialysis patients with or without hepatitis C infection, and to find out whether PON1 activity is affected further by the presence of HCV infection in HD patients. DESIGN AND METHODS: Twenty HCV (+) haemodialysis patients, 26 HCV (-) haemodialysis patients, and 26 controls were enrolled. Paraoxonase and arylesterase activities were measured spectrophotometrically. LOOH levels were measured by ferrous oxidation with xylenol orange assay. RESULTS: Haemodialysis patients with or without HCV infection had lower paraoxonase and arylesterase activities than controls (all $p < 0.001$), while higher LOOH levels (both $p < 0.001$). Paraoxonase and arylesterase activities, and LOOH levels were comparable between haemodialysis patients with or without HCV infection ($p > 0.05$). Significant inverse correlation was observed between paraoxonase or arylesterase activities, and LOOH levels ($p < 0.05$, $\beta = -0.319$ and $p < 0.05$, $\beta = -0.348$, respectively). CONCLUSION: We concluded that PON1 activity significantly decreases in both haemodialysis patients with or without HCV infection. Nevertheless, PON1 activity is not affected further by the presence of HCV infection in haemodialysis patients.

Isman FK, Kucur M, Baysal B, and Ozkan F.

Evaluation of serum hyaluronic acid level and hyaluronidase activity in acute and chronic hepatitis C.
J Int Med Res 35: 346-352, 2007.

Following major tissue injury, hyaluronic acid production increases as a rapid response survival mechanism. Increased hyaluronic acid production and turnover are often associated with increased hyaluronidase activity, the enzyme that degrades hyaluronic acid. We investigated whether hyaluronic acid and hyaluronidase can be used as non-invasive markers of acute disease activity in hepatitis C by studying 26 patients with acute hepatitis C, 89 with chronic hepatitis C and 32 healthy controls. Chronic hepatitis C subjects were classified into five subgroups according to the stage of liver fibrosis. Serum aspartate aminotransferase and alanine aminotransferase activities and hyaluronic acid levels were increased in hepatitis C patients compared with the controls. Serum hyaluronic acid elevation correlated with disease progression. Serum hyaluronidase activities were also increased in patients

compared with the controls, but decreased with disease progression. We conclude that both hyaluronidase and hyaluronic acid may be useful as early non-invasive serum indicators of disease activity in acute hepatitis C.

Kara B, Gunesacar R, Doran F, Kara IO, and Akkiz H.

Correlation of serum adiponectin levels and hepatic steatosis in hepatitis C virus genotype 1 infection.

Adv Ther 24: 972-982, 2007.

Steatosis is an important cofactor in hepatitis C virus (HCV) because it is associated with fibrosis and reduces early and sustained virologic response. Recent studies suggest that HCV genotype 1 is not steatogenic if additional risk factors are not present. Because hypo adiponectinemia was found to be a feature of nonalcoholic steatohepatitis (NASH) independent of insulin resistance, its level in patients with hepatitis C genotype can reveal the optimal therapeutic strategy. This study was conducted to determine the role of the relationship between steatosis and serum adiponectin levels in the progression of liver damage in HCV genotype 1 without known risk factors for NASH. Patients (n=50) with biopsy-proven chronic hepatitis C (CHC), positive HCV RNA, and raised alanine aminotransferase were enrolled. They were carefully selected to rule out possible confounding factors for the presence of steatosis and additional systemic or liver disease. Associations between serum adiponectin levels and grade of steatosis, histologic activity index (HAI), fibrosis grade of liver biopsies, patient age, HCV viral load, and serum transaminase activities were studied. Also, adiponectin levels were compared with those of a control group of 30 healthy volunteers with normal ultrasound findings of the upper abdomen who had no known NASH risk factors. The investigators found that adiponectin levels in patients with CHC genotype 1 were similar to those in healthy subjects. No significant association was found between adiponectin levels and severity of steatosis, HCV RNA levels, HAI, transaminases, and fibrosis. Steatosis was present in 41 patients (82%) with CHC. Multivariate analysis of data on 50 patients revealed that severity of steatosis was independently related to age alone (P=.03). A correlation between HCV RNA load and HAI was observed (P=.02; r=0.712). HAI also was associated with stage of fibrosis (P=.00; r= 0.612). In cases of chronic HCV genotype 1 hepatitis, steatosis is a common histologic feature, although no risk factors are known. Results presented here cannot establish an association between adiponectin and severity of steatosis when risk factors for steatosis are unknown. Additional studies are needed to discover a metabolic treatment that would seek to improve the progression of hepatic steatosis in CHC infection.

Karakas M, Durdu M, Tuncer I, and Cevlik F.

Gianotti-Crosti syndrome in a child following hepatitis B virus vaccination.

J Dermatol 34: 117-120, 2007.

Gianotti-Crosti syndrome is self-limited, characterized by papular eruption with a symmetrical distribution on the limbs and face of children, and a dermatosis of unknown etiology. However, there are many suggested factors such as a number of diseases (viral or bacterial) and vaccination. We report a case of Gianotti-Crosti syndrome that had developed 3 weeks after the hepatitis B virus vaccination.

Kaya D, Guler E, Ekerbicer HC, Dilber C, Karabiber H, Guler S, Davutoglu M, and Ciragil P.

Hepatitis A seroprevalence and its relationship with environmental factors in children

of different age groups in Kahramanmaraş, Eastern Mediterranean region of Turkey. *J Viral Hepat* 14: 830-834, 2007.

Hepatitis A infections are influenced by environmental and socioeconomic factors. Epidemiologic studies regarding hepatitis A virus (HAV) infection in Turkey have not previously examined these factors. We investigated HAV seroprevalence and its association with sociodemographic factors among children of various ages in the Eastern Mediterranean region of Turkey. The study included 1142 children (603 male and 539 female) between ages of 6 months and 18 years. Seropositivity in the whole group was 57.2%. HAV prevalence rates according to age groups were as follows: 35.5% in 6-23 months group, 19.2% in 2-5 years group, 74.3% in 6-10 years group, 83.0% in 11-14 years group, 92.8% in 15-18 years group. Risk factors that influenced seropositivity were; dense population, over-crowded families, excessive number of siblings, low socioeconomic status and low education of the mother. As HAV seroprevalence in children older than 6 years of age is high, we recommend hepatitis A vaccination in this region after the first year of life.

Kaya S, Cetin ES, Aridogan BC, Arikan S, and Demirci M.

Adenosine deaminase activity in serum of patients with hepatitis -- a useful tool in monitoring clinical status.

J Microbiol Immunol Infect 40: 288-292, 2007.

BACKGROUND AND PURPOSE: The evaluation of adenosine deaminase (ADA) activity in sera of patients with hepatitis should be considered a useful tool in the monitoring of their clinical status. In this study, we aimed to determine the relationship between viral load, transaminase levels, and serum ADA levels in hepatitis B virus (HBV)- and hepatitis C virus (HCV)-infected patients. **METHODS:** Seventy three patients with hepatitis B, 71 patients with hepatitis C and 40 healthy individuals were included. Patients with HBV and HCV infections were classified into 3 groups according to viral load. Serum ADA levels were investigated by colorimetric assays. **RESULTS:** Serum alanine aminotransferase (ALT), aspartate aminotransferase (AST), and ADA levels of HBV- and HCV-infected patients were higher than those of the control group. These differences were statistically significant for the levels of all enzymes in HCV-infected patients ($p < 0.05$), and all except AST ($p > 0.05$) in HBV-infected patients. ADA levels of HBV-infected patients with high viral loads were higher than those in HBV-infected patients with intermediate and low viral loads, and the difference was detectably significant between patients with high and intermediate viral loads. Evaluation of HCV-infected patients according to viral load showed no statistically significant relationship between viral load and serum ADA, ALT, and AST levels ($p > 0.05$). HBV- and HCV-infected patients with high ALT and AST levels showed statistically significantly higher levels of ADA than patients with normal ALT and AST levels ($p < 0.001$). **CONCLUSIONS:** We suggest that serum ADA levels are associated more with the level of serum transaminases than viral load in HBV- and HCV-infected patients. In the treatment of patients with hepatitis, serum ADA levels should be considered a useful tool for the monitoring of liver condition.

Kaya S, Cetin ES, Aridogan BC, Onal S, and Demirci M.

Distribution of hepatitis B virus (HBV) genotypes among HBV carriers in Isparta.

Iran Biomed J 11: 59-63, 2007.

BACKGROUND: The aim of this study was to investigate the prevalence of hepatitis B virus (HBV) genotypes in Isparta, Southwest of Turkey, as well as the clinical features and transmission route for patients with HBV infections. **METHODS:**

Patients (n = 135) with HBV infection were included in the study. Epidemiological and clinical data were obtained. HBV genotypes were determined with a preS2 epitope ELISA kit. RESULTS: Although the HBV transmission route remained unidentified in 51.1% of the patients, blood contact was determined as the most common probable transmission route (38.5%). One hundred twenty-four (91.8%) of 135 samples, could be genotyped. One hundred fifteen (85.1%) were genotyped as type D/E, six (4.4%) were genotyped as type A, two (1.4%) were genotyped as type C, and one (0.7%) were genotyped as type F. CONCLUSION: Genotype D/E is determined as the predominant HBV genotype circulating in Isparta, Southwest of Turkey. No relationship between genotypes and disease severity and transmission route has been detected.

Koksal Y, Varan A, Aydin GB, Sari N, Yazici N, Yalcin B, Kutluk T, Akyuz C, and Buyukpamukcu M.

Comparison of accelerated and rapid schedules for monovalent hepatitis B and combined hepatitis A/B vaccines in children with cancer.

Pediatr Hematol Oncol 24: 587-594, 2007.

The aim of this study was to determine the efficacy of immunization against hepatitis A and B infections with "rapid" or "accelerated" schedules in children with cancer receiving chemotherapy. Fifty-one children were recruited to receive either vaccination schedule, in the "rapid vaccination schedule"; hepatitis B (group I) or combined hepatitis A/B vaccines (group III) were administered at months 0, 1, 2, and 12; in the "accelerated vaccination schedule," hepatitis B (group II) or combined hepatitis A/B (group IV) vaccines were administered on days 0, 7, 21, and 365 intramuscularly. The seroconversion rates at months 1 and 3 were 35.7 and 57.1% in group I and 25 and 18.8% in group II, respectively. Group I developed higher seroconversion rates at month 3. In group III the seroconversion rates for hepatitis B at months 1 and 3 were 54.5 and 60% and in group IV 50 and 70%, respectively. For hepatitis A, the seroconversion rates at months 1 and 3 were 81.8 and 90% in group III and 80 and 88.9% in group IV, respectively. The accelerated vaccination schedule seems to have no advantage in children receiving cancer chemotherapy except for high antibody levels at month 1. In conclusion, the accelerated vaccination schedules are not good choices for cancer patients. The combined hepatitis A/B vaccine is more effective than monovalent vaccine in cancer patients, which probably can be explained by an adjuvant effect of the antigens. The seroconversion of hepatitis A by the combined hepatitis A/B vaccination is very good in cancer patients.

Micozkadioglu H, Zumrutdal A, Torun D, Sezer S, Ozdemir FN, and Haberal M.

Low dose intradermal vaccination is superior to high dose intramuscular vaccination for hepatitis B in unresponsive hemodialysis patients.

Ren Fail 29: 285-288, 2007.

After two intramuscular (IM) vaccination protocols (40 microg at 0, 1, 2, and 6 months), patients who were unresponsive to hepatitis B vaccination were collected from three HD centers. The aim of this study was to compare the effectiveness of intradermal (ID) and repeated IM vaccination protocols. Thirty-three of 639 HD patients were found to be unresponsive. Patients were randomly assigned into two groups: one to receive 80 microg ID and the other 160 microg IM vaccination protocol. Both ID (p = 0.000) and IM (p = 0.03) groups disclosed statistically significant seroconversion rates six months after the last vaccination dose. The seroconversion rate was 94.1% in the ID and 50% in the IM groups - showing a significant improvement in the ID group (p = 0.011). A low-dose ID is superior to

standard IM vaccination protocol and also more cost-effective in unresponsive HD patients.

Ozcay F, Canan O, Akcan B, and Bilezikci B.

Hepatitis A super infection as a cause of liver failure in a child with Wilson's disease. *Turk J Pediatr* 49: 199-202, 2007.

Infection with hepatitis A virus can cause severe or even fatal illness in patients with chronic liver disease. Here we describe a seven-year-old girl who presented as acute liver failure and was diagnosed with Wilson's disease and later with coexistent hepatitis A infection. Wilson's disease was demonstrated on the basis of low ceruloplasmin, high urinary copper excretion, histological evidence of cirrhosis, and high biochemical estimation of liver copper concentration. Hepatitis A was diagnosed serologically. Our case suggests that acute hepatitis A may play a part in the acute decompensation seen in some cases of unrecognized Wilson's disease. We also emphasize the importance of prevention measures of hepatitis A infection in patients with chronic liver disease.

Ozdemir A, Yalinbas B, Selamet U, Eres M, Turkmen F, Kumbasar F, Murat B, Keskin AT, and Barut Y.

The effect of hepatitis C virus infection on insulin resistance in chronic haemodialysis patients.

Yonsei Med J 48: 274-280, 2007.

PURPOSE: To investigate the contribution of HCV infection to insulin resistance in chronic haemodialysis patients. **MATERIALS AND METHODS:** The study was performed with 55 patients who were on regular haemodialysis therapy three times per week. Of the 55 patients, 34 (20 females and 14 males with an average age of 40.9 years) were anti-HCV (+) and were defined as the HCV (+) group. The remaining 21 patients (8 females and 11 males with an average age of 50 years) were negative for HCV and other viral markers and were defined as the HCV (-) group. BMI of all patients were below 27. Insulin resistance (IR) was calculated according to the HOMA formula and patients were called HOMA-IR (+) if their HOMA scores were higher than 2.5. All of the HOMA-IR (+) patients in both groups were called the HOMA-IR (+) subgroup. None of the patients had a history of drug use or any diseases that were related to insulin resistance except uremia. In both groups and the healthy control group, insulin and glucose levels were studied at three different venous serum samples taken at 5- minute intervals after 12 hours of fasting. Other individual variables were studied at venous serum samples taken after 12 hours of fasting. **RESULTS:** HOMA scores were $(3)2.5$ in 22 of 34 HCV (+) patients (64.7%) and 7 of 21 HCV (-) patients (33.33%) ($p=0.024$). Insulin levels of HCV (+) group (13.32 ± 9.44 mIU/mL) were significantly higher than HCV (-) (9.07 ± 7.39 mIU/mL) and the control groups (6.40 ± 4.94 mIU/ mL) ($p=0.039$ and $p=0.021$ respectively). HCV (+) patients were younger (40.94 ± 17.06 and 52.62 ± 20.64 years, respectively) and had longer dialysis duration (7.18 ± 3.61 and 2.91 ± 2.69 years, respectively). Significant positive correlations of HOMA score with insulin ($r=0.934$, $p=0.000$) and fasting glucose levels ($r=0.379$, $p=0.043$) were found in the HOMA- IR (+) subgroup. Also, a significant positive correlation was found between ALT and insulin levels in the HOMA IR (+) subgroup. C-peptide levels of both HCV (+) and (-) groups were significantly higher than the control group ($p < 0.001$). There were not any significant correlations between HOMA score and some of the other individual variables including levels of triglyceride, ferritin, ALT, iPTH and Mg in any of the groups. **CONCLUSION:** In chronic haemodialysis patients; HCV infection is

related to a high prevalence of insulin resistance, higher insulin and glucose levels.

Ozgenç O, Ozacar T, Erensoy S, Inan N, Ari A, Kuruuzum Z, and Bilgic A.

Clinical significance of basal core promoter and precore mutations in chronic hepatitis B.

Hepatogastroenterology 54: 2319-2323, 2007.

BACKGROUND/AIMS: The mutations in the basal core promoter and precore region of hepatitis B virus genome in hepatitis B e antigen-positive and -negative chronic hepatitis B patients have been described. The reports about their prevalence and clinical significance in the Mediterranean region where D is the predominant genotype, are very limited. **METHODOLOGY:** The serum samples were collected from 44 naive chronic hepatitis B patients. For detection of the mutations basal core promoter and precore regions of HBV genome were amplified and sequenced. **RESULTS:** All samples were determined as genotype D. Before initiation of treatment basal core promoter mutations were found as 55% (11/20) and 46% (11/24) in HBeAg-positive and -negative patients, respectively ($p > 0.5$). HBeAg-negative samples were associated with precore mutations (G1896A and G1899A). Three of 20 (15%) patients of HBeAg-positive and seven of 24 (29%) of HBeAg-negative populations showed sustained response to therapy at the 24th month of initiation. **CONCLUSIONS:** The presence of precore stop codon mutant in those with sustained response was 89%, overall at the end of therapy. At initiation of therapy basal core promoter mutations were more common in non-responders than responders (65% vs. 20%; $p < 0.001$). While 23% of cases totally showing sustained response, absence of mutations in the basal core promoter region of hepatitis B virus genotype D may be related to sustained response in patients with chronic hepatitis B.

Savas N, Ocal S, Colak T, Karakayali H, Yilmaz U, and Haberal M.

Clinical course of hepatitis C virus infection in renal transplant recipients.

Transplant Proc 39: 984-986, 2007.

Patients with end-stage renal disease are at high risk for exposure to hepatitis C virus (HCV) infection. Although both viral replication and liver disease progression are accelerated after renal transplantation, the long-term impact of chronic HCV infection is unclear. Our aim was to analyze the course of HCV infection in renal transplant recipients and the effects of HCV reactivation on patient and graft survival. **METHODS:** We retrospectively examined the 21-year (1985-2006) data of 1274 renal transplant recipients, 43 of whom were anti-HCV positive at the time of transplantation. **RESULTS:** The mean posttransplant follow-up of 43 patients was 62.0 +/- 7.3 months. At the time of transplantation, HCV RNA was positive in 11 (25.6%) patients and negative in 32 (74.4%) patients. HCV reactivation was seen in 19 (45.2%) patients at a mean time of 20.8 +/- 5.7 months. In 31 (72%) patients, acute rejection occurred, whereas graft loss occurred in 10 (23%) patients. Three (7%) patients died. Among 43 patients, 22 (51.2%) were treated with interferon before transplantation. There was a statistically significant association between pretransplant interferon therapy and pretransplant HCVRNA level ($P = .024$), but no significant association of HCV reactivation and graft rejection, mortality, or kidney survival. **CONCLUSION:** HCV reactivation occurred in nearly half of the renal transplant recipients, mostly in the second year. Patient survival and graft survival were not affected by HCV reactivation. Anti-HCV positivity should not preclude chronic renal failure patients from renal transplantation.

Sayiner AA, Agca H, Sengonul A, Celik A, and Akarsu M.

A new hepatitis B virus vaccine escape mutation in a renal transplant recipient.
J Clin Virol 38: 157-160, 2007.

Surface antigen mutations of hepatitis B virus (HBV) may lead to immune escape and cause failure of immunization. In this report, the development of a chronic HBV infection in a vaccinated renal transplant recipient with pre-existing anti-HBs antibody is documented. The sequencing data showed that the HBV strain carried five amino acid substitutions in the major hydrophilic region of the S protein, one (sS143L) located at the "a" determinant. A commercial HBsAg assay failed to detect the mutant antigen.

Selimoglu MA, Caner I, and Yildiz L.

Lipid profile in children with acute viral hepatitis A.
Pediatr Int 49: 215-219, 2007.

BACKGROUND: Most of the knowledge about lipid parameters in acute hepatitis is originated from adult studies. In this study, the authors investigated lipid profile of children with acute hepatitis A (AVH) at diagnosis and recovery in order to observe the behavior of lipid parameters in such children. **METHODS:** A total of 28 children (mean age, 8.2 +/- 2.7 years) with AVH and 20 gender and age-matched healthy children were included. In addition to the routine tests, triglyceride, cholesterol, low-density lipoprotein (LDL), high-density lipoprotein (HDL), plasma apo A-I and apo B were studied at diagnosis and recovery. **RESULTS:** Serum triglyceride and apo B level was higher, and apo A-I level was lower in patients compared to healthy children ($P < 0.01$, <0.05 and <0.01 , respectively). On admission, three children had fulminant hepatic failure (FHF). Serum lipid parameters were evaluated in respect with the presence of icterus and FHF, and found that apo A-I level was lower in icteric children and LDL and apo A-I were lower in FHF compared to others ($P < 0.05$, $P < 0.01$ and $P < 0.05$, respectively). At recovery, while triglyceride, cholesterol, LDL, and apo B decreased ($P < 0.01$), HDL and apo A-I increased ($P < 0.01$). Serum apo A-I level was inversely correlated with serum ammonia level but was positively correlated with serum albumin ($P < 0.05$). **CONCLUSIONS:** It was shown that serum triglyceride and apo B level increased, but apo A-I level decreased in patients with AVH. While cholestasis lowers apo A-I level, severe hepatic damage lowers both apo A-I and LDL. These parameters return to normal levels within 30 days. An interesting relationship between ammonia and apo A-I deserves further investigations, speculatively focused on hepatocyte nuclear factor 4 alpha.

Sit D, Kadiroglu AK, Kayabasi H, Yilmaz ME, and Goral V.

Seroprevalence of hepatitis B and C viruses in patients with chronic kidney disease in the predialysis stage at a university hospital in Turkey.
Intervirol 50: 133-137, 2007.

BACKGROUND: Hepatitis B (HBV) and C (HCV) viruses are the most common viruses that cause viral infections among the hemodialysis patients. **OBJECTIVES:** To assess the prevalence of HBV and HCV in predialytic chronic kidney disease (CKD) patients. **DESIGN:** A cross-sectional study. **SUBJECTS:** 171 consecutive predialytic CKD patients. **MEASUREMENTS:** Third-generation micro-ELISA assay was used for hepatitis B surface antigen (HBsAg), antibody to hepatitis B core (anti-HBc) and surface antibody (anti-HBs), secretory form of hepatitis B envelop antigen (HBeAg), antibody to secretory form of hepatitis B envelop antigen (anti-HBe), and ELISA for antibody to hepatitis C virus (anti-HCV). **RESULTS:** The main causes of

CKD were 29.8% diabetic nephropathy, 19.9% chronic glomerulonephritis, 16.3% hypertensive nephrosclerosis, 14.0% unknown, 5.3% amyloidosis, 4.7% autosomal-dominant polycystic kidney disease, 4.1% chronic tubulointerstitial nephritis, 3.5% malignancies, 1.7% benign prostatic hypertrophy, 0.6% Alport syndrome. The seroprevalence of hepatitis was: HBsAg 10.5%, anti-HBc 36.8%, anti-HBs 28.7%, HBeAg 5.3%, anti-HBe 32.7%, anti-HCV 7% and HBsAg+anti-HCV 0.6%.

CONCLUSIONS: The seroprevalence of HBsAg and anti-HCV among predialytic CKD patients was similar to our patients in hemodialysis program.

Sonmez M, Bektas O, Yilmaz M, Durmus A, Akdogan E, Topbas M, Erturk M, Ovali E, and Omay SB.

The relation of lymphoma and hepatitis B virus/hepatitis C virus infections in the region of East Black Sea, Turkey.

Tumori 93: 536-539, 2007.

AIM AND BACKGROUND: Hepatitis B virus (HBV) and hepatitis C virus (HCV) are not only hepatotropic, but also lymphotropic viruses. Infections with these viruses induce chronic antigenicity and may stimulate clonal expansion of malignant B-cell neoplasms. Moreover, these viruses can proliferate in lymphatic structures and bone marrow. However, the relationship between lymphomas and HBV/HCV infections is not clear. In our region of the East Black Sea, Turkey (the city of Trabzon), we intended to demonstrate a relation of lymphoma and HBV/HCV infections with a case-controlled study. METHODS: A total of 109 patients diagnosed with lymphoma between 2002-2005 in the Black Sea Technical University Hospital was investigated. Seventy-one patients had a high-grade and 38 patients a low-grade lymphoma. Hepatitis B surface antigen (HBsAg) and anti-HCV antibodies (anti-HCV Ab) were screened. The control group consisted of patients (n = 551) from other departments with diagnoses other than lymphoma. RESULTS: HBsAg was 3.7% and anti-HCV Ab positivity was 2.8% in lymphoma patients, compared with control of 5.3%, 5.1%, respectively. There was no statistically significant difference between two groups (P = 0.7, OR = 0.69, 95% CI, 0.20-2.10; P = 0.4, OR = 0.53, 95% CI, 0.13-1.86, respectively). CONCLUSION: Our findings suggest that the incidence of HBV and HCV infections in lymphoma patients is no different than that of nonlymphoma patients. Therefore, no direct correlation can be deduced between lymphoma and HBV-HCV infections in our East Black Sea region of Turkey.

Soylu S, Gul U, and Kilic A.

Cutaneous manifestations in patients positive for anti-hepatitis C virus antibodies.

Acta Derm Venereol 87: 49-53, 2007.

Cutaneous diseases can indicate the presence of hepatitis C virus (HCV) infection. The aim of this study was to analyse the frequency of cutaneous findings in HCV infection and HCV RNA positive cases in Turkey. Fifty consecutive patients positive for anti-HCV antibodies, negative controls, and patients positive and negative for HCV RNA were examined for any cutaneous findings that could be associated with HCV infection. The risk of infected patients developing cutaneous finding was higher than for non-infected individuals. Only pruritus showed a statistically significant difference in separate assessment of cutaneous symptoms. There were no differences in cutaneous findings in HCV RNA positive and negative cases. The risk of developing a dermatological finding, especially pruritus, was increased in HCV infection. However, because the number of patients in this study was too low to allow statistical evaluation of the prevalence of dermatological symptoms and diseases, multicentre studies including large numbers of patients are needed.

Soysal A, Gokce I, Pehlivan T, and Bakir M.

Interchangeability of a hepatitis A vaccine second dose: Avaxim 80 following a first dose of Vaqta 25 or Havrix 720 in children in Turkey.
Eur J Pediatr 166: 533-539, 2007.

INTRODUCTION: This randomised, observer-blind clinical trial conducted in Turkey evaluated the immunogenicity, safety and interchangeability of three paediatric inactivated hepatitis A vaccines in 424 seronegative children between 1 and 15 years of age. **METHODS:** Potential subjects were screened for anti-hepatitis A virus (HAV) antibodies prior to receiving a first dose of Avaxim 80, Havrix 720 or Vaqta 25, followed by a second dose of either the same vaccine or Avaxim 6 months later. Anti-HAV antibody concentrations were measured 2 weeks after the first injection, at 24 weeks (before the second dose) and at 28 weeks for the evaluation of the immune response. **RESULTS:** Nearly 80% of the children between 1 and 5 years of age and half of those between the ages of 6 and 10 in the population from which the subjects were recruited were seronegative for HAV antibodies. Two weeks after the first dose, 98.2% of all subjects had anti-HAV antibody concentrations equal to or higher than 20 mIU/mL, believed to be seroprotective, and all subjects were seroprotected before and after the second dose. Anti-HAV geometric mean concentrations (GMCs) 2 weeks after the first dose and before the second were similar in children who received Avaxim and Vaqta ($P = 0.2$), but both were higher than Havrix ($P < 0.01$). There were no significant differences in the anti-HAV GMCs between the study groups that received two doses of the same vaccine compared with two doses of different vaccines. There were no significant differences in the frequency of any local or systemic adverse events among the study groups following either of the two doses. **CONCLUSION:** All three vaccines are safe and highly immunogenic in healthy children aged 1 to 15 years. Avaxim 80 may also be given as the second dose when Havrix 720 or Vaqta 25 are given as the first dose. The pattern of seroprevalence seen here is similar to that reported in a number of recent evaluations in Turkey, and are supportive of the routine hepatitis A vaccination of young children.

Tarcan A, Tiker F, Guvenir H, and Gurakan B.

Hepatic involvement in perinatal asphyxia.
J Matern Fetal Neonatal Med 20: 407-410, 2007.

BACKGROUND: The pathogenetic mechanisms of hepatic injury in perinatal asphyxia (PNA) are similar to those in ischemic hepatitis, yet liver involvement is currently not considered a component of multi-organ failure in PNA. **METHODS:** A retrospective study was done on 56 newborns with PNA. Hepatocyte injury was diagnosed based on elevated serum alanine transaminase level (>100 U/L, twice upper normal) with subsequent normalization. **RESULTS AND CONCLUSIONS:** Twenty-two of the patients had hepatocyte injury. Fetal distress, thrombocytopenia, convulsions, pathologic findings on imaging of the central nervous system, and a high rate of intrauterine growth retardation were the factors significantly associated with hepatocyte injury. This damage was also associated with high mortality.

Ucmak H, Faruk Kokoglu O, Celik M, and Ergun UG.

Intra-familial spread of hepatitis B virus infection in eastern Turkey.
Epidemiol Infect 135: 1338-1343, 2007.

Hepatitis B virus (HBV) infection is a worldwide health problem. The aim of the present study was not only to determine the prevalence of HBsAg in children of HBV-infected parents but also to identify all HBsAg-positive family members to protect as many children, in the present and future, as possible. The study was carried out with the participation of 2113 family members (1205 children, 453 mothers, and 455 fathers) at Sivas SSK Hospital, Turkey. They were screened for HBV markers using standard enzyme immunoassay between September 2001 and March 2005. The prevalence of any HBV markers and HBsAg among family members of index cases was 50.5% and 30.5% respectively. HBsAg carrier rate was higher among fathers (61%) than mothers (47%), ($P < 0.05$). The children of mother index cases had higher rates of HBsAg compared with the children of father index cases ($P < 0.01$). Our results suggest that intra-familial childhood horizontal transmission (especially mother-to-child) is important for HBV transmission in the Turkish community, and highlights the need for screening of adult siblings and mothers of adult HBsAg carriers in addition to their spouses and children.

Yagci M, Acar K, Sucak GT, Yamac K, and Haznedar R.

Hepatitis B virus vaccine in lymphoproliferative disorders: a prospective randomized study evaluating the efficacy of granulocyte-macrophage colony stimulating factor as a vaccine adjuvant.

Eur J Haematol 79: 292-296, 2007.

OBJECTIVES: Hepatitis B virus (HBV) infection is effectively preventable by immunization with the commercially available recombinant HBV vaccines (HBV(vac)) in approximately 95% of healthy people. Immunosuppressive diseases like hematological malignancies are a risk factor for non-response to HBV(vac). The aim of this study was to determine the efficacy and safety of granulocyte-macrophage colony-stimulating factor (GM-CSF) as a vaccine adjuvant in lymphoproliferative disorders (LPD). **PATIENTS AND METHODS:** One-hundred and two patients with LPD were randomized to receive either a single dose of 40 mug HBV(vac) intramuscularly or one course of 40 mug HBV(vac) after 5 mug/kg recombinant GM-CSF injection. **RESULTS:** Of the 94 patients that could be evaluated at 1 month, the seroprotection rate was higher in GM-CSF + HBV(vac) group (25.5% in GM-CSF + HBV(vac) group vs. 17% in HBV(vac) group). The median anti-HBs titer was also higher in GM-CSF + HBV(vac) group. However the difference did not reach to a significant level in terms of response rate and median antibody titers ($P > 0.05$). Univariate analysis identified age and time to vaccination from the last chemotherapy course as significant predictors of seroprotection. In multivariate analysis, age was the only predictor of achieving a seroprotective response. Patients who lost the seroprotective response during monitoring were boosted with a 20 microg HBV(vac) and they all achieved a seroprotective anti-HBs titer > 100 mIU/mL. **CONCLUSION:** In LPD, the response to HBV(vac) is impaired. GM-CSF enhance to HBV(vac) in terms of the rate of response and average of antibody titers at the dose and schedule given.

Yetgin S, Tavit B, Aytac S, Kuskonmaz B, and Kanra G.

Unexpected protection from infection by two booster hepatitis B virus vaccination in children with acute lymphoblastic leukemia.

Leuk Res 31: 493-496, 2007.

The protective power of two booster dose vaccination against hepatitis B virus (HBV) infection has not been previously studied in patients with acute lymphoblastic leukemia (ALL) who remained unresponsive to immunization. The aim of this study

was to determine the HBV infection rate in vaccinated and unvaccinated patients with or without seroconversion and to compare these groups in respect to HBV infection rate. The study group included 111 male and 85 female ALL patients with a mean age of 6.23±4.10 years. Patients were divided into three groups as follows: Group 1 included 82 patients who were vaccinated during maintenance chemotherapy, Group 2 included 87 unvaccinated patients, and Group 3 included 27 patients who were vaccinated prior to the diagnosis of ALL. Seroconversion was obtained in 35.4% (29/82) of patients in Group 1. The incidence of HBV infection was significantly lower in Group 1 (4/82, 4.8%) than in Group 2 (25/87, 28.7%). When we compared only the seronegative patients in Group 1 with Group 2 in respect to HBV infection rate, Group 1 still had a significantly lower HBV infection rate than Group 2 (7.5% versus 28.7%) ($p < 0.001$). No patients in Group 3 ($n=27$) had HBV infection. In addition to the seroconversion level, infection rate is also important in the evaluation of the effectiveness of vaccination. Our study results suggest that a high protective role of HBV vaccination was also observed in non-seroconversion ALL patients. The effect of cellular immunity on the protection against infection should also be investigated in such patients with further studies.

Yilmaz S, Bayan K, Tuzun Y, Dursun M, Kaplan A, Ozmen S, Canoruc F, and Akkus Z.

Replacement of histological findings: serum hyaluronic acid for fibrosis, high-sensitive C-reactive protein for necroinflammation in chronic viral hepatitis.

Int J Clin Pract 61: 438-443, 2007.

Because of limitations in biopsy procedure, several non-invasive tests have been developed for predicting the histological findings in chronic hepatitis. A fibrosis (F) score 1 or above and necroinflammation [histological activity index (HAI)] score 4 or above are required to initiate the treatment in chronic viral hepatitis. Literature includes many studies on hyaluronic acid (HA) as a non-invasive procedure in predicting histological findings but lacks on high-sensitive-C-reactive protein (hsCRP). We evaluated the diagnostic value of HA and hsCRP in patients with chronic viral hepatitis. Ninety-eight subjects (42 chronic viral hepatitis, 28 cirrhosis and 28 healthy controls) were included in the study. Liver biopsies were performed on 42 chronic hepatitis patients and assessed by Ishak scoring system. All sera were stored at -70 degrees C until assay. Many laboratory parameters related to viral hepatitis, HA and hsCRP were studied following the instructions. We tried to determine a cut-off value for HA to represent $>$ or $=$ F1 score and that for hsCRP to represent $>$ or $=$ 4 HAI score. Hepatitis B virus was the predominant aetiology of chronic hepatitis in our study. Mean HA levels were 113, 754 and 24 ng/ml in patients with chronic hepatitis, cirrhosis and controls, respectively (anova, $p < 0.001$). A HA level >64.7 ng/ml had a 100% specificity for diagnosing chronic hepatitis. A value $>$ or $=154$ ng/ml had a 100% specificity, 100% positive predictive value and 90% negative predictive value for diagnosing liver cirrhosis (Area 1.00; $p < 0.0001$). A cut-off value of 63 ng/ml for HA had a 100% specificity for diagnosing fibrosis score $>$ or $=1$ in chronic hepatitis (Area 0.86; $p < 0.001$). An hsCRP level >0.56 mg/dl had a 100% specificity and 12% sensitivity for diagnosing chronic hepatitis (Area 0.71; $p = 0.002$), while cut-off of 0.53 mg/dl had 75% specificity for diagnosing HAI $>$ or $= 4$ in chronic hepatitis (Area 0.32; $p = 0.132$). This study supported the HA level in predicting fibrosis score $>$ or $=1$ with a cut-off value of 63 ng/ml. Cut-off of 154 ng/ml had a strong worth for cirrhosis. A cut-off of hsCRP for predicting HAI score $>$ or $=4$ warrants further evaluation in wider study populations. We concluded that we are a bit closer to the strategy for guiding therapy in patients with chronic hepatitis, without a liver biopsy.

2. Hepatitis Bibliography of the Speakers

Pubmed MEDLINE search on Name of the speaker in [Author]-field and 'Hepatitis' in [all fields]. If more than 10 references only the most recent articles are shown.

Arzu SAYINER

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