

Viral hepatitis in the US Air Force, 1980–1989

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Viral hepatitis and its acute and chronic complications continue to pose significant threats to the readiness of military personnel. Knowledge about the specific viral agents and their routes of transmission are important in developing prevention strategies. A recent analysis of hepatitis in the US Navy for the period 1975–1984 is reviewed. In order to better characterize the risk of viral hepatitis among US Air Force personnel, a comprehensive review of inpatient and quarters data for hepatitis A, B and 'non-A, non-B' were reviewed from Air Force medical treatment facilities worldwide for the period 1980–1989. Following a discussion of the study methodology, preliminary data and hepatitis type-specific demographic risk variables are discussed. Preliminary results from a hepatitis serosurvey (A, B and C antibody with use of a supplemental validating assay) of the subset of the study cohort who are currently on active duty are briefly reviewed.

Keywords: Viral hepatitis; military personnel; serosurvey

INTRODUCTION

In a study of viral hepatitis in US Navy members in 1975–1984¹, Hyams *et al.* concluded that (1) the highest incidence of acute viral hepatitis occurred in the youngest age groups, ≤ 24 years, (2) that a previous hospitalization for drug abuse or a concurrent discharge diagnosis of a sexually transmitted disease were strongly associated with the risk of acute hepatitis, and (3) that the observed decline in the incidence of viral hepatitis during the 10-year period may have been due to decreasing drug abuse. The researchers concluded that, based on these findings, immunization of high-risk groups in the US Navy with hepatitis B vaccine could be an effective policy for the prevention of acute viral hepatitis.

The newly described hepatitis C agent is the leading cause of transfusion-related non-A, non-B hepatitis. Epidemiological studies have demonstrated that hepatitis C can be transmitted by transfusions, transplantations and intravenous drug abuse. Less is known about the transmission of the virus through sexual or other routes. Recent studies have demonstrated that hepatitis C may not be as readily transmitted through the sexual route as hepatitis B. Clinically, hepatitis C tends more frequently to present either asymptotically or only as a brief non-specific illness. However, it is estimated that as many as 50% of those infected with hepatitis C may eventually develop chronic hepatitis. With the discovery of hepatitis C and with the need to review prevention

strategies for all forms of viral hepatitis, the Epidemiologic Division designed a study to evaluate known or suspected risk factors for viral hepatitis in the Air Force (USAF).

METHODS

Hospitalization and quarters records for USAF medical treatment facilities worldwide for the period 1980–1989 were abstracted for hepatitis A (ICD9CM codes 070.0, 070.1), hepatitis B (070.2, 070.3) and non-A, non-B hepatitis (070.4, 070.5, 070.6, 070.9). Age-, race- and sex-specific rates were calculated for the 10-year time period. Concurrent discharge diagnoses in the case patients for a sexually transmitted disease (ICD9CM codes for gonorrhoea, pelvic inflammatory disease, syphilis, chancroid and lymphogranuloma venereum), for a previous history of a transfusion or for intravenous drug use were also abstracted. Patient records were matched with Air Force personnel records to obtain information regarding the presence/absence and number of overseas assignments, flying status and occupation.

In order to study the prevalence and risk factors for acquisition of the newly described hepatitis C a serosurvey was conducted. Members of the study cohort who remained on active duty were asked to donate serum for a complete hepatitis profile (hepatitis A IgM, IgG; hepatitis B surface antigen/antibody, core antibody/antigen, 'E' antigen; hepatitis C antibody). Specimens which were positive for the hepatitis C ELISA antibody test were validated with a supplemental HCV neutralization assay (Abbott Diagnostics). Hepatitis C-specific demographic and other factors were then determined. Those USAF members who were identified as having viral hepatitis from the record review, but who were no longer in the military, were studied further by examining their cause for separation. Of specific interest was the

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proportion of individuals who were separated for medical complications related to hepatitis (chronic hepatitis, hepatocellular carcinoma, non-alcoholic cirrhosis etc.).

This presentation will summarize some of the preliminary analyses of the study, which is still in progress.

RESULTS AND DISCUSSION

For the 10-yr period, 1911 records with viral hepatitis codes were analysed. Incidence rates of viral hepatitis per 100 000 active-duty person-years were calculated and revealed that sex-specific incidence rates were approximately equal for men and women for hepatitis A and non-A, non-B hepatitis. Hepatitis B, however, was nearly twice as common among men as women (14.8 *versus* 8.0

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per 100 000 personnel, respectively). Blacks were at higher risk of hepatitis B acquisition (27.4) than whites (11.2) or members of other racial groups (13.0). Whites were slightly more likely to have non-A, non-B hepatitis than other racial groups.

Age-specific incidence rates, analysis of overseas assignment history and presence/absence of flying status, data will be thoroughly examined, with regard to possible implications for USAF viral hepatitis prevention.

REFERENCE

- 1 Hyams, K.C., Palinkas, L.A. and Burr, R.G. Viral hepatitis in the US Navy, 1975-1984. *Am. J. Epidemiol.* 1989, **130**, 319-326