

# The Prevalence of Virus-B Hepatitis in South African Blacks

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## SUMMARY

The importance of virus-B as a cause of acute hepatitis in South African Blacks was determined by examining the serum of 147 patients during the acute stage of the illness for the presence of hepatitis-B antigen (HBAG). The antigen was found in 54% of 63 children and 65% of 83 adults with this disease. It is suggested that the relative predominance of virus-B hepatitis in Blacks is related to the high HBAG carrier rate in this population. The majority of patients with virus-B hepatitis did not give a history of parenteral exposure to the infectious agent, emphasising the importance of non-parenteral spread of virus-B.

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South African Blacks, in common with some other developing populations, have a high prevalence of the hepatitis B antigen (HBAG) carrier state.<sup>1-3</sup> The explanation for the greater carrier rate in certain populations or countries is not known, but it seems likely that several factors are involved.<sup>4-6</sup> In the case of Blacks, scarification of the skin with unsterile instruments by witch-doctors or during ritual tribal ceremonies is one of the factors incriminated,<sup>7</sup> but direct person-to-person spread,<sup>5</sup> and transmission by mosquitoes<sup>8</sup> or other blood-sucking vectors is also likely. Given a high HBAG carrier rate, and the circumstances in which many Blacks live, one might expect virus-B hepatitis (previously known as serum or long incubation hepatitis) to occur commonly. The purpose of the present investigation was to determine the proportion of cases of acute viral hepatitis in Black children and adults in which virus-B was incriminated.

## PATIENTS AND METHODS

The study was based on 147 unselected Black patients admitted to the CMR Infectious Fevers Hospital in Maraisburg or to the Johannesburg Non-European Hos-

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pital with acute viral hepatitis. The diagnosis was made on the clinical features and biochemical findings. Liver biopsies were not performed. Virus-B hepatitis was identified by positive serological tests for hepatitis B antigen in the patients' serum; the tests used were counter immunoelectrophoresis<sup>8</sup> and complement fixation.<sup>9</sup> Sixty-three of the patients were 14 years of age or younger—32 were girls. The adult group (aged 15-70 years) included 46 females out of a total of 84 cases.

The patients (or, in the case of young children, their parents) were questioned about recent exposure to jaundiced persons, and were asked if they had, during the 6 months preceding the onset of symptoms, received blood transfusions, injections or vaccinations, visited a witch-doctor, or undergone surgical or dental operations. This information could not be obtained from 25 young children who came to hospital unaccompanied by their parents.

## RESULTS

HBAG was found in the serum of 34 of the 63 children (54%) and in 55 of 84 (65%) of the adolescents and adults with acute hepatitis. The number of cases of HBAG-positive and HBAG-negative acute viral hepatitis per age decade is shown in Table I. There was no sex difference in the prevalence of virus-B hepatitis in children (17/32 girls; 17/31 boys) or in adults (28/46 females; 27/38 males). Of the 75 patients in whom HBAG was found, and from whom an adequate history could be obtained, 32 (43%) gave a story of possible parenteral exposure during the 6 months preceding the onset of symptoms. The majority (23) had received one or more injections, but 3 had been transfused during the course of an operation, 1 had been vaccinated and 1 had received dental treatment. Two patients were nurses at Baragwanath Hospital, where they may have been exposed to the infectious agent. Only 2

TABLE I. NUMBER OF CASES OF HBAG-POSITIVE AND HBAG-NEGATIVE ACUTE VIRAL HEPATITIS IN EACH DECADE

Age (years)	HBAG-positive	HBAG-negative	Total
0 - 10	29	29	58
11 - 20	15	0	15
21 - 30	27	4	31
31 - 40	5	14	19
41 - 50	10	10	20
51 - 60	2	1	3
61 - 70	1	0	1
Total	89	58	147

patients admitted to a recent visit to a witch-doctor during which the skin had been scarified. In general, the patients were reticent about visits to witch-doctors, and because of the difficulty in dating the scars which result from this type of treatment, no detailed examination for scarification was carried out. The period elapsing between the time of possible exposure and the onset of the illness ranged from 1 to 6 months.

Of the 43 patients (27%) in whom the HBAG was not found, and from whom an adequate history could be obtained, 12 gave a story of possible parenteral exposure. Ten patients had received injections and 2 blood transfusions.

## DISCUSSION

Virus-A (short incubation; infectious) hepatitis has been the predominant form of acute viral hepatitis in most countries for which data are available. However, in some countries, e.g. Scandinavia and the USA, the position may now have changed.<sup>20</sup> This has come about through a decrease in the prevalence of virus-A hepatitis, at a time when the number of cases of virus-B hepatitis is increasing as a result of the burgeoning parenteral drug problem. A recent survey by Prince *et al.*<sup>21</sup> of the 2 forms of acute hepatitis in the USA showed that virus-B was now the dominant form of adult hepatitis, although virus-A could still invariably be incriminated in children. In a developing population, and one in which main-line drug addiction does not occur, such as the South African Blacks, one might still expect virus-A hepatitis to predominate, both in adults and in children. In fact, the present study has shown the opposite to be true: virus-B accounted for 54% of the hepatitis in patients under the age of 14 years, and

65% of that occurring in adolescents and adults. It is tempting to relate this state of affairs to the high prevalence of the HBAG carrier state. Spread of the virus from this endemic pool to non-immune subjects would occur by the various routes which have been suggested.<sup>8-9,12</sup>

A high proportion of our patients with virus-B hepatitis did not give a story of parenteral exposure of the sort known to be followed by hepatitis. In the case of witch-doctor scarification, this might be explained by the known reticence of patients to admit to these visits. The latter problem was overcome in a previous study by a careful examination of the patient's skin for the scars which result from these practices.<sup>7</sup> However, difficulty in dating the scars to the 6 months preceding the onset of the present illness precluded this as a means of establishing this point in the present study. Apart from this, our experience coincides with that of workers in other countries, and emphasises again the importance of non-parenteral spread of virus-B.<sup>10,12</sup>

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