

EPIDEMIOLOGY OF THE HEPATITIS C VIRUS

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4.5 Household transmission of hepatitis C virus

The existence of nonparenteral routes of transmission of HCV has been suggested because of the relatively high proportion of people infected with HCV who have no identifiable parenteral risk factors. For example, of 342 consecutive anti-HCV-positive patients presenting to a liver clinic at a major Australian metropolitan general hospital, 27 per cent had no definite percutaneous risk factor (Strasser et al 1995).

Most studies identified in this report were cross-sectional surveys of the HCV status of family members of known anti-HCV positive people. In many studies, the HCV prevalence was then compared to the prevalence in a control group, or to available figures from blood donors. These studies usually found higher prevalence levels than in blood donors, but this is a biased comparison because of the donor deferral policies practised by most blood banks.

Other studies reviewed included genetic studies of whether individuals within the same family are infected with the same strain of the virus, and studies of specific risk factors that may have led to household transmission.

4.5.1 Rate of household transmission

There has been considerable debate about the rate of household transmission of HCV, and of whether this route of transmission exists at all. Studies reporting the rate of seropositivity in the household contacts of people who are HCV positive have been summarised in table 25 (see *Tables* section). A problem with studies of household transmission is that members of a household often share behavioural characteristics that put them at risk of HCV, particularly IDU, and that they may be reluctant to admit to these behaviours. Although many of these studies have found a higher than background prevalence of HCV, there is considerable debate about whether a higher rate of HCV in family members of HCV-positive index cases truly represents nonparenteral transmission. Most studies have found much higher prevalence in older household contacts, and rates in children which are similar to background rates. This may be because the shared behavioural factors which led to transmission are no longer relevant. For example, two Japanese studies in regions with high levels of HCV endemicity have found higher rates in older people, and very low rates in children without other risk factors (Hayashi et al 1995; Nakashima et al 1995). / The use of nonsterile injecting equipment in medical care has been implicated as a possible cause of the high seroprevalence of HCV in these areas. Studies in people infected with HCV through medical procedures (people with haemophilia, dialysis patients) have found no evidence of household transmission (Brackmann et al 1993; Hou et al 1995). Honda et al (1993) found a greater degree of HCV nucleotide homology among family members with HCV than with infected nonfamily members in Japan, suggesting that intrafamilial transmission had occurred. This has not been confirmed by others, who have found no clustering of genotypes between spouses (Nakashima et al 1995).

4.5.2 Possible routes of household transmission

Ritual blood exchange

Atrah et al (1994) found that of 52 blood donors in England who were HCV positive, 14 per cent gave a history of ritual blood exchange during childhood or early adult life (the practice of having 'blood brothers' or 'blood sisters') and denied other risk factors.

Sharing of nonsterile medical equipment

Sharing of nonsterile injecting equipment within families as a part of medical care has been implicated as a cause of horizontal transmission in Italy where it was a common practice until the 1970s (Buscarini et al 1993; Frosi et al 1995). In Japan, sterile injection equipment is still not used in some parts of the country, and this, combined with the Japanese usually being given drug treatment by injection, may explain the very high rates of HCV in parts of Japan (Hayashi et al 1995; Nakashima et al 1995). Many other studies of household transmission have not investigated this route of transmission, and this route may explain the apparently high rate of horizontal transmission in Japan and Italy. This route may explain the strong relationship of anti-HCV positivity with age in these countries, because the medical use of nonsterile injecting equipment has probably decreased recently.

Razors

The presence of very high levels of HCV infection (38%) in 37 Sicilian barbers who shave themselves with the same instruments they use to shave their customers suggests that sharing of shaving equipment may be a risk factor for acquisition (Tumminelli et al 1995).

Saliva

HCV RNA has been detected in the saliva, although at lower titre than in serum (Wang et al 1991; Liou et al 1992). The epidemiology of HCV infection does not support a role for transmission by saliva.

Discussion

Families of known anti-HCV positive patients often have rates of HCV positivity which are higher than in the local general population. In most cases, this appears to be explained by shared behavioural characteristics (especially IDU), or by sharing of nonsterile medical injecting equipment. There is no strong evidence that there are nonparenteral means of household transmission. Potential means of transmission by blood-to-blood contact, such as sharing of razors or toothbrushes, have not been shown to be important epidemiologically, but remain potential means of transmission.

Buscarini E, Tanzi E, Zanetti AR et al. High prevalence of antibodies to HCV among family members of patients

with anti-HCV-positive chronic liver disease. *Scand J Gastroenterol* 1993; 28:343-6.

Frosi A, Ragni MC, Salvaggio L et al. HCV. *Lancet* 1995; 345:190. - http://www.health.com/internet/main/publishing.nsf/Content/cda-cdtech-hepc.htm?FILE/hepc_epidemiology.pdf

CONTATTI IN AMBITO FAMILIARE E HCV

Studi sulla diffusione del virus C dell'epatite all'interno delle famiglie di pazienti HCV-positivi evidenziano sieroprevalenze più elevate rispetto alla popolazione generale. In questo ambito i soggetti più esposti a rischio di infezione sembrano essere i coniugi, mentre il rischio è in genere molto minore nei figli, soprattutto se di giovane età.

La prevalenza del HCV tra i familiari di pazienti con epatite cronica C mostra comunque un'estrema variabilità: le percentuali riportate in letteratura vanno dal 2,5 al 90%.

Sono stati inoltre descritti alcuni "cluster" familiari di HCV nei quali tutti o la maggior parte dei membri di uno stesso nucleo sono risultati infetti.

A conferma della circolazione del HCV all'interno di queste famiglie, i risultati di diversi studi evidenziano notevole omologia del genotipo HCV.

L'HCV non si trasmette condividendo l'uso di stoviglie, piatti, bicchieri, indumenti. A prescindere dalla trasmissione sessuale, possibile ma non elevata, i veicoli responsabili del contagio potrebbero essere gli oggetti di uso personale che possono essere contaminati dal sangue infetto (rasoi, spazzolini da denti, pettini, strumenti di manicure) il cui uso promiscuo deve essere evitato.

Un rilievo particolare deve essere attribuito all'utilizzo delle siringhe e aghi "non a perdere", di cui è stato fatto largo uso dal dopoguerra fino agli anni settanta in molte parti del mondo, e in particolare in Italia e Giappone, per la somministrazione di vari tipi di terapie parenterali: antibiotici, estratti epatici "ricostituenti", antidolorifici, ecc.

Tali aghi di acciaio e siringhe di vetro, impropriamente sterilizzati in ambito domestico, possono essere stati all'origine di casi "familiari" di epatite C, spesso senza ricordo, da parte degli interessati, di esposizione parenterale a sangue infetto e dunque classificata come "sporadica".

