Prevalence of subclinical rheumatic heart disease in urban and rural areas of north India: The e-RHEUMATIC (Extended-Rheumatic Heart Echo Utilization and Monitoring Actuarial Trends in Indian Children) Study

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Background - Studies have reported a higher prevalence of subclinical rheumatic heart disease (RHD) using echocardiographic screening in many countries including India. The prevalence may be significantly different in rural and urban areas of India, but is not studied. The objective is to compare the prevalence of subclinical RHD among rural and urban school children in India.

Methods - We carried out a cross sectional echocardiographic screening study among 8,454 randomly selected school children aged 5-15 years (10.6 ± 2.8 years; 57.9% male). A total of 6345 students were from rural areas and 2109 were from urban areas of New Delhi. We used the World Heart Federation criteria for diagnosing RHD by echocardiography.

Results - Clinical examination detected mitral regurgitation (MR) in 6 patients (clinical prevalence of RHD 0.7/1000 school children). Echocardiography-Doppler diagnosed definite or borderline RHD in an additional 75 cases. Hence a total of 81 children had RHD, giving a prevalence of 9.6/1000 school children (95% CI - 7.7 - 11.9/1000 children). The prevalence of definite or borderline RHD was 6.6/1000 school children in urban areas as compared to 10.6/1000 in rural areas. Even among the rural children there was a difference among children studying in government schools (12.2/1000) as compared to those in private schools (9.5/1000). Studying in a government school may be taken as a surrogate marker of lower socio-economic status.

Conclusions - The prevalence of RHD is higher among rural children as compared to urban children. The programs to control RHD should perhaps focus on such high prevalence zones.