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Topic: Community health and nutrition programs

Title: An enigma: why high-dose vitamin A supplementation does not always reduce mortality even though vitamin A deficiency is associated with increased mortality

Presentation Type: Oral

Background: Vitamin A deficiency (VAD) is associated with increased mortality. To prevent VAD, WHO recommends high-dose vitamin A supplementation (VAS) every 4–6 months for 6 month-5-year-old children in countries at risk of VAD. The policy is based on randomized clinical trials (RCTs) conducted decades ago. Recent RCTs indicate that the policy may have ceased to be beneficial. Furthermore, RCTs of neonatal VAS have yielded conflicting results. Stratified analyses suggest that some subgroups benefit more than expected from VAS, but other subgroups experience negative effects.

Methods: We reviewed the literature for potential VAS effect modifiers.

Results: The variable effect of VAS was not explained by underlying differences in VAD. Rather, the effect may depend on the sex of the child, the vaccination status and previous VAS. Vitamin A is known to affect the Th1/Th2 balance and VAS may also induce epigenetic changes leading to downregulation of the innate immune response. Thus, VAS protects against VAD but has also important and long-lasting immunological effects, and the effect of providing VAS may vary depending on the state of the immune system.

Conclusions: To design a VAS policy, which targets those who benefit and avoids those harmed, more studies are needed. Work is ongoing to define whether neonatal VAS should be considered in subgroups. In the most recent RCT in older children, VAS doubled the mortality for males but halved mortality for females. We urgently need large-scale RCTs powered to study the effect of VAS by sex and other potential effect modifiers.