

## Abstract

Lymphatic filariasis is targeted to be eliminated as a public health problem by the year 2020 and a comprehensive strategy for achieving this goal includes interrupting transmission by drastically reducing the prevalence levels of microfilariae. This descriptive, comparative, cross-sectional, randomized community based study was conducted to determine the factors that influence drug compliance with respect to the mass drug administration programme (MDA) against filariasis in the urban and rural populations as well as to assess the impact of the 2004 MDA on filarial infection, immediately and 6 months after administration of drugs.

The study was carried out in selected areas within the Colombo and Gampaha districts of the Western province of Sri Lanka. The urban and rural populations were selected from the Colombo and Gampaha districts respectively using the cluster sampling method. 5 millilitres of venous blood was collected between 8pm and 12midnight. Personal history and drug compliance was recorded. Blood was examined for microfilariae using the membrane filtration technique and for antigenaemia using the immunochromatographic test kits. Factors influencing drug compliance was determined by administering an interviewer based pre-tested structured questionnaire which elicited information regarding drug compliance, socio-economic status, educational background, knowledge and attitudes and practices with regard to the 2004 MDA.

Of the 2034 persons examined immediately after the 2004 MDA, 4.10% (n=84) were infected (positive for circulating filarial antigen or microfilaraemia) as compared to 0.20% (n=4;  $\chi^2=71.95$ ;  $P<0.001$ ) of the 1974 persons examined 9 months later. Antigen positives reduced significantly from 82 (4.03%) to 3 (0.15%;  $\chi^2=72.63$ ;  $P<0.001$ ) while the number of microfilaraemics reduced from 4 (0.20%) to 1 (0.05%;  $\chi^2=1.71$ ;  $P=0.38$ ). Significant reductions in prevalence were observed even when the analysis was done for each district separately ( $P<0.001$ ). Drug compliance appeared to be an important determinant for reduction of antigenaemia when the prevalence of infection was high within the population, as seen during the first survey of this study ( $\chi^2=4.14$ ;  $P=0.04$ ). However, the 20% difference in compliance between urban and rural areas did not affect the prevalence of infection.

Two thousand three hundred and nineteen persons aged between 10 and 90 years (median 40.0) responded to the questionnaire. Knowledge and attitude regarding filariasis and the MDA programme as well as factors pertaining to drug distribution were found to have an important influence on drug compliance ( $P<0.05$ ). However, the belief that the MDA programme was beneficial was the most important factor affecting drug compliance as revealed by multivariate analysis of data combined from both districts ( $P<0.001$ ). This was so even in the Colombo district ( $P<0.001$ ), while the belief regarding the severity (danger) of filariasis was important in Gampaha, with significantly lower compliance among those considering filariasis to be a mild disease ( $P=0.013$ ), when the districts were considered individually. Therefore, it is essential for awareness programmes to highlight

the dangers (complications) of the disease and to influence the community to perceive the benefits of a filariasis-free community as well as the 'beyond filariasis' benefits of having albendazole given in combination in the MDA programme.

The major difference in drug compliance between the urban and rural areas appeared to be due to the lower drug coverage in the urban areas when compared to the rural, due to lack of volunteers from the urban areas. Since the nature, composition and dynamics of the urban population are different from the rural population separate MDA strategies for the urban areas may need to be developed in order to improve compliance in these areas.