The Requirement for Hepatitis A Vaccine in Gurkha Soldiers

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SUMMARY: This Hepatitis A seroprevalence study aimed to determine the cost effectiveness of Hepatitis A vaccination for Gurkha soldiers. One hundred and sixty Gurkha recruits had serum analysed for Hepatitis A IgG. One hundred and fifty nine (99.4%) were IgG positive. Continuing to vaccinate Gurkha soldiers against Hepatitis A will confer little benefit and is not cost effective.

Introduction

Hepatitis A is an acute, self-limiting infection of the liver caused by an enterically transmitted virus. Infections are mostly benign, although severity increases with age. Symptoms in children are often mild or asymptomatic (1). In endemic countries, overcrowding with lack of clean water and poor facilities for sewage disposal, cause most children to be exposed at a very early age. Hepatitis A is therefore only of significant risk to unprotected visitors to endemic countries. The relationship of hepatitis A infection with periods of military conflict has been recognised for many years (2). All British military personnel who are serving within hepatitis A endemic areas are immunised with hepatitis A vaccine prior to deployment.

Nepalese citizens have been recruited into the British Army with whom they have a distinguished record since 1815. They have served in most of the areas where British born troops serve. Nepal is a recognised hepatitis A endemic country with a high seroprevalence within the local population to hepatitis A virus (3). Little is known about the prevalence within the young, fit population which are recruited into the British Gurkhas.

It was therefore decided to undertake a hepatitis A seroprevalence study within recruits to the British Gurkhas and determine the cost-effectiveness of administering hepatitis A vaccine in this population group.

Methods

Blood samples were obtained from recruits to the Royal Gurkha Rifles undergoing basic training in the United Kingdom during October 1997. All were males within the age range 18-22 years and were in excellent health. Specimens were transported to a military laboratory where serum was separated and tested for hepatitis A IgG by an enzyme-linked immunoassay technique (Vidas, bioMérieux). All tests were supported by positive and negative controls.

Results

A total of 160 serum samples were obtained from recruits with the following results:

Total specimens	160
Total hepatitis A IgG positive	159
Total hepatitis A IgG negative	1

Only 1 member of the cohort was found to be negative for hepatitis A IgG and therefore susceptible to hepatitis A infection. The seroprevalence of hepatitis A IgG within this group of Gurkha recruits is 99.4%.

Conclusions

Hepatitis has been a problem for military forces for many years, being described as 'Kriegsickterus' during the Seven Years War and 'jaunisse des camps' during the Napoleonic Wars (1). About 10-15% of soldiers from developed countries have naturally acquired immunity to hepatitis A, and reports from US Forces stationed in South Korea indicated that 25% of acute hepatitis cases were due to hepatitis A infection (4). British forces are now protected by immunisation with a formaldehyde inactivated vaccine prior to deployment to high risk regions.

Gurkhas are largely selected from the hill regions of East and West Nepal. Some recruits may have been born or lived abroad if their father served with the British Army or Singapore police. Serving Gurkha soldiers are not accompanied by their families throughout their service, therefore their sons who are recruited into the British Army will invariably have spent a significant proportion of their childhood in Nepal where exposure to Hepatitis A infection is highly likely.

A study within a Gurkha community in Singapore demonstrated that susceptible children had a high risk of acquiring hepatitis A infection when they travelled to Nepal, and by the time they had reached early adulthood 97.9% were seropositive (5). A study of the inhabitants of village communities in Nepal showed that 99.3% of the people had antibody to hepatitis A virus (3), with the prevalence reaching 100% in those aged less than 25 years of age. Our results are therefore in keeping with these previous studies.

The seronegative case identified in this study came from a typical hill village in West Nepal, and had not lived anywhere else. There is no obvious reason in terms of either geography or living conditions, why he alone should remain hepatitis A negative.

This small seroprevalence study has emphasised that Gurkhas represent a different population from the rest of the British Army, and for this reason need to have their health needs addressed separately. There are approximately 3000 Gurkhas currently employed within the British Army, the financial cost of unnecessary immunisation for this group should be considered. At present manning levels, immunisation would cost £129,600 (May 98). This does not take into account the turnover of manpower which would increase the figure. This study indicates that less than 1% of Gurkha soldiers are susceptible to what is generally a mild and self limiting disease. It is suggested, therefore, that hepatitis A vaccination should no longer be a requirement for this group of soldiers.

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