

## **Immunological response to antioxidant vitamin supplementation in rural Bangladeshi school children with group A streptococcal infection.**

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Group A beta haemolytic streptococcal (GABHS) infection induce an abnormal immune response in a susceptible host. Micronutrient deficiency may affect the immune response of an individual. The aim of this study was to determine whether antioxidant vitamins could improve the abnormal immune response in GABHS infected children in rural Bangladesh. A total of 516 GABHS infected school children aged 5 to 15 years were randomly assigned to two groups. Group 1 (N=258) was treated with phenoxymethyl penicillin V and group 2 (N=258) was treated with penicillin V plus antioxidant vitamins (beta carotene, alpha tocopherol and ascorbic acid). From each group two blood samples were drawn; the first sample at the beginning of the study and another one after eight weeks. Streptococcal antibodies and immunoglobulin levels were compared between the two samples. The mean age of the study population was 10.6 years. Equal number of boys and girls were included in both groups. After treatment, antistreptolysin O (ASO) and antideoxyribonuclease B (ADNase B) titres were decreased in both groups. Serum alpha tocopherol and beta-carotene levels were increased significantly in group 2. In group 1 immunoglobulin M and A levels decreased significantly ( $P = 0.0001$ ) whereas immunoglobulin G showed no change. To the contrary, concentration of three immunoglobulins decreased significantly ( $P = 0.0001$ ) in group 2. Least-square means of between-group differences showed highly significant results for ASO, ADNase B, immunoglobulins M, A and G ( $P = 0.0001$ ). Our data indicate that treatment by antioxidant vitamins plus penicillin is more effective in decreasing immunological abnormalities in GABHS infected children than penicillin alone.

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- Randomized Controlled Trial

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