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Topic: Community health and nutrition programs

Title: Growth after vitamin A at routine vaccination contacts

Presentation Type: Oral

Introduction: Within a randomised controlled trial of vitamin A supplementation (VAS) with vaccines on survival, we tested the effect of VAS on growth, overall and by sex and vaccine type.

Methods: Children aged 6-11 months were randomised to VAS (100,000IU) or placebo at the vaccination contact. Weights, lengths and mid-upper-arm-circumferences were measured at enrolment and after 6 and 12 months of follow-up. We used the 2006-WHO-growth reference to obtain z-scores. The effect of VAS on weight-for-age, length-for-age and arm-circumference-for-age was examined using multivariate repeated measurement ANOVA and relative risks for the incidence of stunting (length-for-age<-2) and underweight (weight-for-age<-2) were calculated

Results: Among the 1596 children followed in the growth study, VAS had no overall effect on weight-for-age or arm-circumference-for-age, but was associated with an overall beneficial effect on length-for-age. The difference in change in length-for-age between VAS and placebo group was 0.12(0.03;0.22) between enrolment and 6 months and 0.15(0.05;0.25) between enrolment and 12 months. In 443 children who had received an inactivated vaccine at enrolment, VAS benefitted the growth of boys during the first 6 months whereas girls tended to have a negative effect. In contrast, in 1001 children who had received a live vaccine VAS tended to benefit the growth of girls but not boys. Thus the effect of VAS differed by sex and vaccine, resulting in significant three-way interactions for weight-for-age ($p=0.008$) and arm-circumference-for-age ($p=0.005$) but not for length-for-age ($p=0.08$).

Conclusion: VAS benefitted length-for-age overall, but effects of VAS on growth differed by sex and vaccine type.