Results of assays for serum antibodies to hepatitis C virus in four groups of patients with thyroid disease*

Type of thyroid disease	ELISA		RIBA	
	Negative result	Positive result	Indeterminate result	Positive result
Simple goitre	50	0	—	—
Graves' disease	49	1	1	—
Myxoedema	48	2	—	1
Hashimoto's thyroiditis	38	12†	—	5
Total		15‡	1	6

RIBA=recombinant immunoblot assay.
*Difference for detection of hepatitis C antibodies in patients with Hashimoto's thyroiditis *v* other thyroid diseases combined, $P<0.0001$ for ELISA and $P=0.01$ for recombinant immunoblot assay.
†24% (95% confidence interval 12% to 36%).
‡75% of all patients with thyroid disease.

The role of another agent or epidemiological factor related to hepatitis C virus, however, cannot be excluded.

Hepatitis C virus is not the first viral agent suspected of initiating an autoimmune thyroid process. Some viruses may be implicated in animals, and the role of retroviruses has been suggested in humans.[5] The possible role of infection with hepatitis C virus in triggering Hashimoto's thyroiditis does not rule out other agents such as exoviruses or endoviruses,[5] and other detailed studies of such associations are needed.

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Hepatitis C in asymptomatic British blood donors with indeterminate seropositivity

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False positive results are common when low risk populations, such as volunteer British blood donors, are screened for antibodies to hepatitis C virus. In this setting a confirmatory assay is required, but an indeterminate result may still be obtained. This regional blood transfusion service uses a second generation recombinant immunoblot assay (RIBA HCV, Ortho diagnostics) to confirm positive results on enzyme linked immunosorbent assay (ELISA). Donors with indeterminate results in the confirmatory assay are excluded from the donor pool and advised that the use of their blood may not be safe.

We examined 61 such donors for evidence of hepatitis C and liver disease.

Patients, methods, and results

Consecutive patients referred to this liver unit were interviewed and examined. Liver function was checked, and serum was stored at −70° C. Liver biopsy was performed, and histology was scored according to a modified Knodell activity index (maximum possible score 13). Part of the biopsy specimen was snap frozen and stored at −70° C. Stored serum samples and biopsy specimens were examined for hepatitis C virus RNA (assay detection sensitivity 0·4-4 copies of target complementary DNA).

Six donors had had blood transfusions, and 55 had no overt risk factor for hepatitis C. All were asymptomatic, with no physical signs of liver disease. One obese donor had raised serum alanine transaminase activity (45 U/l, normal <41), and the remainder (including the six donors who had had transfusions) had normal results. All serum samples were negative for hepatitis C virus RNA.

Fifty nine liver biopsies were performed. Histological abnormalities were mild, and most specimens (49/59) had an activity index of 0 (table). The most commonly observed abnormality was steatosis, sometimes accompanied by an inflammatory infiltrate. Of six patients with a history of transfusion, four had an index of 0 and the two others scored 1. Significant abnormality was observed in a single biopsy specimen (mild chronic active hepatitis, activity index 5). This donor had persistently normal serum transaminase activity during two years' follow up. Twenty biopsy specimens, selected to represent a range of histological changes (table), were negative for hepatitis C virus RNA.

Results for 59 liver biopsy specimens from asymptomatic blood donors with indeterminate seropositivity for hepatitis C virus

Histological activity index	Histological feature	No of specimens	No of specimens examined for HCV RNA
0	Normal	35	14
	Non-specific inflammation	3	
	Steatosis	11	2
1	Portal inflammatory infiltrate	3	1
	Lobular inflammatory infiltrate	4	1
	Fibrosis	1	
2	Portal and periportal inflammation	1	1
5	Mild chronic active hepatitis	1	1

HCV=hepatitis C virus.

Comment

When the confirmatory assay for antibodies to hepatitis C virus is positive, British blood donors are nearly always viraemic with histological evidence of liver disease.[1] They should be excluded from blood donation and referred for investigation and management of chronic hepatitis.

Interpretation of indeterminate results on recombinant immunoblot assay is more difficult and is principally dependent on the clinical context. Patients with such indeterminate results with known or suspected liver disease probably have hepatitis C, and viral RNA will usually be detected in their serum.[2] Blood donors with such indeterminate results, however, usually have no known risk factor for hepatitis C.[3] In other studies a minority of such donors in Britain (about 5%) were serum positive for hepatitis C virus RNA.[4]

In our cohort risk factors for parenteral exposure were uncommon and liver function was normal (except for an obese man with slightly increased serum alanine transaminase activity). All 61 serum samples and a representative selection of liver biopsy specimens, were negative for hepatitis C virus RNA.

The interpretation of minor histological abnormalities in this context is a challenge. None is pathognomonic of hepatitis C, but lymphoid aggregates (common in chronic hepatitis C[5]) were observed in a single biopsy specimen (activity index 5). Our patients would not have undergone biopsy outside the context of this study, and the prevalence of minor histological abnormalities in a comparable unselected population is not known.

In conclusion, British blood donors with normal liver function and an indeterminate result on second generation recombinant immunoblot assay should be reassured that covert liver disease is most unlikely. Further investigation, including liver biopsy, is not indicated. Normal transaminase activities were a feature of our cohort. Viraemia and liver disease may be more likely when liver function tests give abnormal results.

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Wastage of family income on skin disease in Mexico

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Skin disease accounts for a major part of the work load of primary health care workers in developing countries. Prevalences vary, but skin conditions may affect over 60% of the community[1] and are often poorly managed due to lack of training. We investigated the impact of ineffective treatment of skin disease on family life in rural Mexico.

Subjects, methods, and results

Working in the community of Cayaco, 10 km from Acapulco, we conducted our initial survey using proved field methods.[2] It included a house to house questionnaire survey designed by the group to study the distribution of skin disease and the use and cost of treatments, including travel expenses, medical bills, and drugs. These figures were based on patients' estimates but were cross checked with prices in retail pharmacies. We also estimated the loss of work or schooling resulting from skin disease. The diagnosis in patients describing skin lesions in the initial survey was validated by physical examination in an outpatient clinic and in a separate random survey in 120 primary school children. Treatment was judged to have been ineffective if patients had the same lesions and symptoms for which they had been treated during the previous six months. Regression analysis was carried out using the software package NANOSTAT.

We surveyed 380 households containing 1528 people (713 males, 815 women), of whom 207 reported skin disease. One hundred and thirty one attended the outpatient clinic (41 males, 90 females). The commonest skin disease among them was pyoderma (27 patients), followed by scabies (26), pityriasis alba (23), acne (eight), dermatophytosis (eight), viral warts (eight), and pediculosis capitis (eight). Sixty six had other skin conditions ranging from urticaria (two) to scrofuloderma (one). Fifty eight patients had more than one condition, making a total of 189 dermatoses. In all, six conditions accounted for 102 of the dermatoses. Fifteen patients with scabies and 21 with pyoderma had received ineffective treatment over the previous six months at a mean cost of 66 (SE 19) new pesos (£12.45 (£3.58)) and 136 (30) new pesos (£25.70 (£5.67)) respectively. Many of the affected children had taken time off school—eight days for scabies (12 patients) and 15 days for pyoderma (10 patients).

Sixty eight of the 120 primary school children in the random survey had at least one treatable skin condition.

Comment

One of the major challenges in health care is the process of matching supply with demand for treatment, while making appropriate allowance for the resources available. It might be thought that skin disease should take a low priority in this calculation, given its low morbidity and mortality. This, however, would be to ignore the impact of the disease on the community. In our study half the households contained people who reported symptoms and signs, and 57% of children screened randomly had at least one treatable skin disease, confirming previous observations that skin disease is common in this environment.[2]

In Mexico, as in many other developing countries, people will use a limited family income to buy health advice from pharmacies, private doctors, or traditional healers if they are not satisfied with the treatment given by their usual source of medical advice. The mean total cost of ineffective treatment for the two commonest conditions over six months was a major financial burden on families in a marginal economy where the mean daily wage is 15·2 new pesos (£2.87).[3] Furthermore, some children lost considerable time from school because of skin infection. Both diseases are readily curable by eliminating scabies,[4] provided that all contacts are also treated and there is adequate compliance.

These data argue for a more logical approach to the management of certain skin diseases in developing countries on a community rather than an individual basis.[4] In the area we surveyed a new system of community dermatology is being implemented with close collaboration between specialists and primary health care workers.[5]

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