

# The Antistreptolysin Titre (ASO Titre) as a Diagnostic Index in Hepatitis

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## SUMMARY

A series of patients suffering from hepatitis and jaundice were studied in order to ascertain whether the ASO titre would assist in early diagnosis of these diseases, and whether it would help in the differentiation of the various types of hepatitis.

*S. Afr. Med. J.*, **45**, 1162 (1971).

At present there is no simple single investigation that is specific for the diagnosis of viral hepatitis. The discovery of the Australia antigen (hepatitis-associated antigen) was

heralded as the answer to this problem; however, with time it has been shown that the Australia antigen is not present in a considerable percentage of patients with viral hepatitis.<sup>1,2</sup> Consensus of opinion now favours that it is only present in patients with serum hepatitis and then in only about 40% - 60% of patients depending on the stage of the illness, frequency of testing and technique applied.<sup>2,3</sup> Also, the Australia antigen may not be specific for viral hepatitis as it also detected in patients with chronic aggressive hepatitis and hepatoma of the liver.<sup>3-5</sup>

The German and Swedish workers have reported that the antistreptolysin titre (ASO titre) was elevated in acute

viral hepatitis and jaundice without discussing its significance or the clinical application.<sup>6,7</sup> We studied the ASO titre in patients with hepatitis and jaundice in order to ascertain the frequency with which it was elevated and also whether it was of any diagnostic assistance early in the course of acute hepatitis and jaundice. In particular we were interested to establish whether the ASO titre would be of value in the differentiation of the various types of hepatitis.

### PATIENTS STUDIED

Eighty-five patients with acute viral hepatitis (either serum or infectious hepatitis) were studied. In addition we studied 5 patients with glandular fever and hepatitis, 4 patients with leptospirosis, 4 patients with drug hepatitis and 12 patients with acute chronic hepatitis. Twenty control patients were also included (Table I). The controls were

TABLE I. PATIENTS STUDIED

Diagnosis	No.
Serum hepatitis ... ..	85
Infective hepatitis ... ..	
Glandular fever ... ..	5
Leptospirosis ... ..	4
Drug hepatitis ... ..	4
Active chronic hepatitis	12
Controls ... ..	20

selected at random from the wards and were suffering from no obvious streptococcal disorders at the time of the study or in the recent past. The age of the patients studied ranged from 12 to 64 years, the sexes were equally represented and the patients included Whites, Coloureds, and Bantu.

### INVESTIGATIONS PERFORMED

Every patient had the following investigations performed: ASO titre, throat swab, Australia antigen, Wassermann reaction, latex agglutination test and full liver-function tests (albumin, globulin, transaminase, bilirubin, alkaline phosphatase and cholesterol).

The investigations were performed immediately on admission to the wards; thus the patients were usually studied within the first week of their hepatitis and jaundice. This did not apply to the active chronic hepatitis group. None of the patients studied had an obvious streptococcal infection at the stage of investigation, nor did they have a past history of any recent infection.

### RESULTS

The viral hepatitis group had a 68% positive ASO titre (a titre in excess of 333 Todd units was regarded as elevated). They also had a 40% positive Australia antigen, a 12% positive Wassermann, and a 49% positive latex test

(Table II). All the patients with other conditions had absent or low titres except the active chronic hepatitis group. They had a 8% positive ASO titre, a 30% positive Australia antigen, a 5% positive Wassermann and a 25% positive latex. One control patient had an elevated ASO titre for no apparent reason.

TABLE II. RESULTS (POSITIVE EXPRESSED AS A PERCENTAGE)

Diagnosis	ASO	Au	WR	Latex
Viral hepatitis	68%	40%	12%	49%
Glandular fever	—	—	—	—
Leptospirosis	—	—	—	—
Drug hepatitis	—	—	—	—
ACH	8%	27%	5%	25%
Control	5%	—	5%	—

ASO = antistreptolysin titre; Au = Australia antigen; WR = Wassermann reaction; Latex = latex agglutination test; ACH = active chronic hepatitis.

### DISCUSSION

The findings show that the ASO titre was significantly elevated in 68% of patients with acute viral hepatitis and in 8% of patients with acute chronic hepatitis. It was normal in the other groups of patients studied.

There was no correlation between the elevated ASO titre and the presence or absence of the Australia antigen. Also there was no correlation between the height of the ASO titre and the severity of the jaundice (as depicted by the bilirubin level). However, patients in hepatic precoma did appear to have the highest ASO titres.

The pathogenesis of the elevated ASO titre is not obvious. It may merely reflect the non-specific elevation of the globulins that is usually found in acute hepatitis and the positive latex and Wassermann reactions may also only reflect this non-specific globulin elevation, mostly IgM. An alternative theory, less favoured, is that the hepatitis virus and the streptococcus exist in a symbiotic relationship and that both are required to be present before infection occurs. Another view is that the elevation of beta-lipoproteins occurring in hepatitis gives rise to a technical false positive elevated ASO titre.

We have found the ASO titre especially useful in differentiating acute viral hepatitis from drug hepatitis—a problem frequently encountered these days. A patient with pulmonary tuberculosis receiving PAS, streptomycin and INH was recently seen with acute hepatitis and jaundice. The problem was whether this was serum hepatitis or drug hepatitis. The ASO titre was markedly elevated, favouring the diagnosis of serum hepatitis. Once the hepatitis had settled the patient was again treated with the PAS, INH and streptomycin with no ill-effect or recurrence of hepatitis, thus confirming our diagnosis that the patient was not suffering from a drug hepatitis.

It is considered that the ASO titre is a useful, rapid, easy and cheap way of differentiating certain types of hepatitis and jaundice, and can be helpful in differentiating acute viral hepatitis from other forms of hepatitis.