ARTHRITIS AND VIRAL HEPATITIS

Richard P. Wenzel, et al

Naval Medical Field Research Laboratory
Camp Lejeune, North Carolina

4 October 1971
ARTHRITIS AND VIRAL HEPATITIS

by

LCDR Richard P. Wenzel, MC USNR; LT David P. McCormick, MC USNR;
LCDR Hal J. Busch, MC USNR; and CAPT Walter E. Beam, Jr., MSC USN

Bureau of Medicine and Surgery, Navy Department
Work Unit MF51.524.009-8011BF61.13

Reproduced by
NATIONAL TECHNICAL
INFORMATION SERVICE
U.S. Department of Commerce
Springfield, VA 22151

APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED
The relationship of arthritis and viral hepatitis has recently been emphasized. It is suggested that circulating antigen-antibody complexes incorporating complement are responsible for arthritic symptoms in many cases. Although testing for the presence of hepatitis-associated antigen (HAA) is now employed more frequently to distinguish long incubation viral disease, no inferences can be drawn as to whether arthritis is more common in one form of hepatitis or the other.

We present a case of arthritis associated with transient HAA and low serum complement in acute viral hepatitis. George L. Le Bouvier, MD, of Yale University performed the test for hepatitis-associated antigen using the semiquantitative immunodiffusion method. (U)
<table>
<thead>
<tr>
<th>KEY WORDS</th>
<th>LINK A</th>
<th>LINK B</th>
<th>LINK C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arthritis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HAA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viral Hepatitis</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The relationship of arthritis and viral hepatitis has recently been emphasized.\(^1,\)\(^2\) It is suggested that circulating antigen-antibody complexes incorporating complement are responsible for arthritic symptoms in many cases.\(^3,\)\(^4\) Although testing for the presence of hepatitis-associated antigen (HAA)\(^5,\)\(^6\) is now employed more frequently to distinguish long incubation viral disease, no inferences can be drawn as to whether arthritis is more common in one form of hepatitis or the other.\(^6\) We present a case of arthritis associated with transient HAA and low serum complement in acute viral hepatitis.

**Patient Summary**

An 18-year-old white serviceman was referred to the brig with a seven-day history of anorexia, nausea, vomiting, and crampy right upper quadrant pain. Over the same period he developed arthralgias and an erythematous pruritic rash over the volar aspect of both wrists. Five days before admission his urine darkened and he described a distaste for cigarettes. He denied parenteral drug abuse and gave no history of raw shellfish ingestion, recent tattoo, blood transfusion, or foreign travel. One day before admission he noticed stiffness and swelling of the third finger of his right hand.

Clinical course of a patient with hepatitis-associated antigen (HAA) positive viral hepatitis, skin nodules, rash, and arthritis. Note the transient nature of arthritic symptoms. The C3 values recorded on days 3 and 17 were 50 and 160 mg/100 ml, respectively (normal = 145 ±22 mg/100 ml). The hepatitis antigen values recorded on days 3 and 17 were 5 and < 0.1 Yale units, respectively, IU = international units.
On admission he was obviously jaundiced and in no distress. His blood pressure was 130/80 mm Hg; pulse rate, 100 beats per minute; and temperature, 37.2°C (99°F) orally. His liver was palpable, tender, and had a span of 11 cm by percussion. The spleen tip was palpable. On examination of the extremities, a mild swelling of the proximal interphalangeal joint of the right third finger was noted.

Circinate and annular erythematous plaques were present over the wrists, knees, and dorsum of the feet. In addition, there were six to seven erythematous blanching, nontender 1-cm nodules on the forearms. Initial hemoglobin level was 10.0 g/dl with a hematocrit value of 49%. White blood cells numbered 5,300/cu mm with 45 neutrophils, 5 lymphocytes, and 2 eosinophils. Sedimentation rate was 4 mm/hr. Results of the following laboratory studies were normal: heterophil agglutinin, serum triglycerides, and latex fixation. Sutnick and others have proposed precipitins to subgroup Y of hepatitis-associated antigen: Physicochemical and immunological characteristics, in Advances in Virus Research, New York, Academic Press Inc. 1970, vol 16, pp 376-377.

The patient was treated symptomatically and no antinflammatory agents were administered. He was discharged after 81 days, one week after his serum transaminase values returned to normal levels.

Comment

The association of rheumatic symptoms and viral hepatitis is variously stated from 3% to 18% of series studied. As reported here, the rash and arthritis are usually seen together in the prodromal stages of illness involving distal joints. That the arthritis signs may be short-lived is illustrated in the patient summary. We emphasize the unilateral nature of the arthritis in our case in contrast to those cases of Fernandez and McCarty.

Sutnick and others have proposed that a genetic basis exists for the persistence of HAA. Furthermore, persistence of HAA has been associated with such illnesses as polyarteritis, chronic hepatitis, and hepatomas. However, genetic host factors may modify the immune response to various viral subgroups.

Summary

An 18-year-old serviceman developed viral hepatitis with unilateral arthritis, skin nodules, and a moccu- popular rash. His acute symptoms were associated with a low serum complement level and transient presence of hepatitis-associated antigen subgroup Y. We propose that circulating immune complexes which are deposited in synovial and skin capillaries may be responsible for his rheumatic and dermatologic symptoms, respectively.

References


Printed and Published in the United States of America.