

Hepatitis E in Italy

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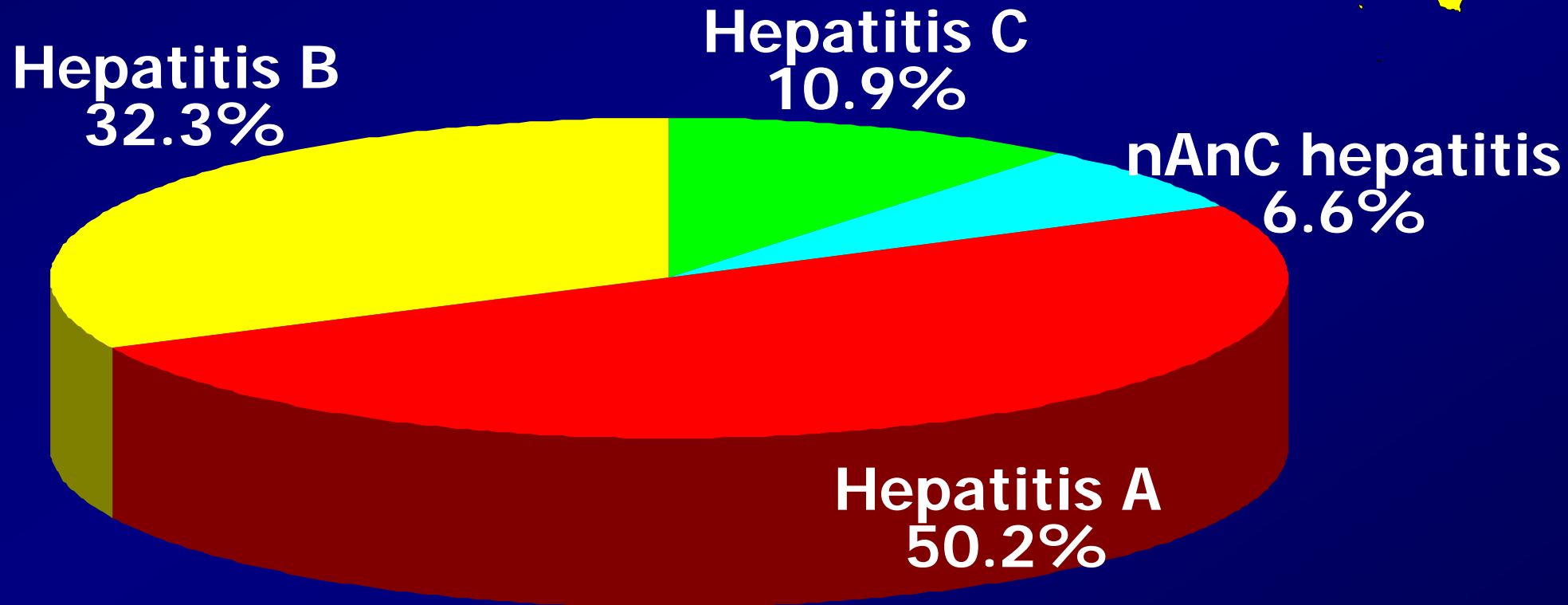
University of Milan, Italy

Viral hepatitis in Italy

(60 million inhabitants)



2,500 new cases/year of acute viral hepatitis
(i.e. 4.2 per 100,000 inhabitants)



Anti-HEV prevalence in Italy



% anti-HEV

North

Centre

South/Islands

Milan (0.95*)

Florence 1.4

Foggia 3

Genoa 1.3

S.Marino 2.3

Catania 3

Venice 2.6

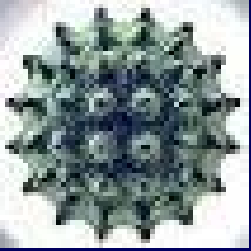
Latina 3

Cagliari 5.4

Messina 6.2

Higher rate among IVDUs especially those infected with HIV, homosexuals and those with chronic hepatitis C.

* confirmed by WB



Hepatitis E in Italy

Site: Institute of Virology, University of Milan

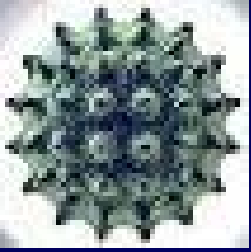
Period: January 1994 – December 2008

Study population: **601** consecutive pts with acute nAnC hepatitis
(negativity for IgM anti-HAV, HBsAg, IgM anti-HBc, anti-HCV, HCV-RNA and exclusion of autoimmunity, alcohol or hepatotoxic drugs)

Gender: 61.5%M, 38.5%F

Age: mean 36.8 yrs, median 35 yrs, range 1-79 yrs

ALT: mean 1582 IU/L, median 1207 IU/L,
range 101-12520 IU/L



Acute hepatitis E: case definition

Detection of:

HEV RNA in sera or stools by nested RT-PCR

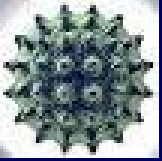
OR

IgM anti-HEV

OR

Seroconversion to anti-HEV IgG

To identify risk factors, all patients were interviewed with a pre-coded questionnaire



Laboratory diagnosis of hepatitis E

122/601 (20.3%) pts were diagnosed with acute hepatitis E

83% males; median age 31.5 yrs (3-68 yrs);
ALT median peak 2106 IU/L (122-12290 IU/L)

122

IgM and IgG anti-HEV +

81* (66.4%)

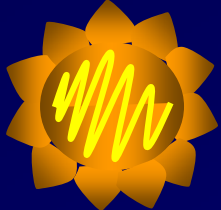
HEV RNA + (serum samples)

37/601 (6.2%)**

IgG anti-HEV +
but both IgM anti-HEV
and HEV RNA -

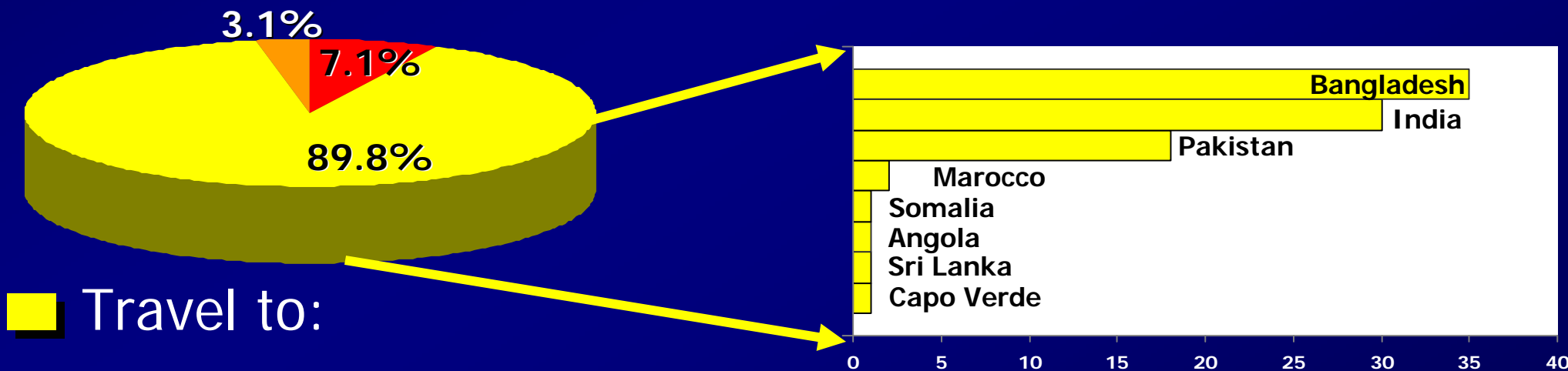
* Stools available from 36/81 patients were also HEV RNA +

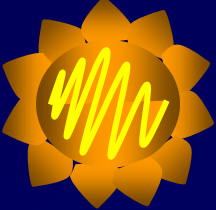
** 44.8% of these patients were immigrants from or travelled to endemic areas



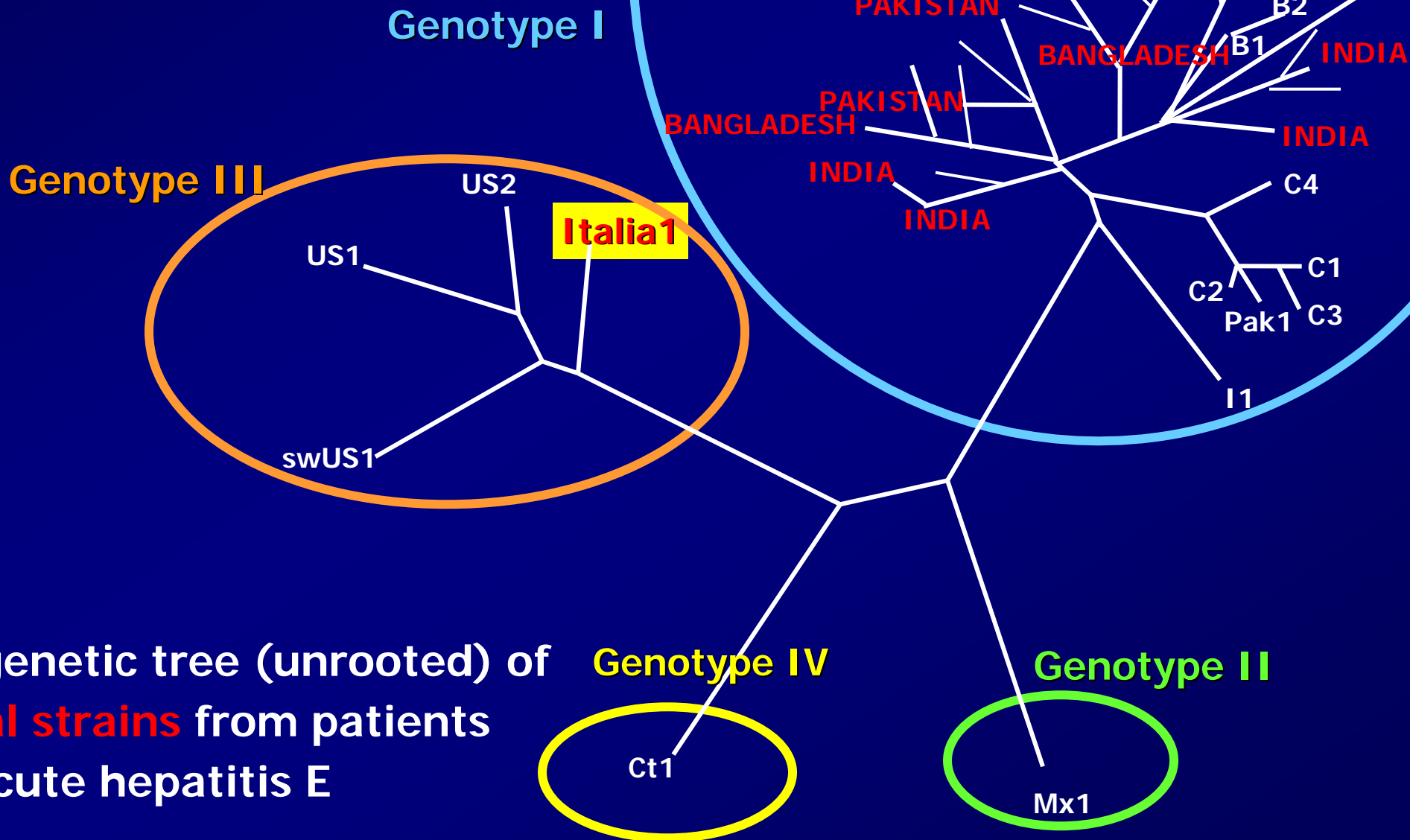
Risk factors associated to hepatitis E

- Unknown
- Contact with an infected patient





Hepatitis E in Italy: Results



Phylogenetic tree (unrooted) of 28 viral strains from patients with acute hepatitis E

HEV RNA among farming swine and wild boars in Northern Italy



Animals	N° samples tested	HEV RNA + (RT-PCR)
^a Randomly selected pigs*	274 stools	115 (42%)
^b Killed wild boars	88 bile	22 (25%)

* from six different swine farms

^a Di Bortolo et al, *Vet Microbiol* 2008
^b Martelli et al, *Vet Microbiol* 2008

Viral hepatitis E in Italy

Conclusions - 1

- ✓ Acute clinically overt hepatitis E is quite uncommon in Italy, accounting for approx 1.2% of cases yearly reported to the surveillance system (approx 30 cases/year).
- ✓ Most acute hepatitis E are travel-related.
- ✓ Sporadic cases of non-travel related hepatitis E have been reported in non-endemic areas, including Italy.

Viral hepatitis E in Italy

Conclusions - 2

- ✓ Non-travel related diseases are usually caused by genotype 3.
- ✓ Wide-spread genotype 3 in pigs, wild boars and other mammals suggests that human infections may have zoonotic origin.

Viral hepatitis E

Conclusions - 3

- ✓ Discrepancies between anti-HEV prevalence and autochthonous hepatitis E incidence may be due to inapparent infections caused by native, attenuated HEV strains that rarely cause clinical diseases.
- ✓ Predilection of genotype 3-related disease for elderly and immunologically compromised individuals, adds weight to this hypothesis.