Malaria: Trends Affecting Scotland

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International trends in malaria morbidity and mortality are causing increasing concern in the medical community. These areas of concern relate to maintenance of control, adherence to preventive measures in many countries, and the worldwide emergence of resistance to drugs used both for treatment and prevention of malaria.

In recent years, there has been a considerable increase in travel to malarial areas of the world (particularly air travel) both for business and leisure purposes. Consequently an increased risk of exposure to malaria now exists for many individuals of races and nationalities normally resident in nonmalarial areas of the world.

The risk of acquiring malaria depends on where one travels and the duration of the stay. Another major factor is what (if any) prophylaxis has been taken. The severity of any illness resulting from travel relates to the strain of malaria acquired and the promptness and effectiveness of available treatment. Prevention by mosquito eradication programs, barrier methods, and prophylactic drug measures is always preferable to the need for subsequent treatment of infection. Advice is available in published guidelines, and more country-specific and individualized advice can be accessed through on-line databases, these sources of information being designed to assist physicians give appropriate advice to their patients. Revised U.K. guidelines have now been published.

In keeping with the increase, both in travel abroad and, more specifically, in travel by substantial numbers of U.K. residents and expatriates to malarial areas, the number of individuals who have acquired malaria has shown an increase over recent years, although year-by-year variation is evident as with many infections. There may be variations in levels of notification and laboratory reporting. Changes in the types of malaria being reported have also been noted.

In Scotland, although the number of notifications has not substantially increased since the 1984 peak, both notifications and hospital discharges indicate overall an upward trend in keeping with experiences noted elsewhere (Fig. 1). The extent to which this trend reflects differences in the travel patterns and destinations of Scots and in their employment abroad in recent decades, remains to be clarified. Oil industry related developments, particularly affecting Scotland, could be one factor in this trend. Differences in levels of notification and laboratory reporting have been noted as underreporting. Evidence of a recent fall-off in laboratory reporting in Scotland that reveals discrepancies in both notification data and hospital discharges has also been noted. Consequently measures to encourage reporting of laboratory results should be stepped up. Additionally, notifications have been substantially below the levels of hospital discharge coding reports of malaria.

These observations underpin the importance of emphasizing awareness of malaria as a hazard to people traveling to malarious areas and of the importance of taking appropriate preventative measures including prophylaxis appropriate to destinations.

Although there have been fewer than ten documented deaths of Scottish residents in the past decade from malaria, with numbers too low to categorically establish a trend, in the U.K. as a whole the data demonstrate periodicity and suggest an upward trend in mortality. The U.S.A., Canada, and Australia have also reported increases in deaths from malaria, both in returned travelers and in nationals still resident abroad. Deaths as a percentage of total notifications may also be increasing, although by a small percentage.

Since the location of acquisition of the malaria has a substantial influence on the variant of malaria likely to be contracted and its level of drug resistance, a review...
of location of acquisition for malaria reported in Scotland, and confirmed by laboratory identification, was undertaken. The data show that, for Scottish residents, two types of malaria predominated. Of the Plasmodium falciparum cases, 80.7% were acquired in Africa and of the P vivax cases, 69.9% were acquired in the Indian subcontinent (South Asia). Other types were comparatively infrequent wherever acquired (Fig. 2). The greatest mortality and morbidity rates have been associated with the P falciparum infection, and analysis of data for both Scotland and England suggests this type is accounting for an increasing proportion of cases. Drug resistance is also a much greater problem in falciparum infections.

An age/sex breakdown of notifications for Scotland for 1994 suggests significant differences in age of onset by sex, which possibly reflects where people travel and other risk factors, as well as perhaps the age/sex distribution of Scottish visitors to, and expatriates in, malarial areas.

These and other intriguing and possibly important questions can only be answered by more detailed analysis. Such analysis may identify needed preventive steps and point-up substantial cost benefits attached to appropriate and timely prophylactic measures. Further refinement and development of prophylaxis and treatment guidelines would also help to ensure that recommendations remain current and focused on risk groups.

Primary care physicians play a vital role in prevention and early diagnosis of malaria. Prophylaxis with the appropriate drug combinations, in conjunction with exposure avoidance measures, are essential and should be combined with a high index of suspicion for this infection in anyone returning from abroad with an illness or manifesting suggestive symptoms and signs within an appropriate interval of return (6 weeks from return or discontinuation of prophylaxis for falciparum malaria and up to 18 months for vivax) from known malarial areas. Suspicion should be promptly followed by appropriate investigations including repeated thin blood smears, early hospitalization initially, until it is evident that the infection is not P falciparum. New guidelines for prophylaxis have just been issued. Failure to give appropriate advice in this respect could have serious consequences and changing patterns of infection and resistance mean that these guidelines need periodic review.

A further consequence of these developments has been the reemphasis on the importance of mosquito suppression measures in malarial areas and also of the importance of avoiding mosquito bites. Included in these measures is the use of personal protective measures, such as impregnated nets and malaria repellents in addition to appropriate drug prophylaxis.

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References