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Dengue and chikungunya in India

Sanjit Bagchi recently highlighted the surge in cases of dengue in India.[1] It is worth noting that chikungunya, another disease borne by the *Aedes egypti* mosquito, also poses a major health threat to large populations.[2] The 2 diseases have similar symptoms, although hemorrhagic manifestations are relatively rare with chikungunya. Therefore, care should be taken when caring for patients suffering from either of these diseases as the diagnosis could be incorrect. Although cases of dengue are mostly seen in the northern parts of India, chikungunya is more prevalent in India's southern states.

The control of mosquito-borne diseases in India usually involves a strategy based on that used to control the spread of malaria by *Anopheles* mosquitoes. However, unlike *Anopheles* mosquitoes, the *Aedes* mosquitoes that spread dengue and chikungunya can breed in clean as well as in dirty water, and they usually bite during the daytime.

These mosquito-borne diseases have a socio-economic impact as well. A few foreign tourists have reported symptoms of chikungunya upon their return home from tropical areas.[3] Assuming that the number of tourists visiting tropical countries from nonendemic countries would decline owing to epidemics of these diseases, Mavalankar and colleagues reported that the loss of tourism revenue would be comparable to the estimated annual cost of preventing or treating chikungunya and dengue in these countries.[4] Such a decline in tourism revenue would be a major setback for a country like India, which is a hotspot for tourism and where almost 80% of patients with chikungunya live below the poverty line.[5]

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Efficacy of pneumococcal polysaccharide vaccine

In their commentary about our meta-analysis of the efficacy of pneumococcal polysaccharide vaccine,[1] Ross Andrews and Sarah Moberley stated that our conclusions go beyond the evidence presented and that a need exists for new trials to contribute more data, rather than repeated analyses of existing data.[2]

Unlike the recent Cochrane review by Moberley and colleagues,[3] our study thoroughly examined sources of heterogeneity in trial results.[1] We found little evidence of vaccine protection in trials of higher methodologic quality for presumptive pneumonia, all-cause pneumonia and all-cause mortality. Given that the combined relative risks (RR) for these analyses are all either on the side of no protective effect or very close to 1, we do not believe that our conclusion can be described as an overstatement. The area of debate and uncertainty relates to vaccine efficacy against invasive pneumococcal disease. We found no strong evidence of efficacy (RR 0.90, 95% confidence interval [CI] 0.46–1.77) whereas the Cochrane review showed a statistically significant protective effect (RR 0.26, 95% CI 0.15–0.47). The results for invasive pneumococcal disease are greatly dependent on which studies are selected for inclusion. For example, if trials of lower quality that were not double blind (a process that Andrews and Moberley agree is worthwhile[2]) are excluded from the Cochrane review, the effect is no longer statistically significant (RR 0.47, 95% CI 0.13–1.72). The Grading of Recommendations Assessment, Development and Evaluation (GRADE) Working Group considers that inconsistencies in results reduce the quality of evidence.[4]

Andrews and Moberley said that the recommendations made by the World Health Organization in its latest position paper on the use of the vaccine remained unchanged.[5] This is not entirely correct, as in 2003 the organization recommended pneumococcal vaccination for individuals at increased risk of invasive pneumococcal disease,[6] and in 2008 this recommendation was removed.[5] The organization's current position paper does not support the introduction of pneumococcal polysaccharide vaccine in resource-limited settings and suggests that priority should be given to the introduction and maintenance of pneumococcal conjugate vaccination for infants.[5] Instead of a recommendation there is now a statement that results are consistent with a protective effect for selected outcomes in restricted groups of individuals.

Pneumococcal infections cause a large burden of disease worldwide, and control of this disease with an efficacious vaccine would be highly desirable. However, we do not think that the pneumococcal polysaccharide vaccine is the answer. After over 60 years of research on the pneumococcal polysaccharide vaccine, we might expect there to be convincing evidence of efficacy if the vaccine offered worthwhile protection. We do not recommend conducting further studies on this vaccine, as Andrews and Moberley suggest, but rather suggest exploring alternative possibilities to pneumococcal polysaccharide vaccine. Currently, the conjugate vaccine seems