Risk of filarial infection among children in relation to parental infection – examining the role of bednet use and local endemicity

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Introduction: Lymphatic filariasis caused by Wuchereria bancrofti microfilaraemia is one of the important public health problems of tropical world including India with about 411 to 430 million people at risk and about 6.7% of them were microfilaraemic. In rural communities where disease may be more severe, many people do believe that the disease may be hereditary in nature, however scientific evidence to these observations vary based on area, methodology and endemicity levels.

Lammie et.al (1991) first published this observation on data from Haiti and revealed that children of mf infected mothers are 2.4-2.9 times more likely to become infected. Kumar (1997) however revealed that neither parents' filarial infection status may be closely associated with the mf infection status in children. He further suggested that such a relationship might have been due to synergistic effect (continuum of time of exposure) since Haiti is highly endemic for filariasis. Another study (Das et al.,1997) suggested no statistical significance in mf prevalence among children under 20 years of microfilaraemic mother or Father. Data from Brazil also suggested that maternal microfilaraemia may not be a risk factor for the occurrence of microfilaraemia in offspring (Braga et.al.,1998). However the study highlighted the role of the household environment in the transmission process. Present study thus attempted to examine the role of

bednet use and endemicity as local force of infection in examining the relationship of parental mf status with their children.

Material and Methods : Data for this are taken from a study undertaken by the Author in 3 districts of Orrisa during 1993-4. 40 villages from Khurda district, were selected using Proportion allocation and Systematic Random Sampling procedure (Kumar,1998). For comparison of mf prevalence, 8 villages from Puri and 12 from Nayagarh were also taken. From each village, a sample of 25 households was drawn using Systematic Random Sampling procedure and the whole family was attempted to examine for microfilaraemia by taking 20 cmm of fingerprick blood sample during 1900-2300 hours using standard procedures (Sasa,1967). Information on household characteristics and from individuals on bednet use, clothing etc was collected. In 60 villages surveyed, mf prevalence varied from about 1% to 24%. From these 60 villages, 1725 children from 778 families with known parental microfilaraemia status have been taken for this study.

Results : The offsprings of mf infected mothers are found to have higher risk (OR=2.7, 95%CI:1.2-6.1) when univariate relationship is examined. Similarly, Children were found to have significant risk in households where any adult >20 years was infected, who did not use bednets regularly and who lived in high endemic areas. However, when risk estimates are adjusted for the effect of bednet use, room density and Household infection among adults, children of mf-infected mothers were seen to have insignificant risk (OR=1.4, 95CI%: 0.7-2.5). Results were verified using data from households without mf-infected mothers.

Conclusion: Offsprings/Children of mf-infected mothers have almost similar risk of acquiring filarial infection as others. This is determined by local endemicity and personal protection measures as bednet use.