

Publication

Association of vitamin D status with incidence of enterotoxigenic, enteropathogenic and enteroaggregative Escherichia coli diarrhoea in children of urban Bangladesh

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To evaluate the association between vitamin D status and diarrhoeal episodes by enterotoxigenic (ETEC), enteropathogenic (EPEC) and enteroaggregative (EAEC) E. coli in underweight and normal-weight children aged 6-24 months in urban Bangladesh.; Cohorts of 446 normal-weight and 466 underweight children were tested separately for ETEC, EPEC and EAEC from diarrhoeal stool samples collected during 5 months of follow-up while considering vitamin D status at enrolment as the exposure. Cox proportional hazards models with unordered failure events of the same type were used to determine diarrhoeal risk factors after adjusting for sociodemographic and concurrent micronutrient status.; Vitamin D status was not independently associated with the risk of incidence of ETEC, EPEC and EAEC diarrhoea in underweight children, but moderate-to-severe retinol deficiency was associated with reduced risk for EPEC diarrhoea upon adjustment. Among normal-weight children, insufficient vitamin D status and moderate-to-severe retinol deficiency were independently associated with 44% and 38% reduced risk of incidence of EAEC diarrhoea, respectively. These children were at higher risk of ETEC diarrhoea with vitamin D deficiency status when adjusted for micronutrient status only.; This study demonstrates for the first time that normal-weight children with insufficient vitamin D status have a reduced risk of EAEC diarrhoea than children with sufficient status. Moderate-to-severe deficiency of serum retinol is associated with reduced risk of EPEC and EAEC diarrhoea in underweight and normal-weight children.

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