

Different seroprevalence of hepatitis E virus among Dutch and first generation migrant populations in Amsterdam, the Netherlands

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Background

- Hepatitis E virus (HEV) is increasingly recognized as a cause of acute viral hepatitis in developed countries [1].
- HEV is transmitted via the fecal-oral route.
- HEV genotypes 1 to 4 are known (Figure 1). Genotypes 1 and 2 affect only humans by waterborne transmission. Genotype 3 infection is suspected to be a (porcine) zoonosis in the Netherlands [2], but HEV may also be introduced by migrants.

Objective

To study the seroprevalence of HEV among first generation migrants (mainly Moroccans and Turks) compared to that of native Dutch.



Methods

- Data were obtained in 2004 from a cross-sectional survey among adults: the Amsterdam Health Monitor (AHM) [3].
- Participants were Dutch (33%), Turkish (23%) or Moroccan (21%).
- Plasma samples (n=1204) were tested for IgG and IgM antibodies to HEV using the Wantai kit (Beijing, China). HEV IgM positives were tested in a HEV RNA PCR [4].
- Weighted seroprevalence was calculated, using fractions of ethnical residents in Amsterdam.
- Hepatitis A virus (HAV) serology data were available for 952 samples.

References

- 1. Dalton et al. 2008 Lancet Inf. Dis. 8: 698-709.
- 4. Slot et al. 2013 Euro Surveillance 18 (31)

Results

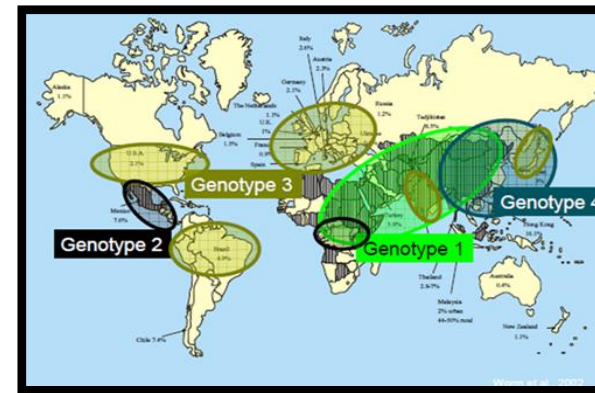


Figure 1 . World-wide distribution of HEV genotypes

- The weighted anti-HEV IgG seroprevalence in the total group was 25%.
- More males (42%) than females (33%) were HEV IgG positive. However, there was no gender difference after weighting (both 25%).
- The median age was 50 years. Being HEV IgG seropositive increased with age, from 16% in persons < 35 years up to 54% for persons > 65 years.
- First-generation Moroccan migrants (44%) had a significantly (p<0.01) higher weighted HEV seroprevalence than the Dutch (30%) (Table 1).
- First generation Turks (19%) and from other countries (17%), mainly Surinam and Antilles, had a significantly lower seroprevalence (p<0.01).

Conclusions

- There were significant differences between ethnicities for HEV IgG seroprevalence in Amsterdam, the Netherlands in 2004. This may reflect exposure to HEV in country of origin and cultural differences. Genotypes were unknown, unfortunately.
- There was no relation between being HAV and HEV seropositive, despite fecal-oral transmission for both hepatitis viruses.

- 2. Herremans et al. 2007. J Viral Hepat 14: 140-146.
- 5. Pas et al. 2013 J Clin Virol 58(4):629-634

- Only n=7 (0.5%) had IgM anti-HEV ; none were HEV-RNA positive.
- The same proportion of HEV IgG positives and HEV IgG negatives were HAV IgG seropositive (Table 1).

Ethnicity*	AHM 2004 study	
	% HEV IgG positive	% HAV IgG positive
Dutch	30%	53%
Moroccan	44%	100%
Turkish	19%	100%
Other	17%	78%

*First generation migrants

Table 1 Weighted prevalence of anti-HEV IgG (n=1204 samples) and relation to HAV seropositivity (n=376 HEV pos; n=576 HEV neg)

Discussion

- There were (almost) no cases of acute HEV infection in this group.
- Seroprevalences for HEV differ world-wide. It supposedly also varies because of the assay used, but the Wantai kit that we used was reported to have a high sensitivity and specificity [5].
- The weighted Dutch seroprevalence (30%) was similar to that found in Dutch blood donors (27%) in 2011 [4, 6].
- HEV IgG differences between ethnicities may reflect exposure to HEV in country of origin but may also reflect cultural differences.

- 3. Agyemang et al. 2012 J Hypertension 24:2169-2176
- 6. Hogema et al. 2014 Transfusion 54(12):3092-3096.