Viral Hepatitis Prevention Board

Prevention and control
of viral hepatitis in Israel:
lessons learnt and the way forward

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Objectives

- To provide an overview of surveillance systems for infectious diseases
- To review the epidemiology of viral hepatitis
- To give an overview of the current prevention and control measures for viral hepatitis
- To discuss progress made in prevention of viral hepatitis
- To review the possible implementation of new prevention strategies, control measures and monitoring systems
- To discuss the successes, issues and barriers to overcome, and the way forward

Health system

- Serves a population of 7.8 million, of whom about 80% Jewish and 20% non-Jewish, mainly Arab; young - 28% under 14 years and growing at 1.8% per annum; with good economic growth
- Based on principles of equity, justice and solidarity; public health a priority
- Structure originally based on British mandate pattern with health districts; service provision and financing drawing on historical UK and German experience
- Financed mainly by tax revenue distributed through HMOs and delivery of care through public not-for-profit organizations
- Expenditure on health 7.6% of GDP in 2011 (same proportion as in 1995)

Health system - continued

- Government funds and regulates health care
- Health care coverage is universal
- Main functions of health ministry include
  - health promotion (individual and population levels and environmental health), including national five-year plan for active and healthy life-style
  - disease prevention (vaccination – including HPV, routine screening of children's development, and tests on pregnant women)
  - limited outreach to illegal immigrants
  - Immunization policy set in MoH by Advisory Committee on Infectious Disease and immunization (covers also vaccination of travellers)
- Increasing role of private sector: service delivery and funding, including co-payment for private consultation

Health system - continued

- Extensive and effective network of mother and child health clinics
- Efficient school health services operating for >40 years
- Hospitals are either State or HMO–run; few private hospitals
- The number of hospital beds per capita has not grown enough with the increasing population; with short stays and highest bed occupancy rate in OECD countries (96%)
- Nationwide blood donor programme - active and up-to-date haemovigilance system, with trace back for blood donors

Health system - continued

- National Health Insurance Law (1995) made health insurance compulsory; also defines the national list of health services (the “health care basket”)
- Open application for inclusion of medical products and technologies in the basket and review and evaluation by independent committee: system is feasible, practical, relatively rapid (one-year cycle) and widely accepted and highly regarded
- Four competing sick funds (health maintenance organizations) as well as other organizations deliver services contained in the health care basket
- Health maintenance organizations transfer funds to clinics, health centres and hospitals to cover services

Health system – health care workers

- Medical and nursing students as well as health care professionals must present evidence of complete vaccination against hepatitis B before starting studies or work
- HCWs who refuse vaccination must sign a declaration of exemption
- HBV vaccination of health care workers involved in exposure-prone procedures will be mandatory by end of 2013
- “Shouval committee” recommendations have become practice
- Health care workers practising exposure prone procedures must provide evidence of protective antibody levels (and viral load less than 2000 IU/l if HBsAg-positive)

Health system - continued

- Good health status (e.g. life expectancy, infant mortality rate, maternal mortality ratio) but differences between and within Jewish and non-Jewish populations
- Challenges:
  - declining public financing
  - debating private medical practice in public hospitals;
  - equity issues with private funding;
  - prioritizing new technologies and setting policy for funding;
  - workforce shortages, especially nursing staff, hepatologists ;
  - improving surveillance;
  - reforming care for mental disorders and chronic diseases; obesity;
  - serving vulnerable populations (including immigrants) and narrowing health disparities
  - shortage of organ donors
  - quality control of services provided by Ministry of Health

Epidemiology

- Some 70 diseases are notifiable, including (since 1993) serologically confirmed acute hepatitis A, B, C and “other” forms of viral hepatitis, and reporting chain will be electronic soon
- Electronic national registry of childhood vaccinations being finalized
- Surveillance data, including vaccine coverage data, reported through district health offices to health ministry for analysis and dissemination of information (weekly and annual reports)
- Under-diagnosis and under-reporting of viral hepatitis common but data that are collected are useful for monitoring trends
- Central cancer registry exists which includes data on hepatocellular carcinoma but aetiological data (i.e. HBV and HCV) not always available, although 70% of 80 cases in a newly started collaborative project are related to HCV

Epidemiology - continued

- Hepatitis A virtually eliminated (“unimaginable 15 years ago”) as a result of vaccination programme (1999); most immigrants will have been infected and developed immunity in their countries of origin
- Outbreaks of HAV after initiation of universal vaccination of toddlers occur in populations of susceptible adolescents and young adults – control possible by catch up vaccination
- Hepatitis B: largest epidemiological study shows estimated overall prevalence rate of 1.75%, with lower rates in Jewish communities (up to 9% in some Arab villages) and in women and people under 19 years of age
- Hepatitis B and C carriers: limited data because of lack of large population-based studies, but estimates quoted of 60-100,000 HBsAg carriers and 40-100,000 HCV carriers; most not aware of infection status
- HCV and HBV common risk factors for hepatocellular carcinoma; few data for Israel but burden of HCV-associated HCC increasing – peak forecast for 2015-2020; a case for prevention (vaccination or treatment)

Epidemiology - continued

- Hepatitis C: few studies but large epidemiological study gives estimated prevalence of 2%, with higher rates in Jews than Arabs and those born in endemic countries including FSU; genotype mainly 1 but varies with country of birth (4 for those infected in Egypt or Ethiopia)
- Patients diagnosed with hepatitis C are eligible for up-to-date treatment (including direct-acting antiviral agents (DDA) for genotype 1) although delays in initiation of treatment because of shortage of physicians and long waiting time at clinics
- Treatment of hepatitis C successful with results comparable to those in Europe and USA
- Co-infections (HBV, HCV, HIV) occasionally identified, including HCV/HIV in haemophiliacs
- Hepatitis D is relatively rare
- Hepatitis E: sporadic cases in travellers to South and South-east Asia and evidence of local transmission (7 of 560 cases); suggestion of a unique unidentified Israeli virus needs investigation

Matters for consideration

- Recognition of notable successes: Israel could be regarded as the Italy of the Middle East in the prevention and control of viral hepatitis
- Value of geographical information systems and molecular epidemiology
- Evidence of remarkable collaboration and teamwork, while acknowledging failures and areas for improvement
- Dramatic control of hepatitis A through universal vaccination a good example of how data can be used for sound policy-making
- Health system assures good access for populations from different backgrounds and cultures
- Redefine the role of doctors - health advisors or practitioners of medical acts?
- Insufficient cadre of hepatologists and difficulty in training sufficient doctors and nurses

Matters for consideration – cont'd

- Current burden of chronic disease due to HBV and HCV not known
- Particular burden due to hepatitis B and C in immigrants, many from countries where the endemicity of viral hepatitis is high
- HCV "in the midst of an HCV-related epidemic of disease"; incidence of HCC is rising but incidence of new cases of HBV and HCV infection very low – indicating a favourable trend in the long term
- Risk of occult hepatitis B infection in blood donors for infection of recipients under investigation
- What is the clinical and public health significance of occult hepatitis B virus infection?

Matters for consideration – cont'd

- Screening has twin goals: prevention and treatment, but no national policy exists on screening of risk groups for hepatitis B, hepatitis C, liver cirrhosis (i.e. history of blood transfusion)
- No national policy for overall screening of pregnant women for HBsAg (only recommended for specific risk groups)
- Ethics – concern regarding expanding screening because of shortage of resources and hepatologists to provide subsequent care (i.e. raising demand by discovering cases that cannot be treated or provided with care services)
- Consideration of "keep up/catch up" measures after universal vaccination programmes
- Third-generation HBV vaccines are more immunogenic; possible role for non-responders, diabetes patients, end-stage renal disease patients and HIV-infected subjects

Matters for consideration – cont'd

- Programmes for IDUs successful but few in number and struggling for funding
- Most haemophiliacs infected with HCV (15% coinfection with HIV)
- Non-invasive monitoring of liver disease i.e. fibroscan
- Treatment for HCV (including coinfections) complex and costly but gives good results
- Few specialist physicians to care for patients with hepatitis C and hepatocellular carcinoma at the moment, let alone a future higher case load
- HCV is leading cause of liver transplantation, but serious shortage of donors (organ donors available for only ~50%)
- Responsibility of health care employers to ensure safety of process, equipment and technologies
- HCWs: requirements for vaccination and PEP protocols meet accepted standards and norms
- Standard precautions (infection control) not always fully observed, including some instances of lack of use of personal protective equipment

Needs and possible future action

- Need for a model and plan for improved and sustained prevention and control of viral hepatitis at the national level
- Proposals for screening programmes must be robust, rigorous and defensible and cover all stages from screening to treatment
- Systematic screening of pregnant women for hepatitis B should be implemented; Advisory Committee on Infectious Diseases and Immunization to re-evaluate its position
- Systematic serosurveys at population level for HCV infection in order to support policy development at national level for HCV testing as well as to increase the number treated
- Answer to question “who should be screened for HCV?”
- Better and computerized reporting of acute and especially chronic viral hepatitis and improved data-analysis capabilities
- Development of online registries, for example of chronic viral hepatitis
- Need for connection between databases (e.g. linkage between surveillance and vaccine coverage data) and feedback to data providers
- Completion of substance abuse national case registry, which already contains data on 5000 subjects – a model for other countries

Needs and possible future action – policy development

- Programmes to monitor the impact of universal vaccination against hepatitis B 20 years after introduction, including quality control of assessment of immunization
- Policy development for the generation vaccinated at birth – test and evaluate need for boosters in defined risk groups
- Recommendations for management of infected pregnant women (including use of third-generation vaccines in newborns), as well as protocols for antiviral treatment and prevention of vertical transmission
- Evaluate option of vaccinating diabetic patients, renal failure patients, HIV-infected subjects with a third-generation hepatitis B vaccine
- Quality control of surveillance
- Important to sustain the high immunization rates and maintain vaccine coverage
- Holistic view of vaccine-preventable diseases: consider all together, including their interactions, rather than each disease specifically

Needs and possible future action

- HCWs - regular education and training (on a routine basis)
- Strict observation of universal precautions - possibly through equivalent of US Needlestick Safety and Prevention Act, and design of health care facilities for optimum use of safety equipment
- Further research on occult hepatitis B virus infection and on epidemiology of hepatocellular carcinoma in Israel
- Improvement of early detection of chronic HCV infection
- More centres for treatment and care of IDUs and syringe exchange programmes

Needs and possible future action

- Preparation for future introduction of simpler, interferon-free effective treatments of HCV
- Economic modelling of options for screening for HCV and outcomes in order to foster evidence-based policy development
- Support (in terms of both human and financial resources) for associations that work with and between patients, their families, family physicians and treating doctors, including raising public awareness
- Build on the experience and expertise of patient associations and collaborating doctors in other countries in order to guarantee adequate support.