

[Review]

Trend of child mortality and acute respiratory infections in developing countries

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Abstract

Global child mortality has decreased from 12.2-12.7 million in 1990 to 6.3 million in 2013 though Millennium Development Goal (MDG) 4 will only be achieved by a few countries. Child mortality reduction in developing countries was associated with socio-economic and health development in the 1970's, and ORS and vaccination in 1980's, when replacement phenomenon also occurred, whereby children protected by vaccines and ORS could die from other dominant diseases such as malaria. Child mortality reduction in 1990's stagnated due to HIV/AIDS and conflicts. The 2000's saw accelerated reduction of child mortality with increasing health aids, improved maternal educational level, introduction of long-term lasting insecticide mosquito net, artemisinin combination treatment, prevention of mother-to-child transmission of HIV, Hib and pneumococcal conjugated vaccine (PCV). The proportion of neonatal in child mortality is increasing, at 44% now. Non-communicable diseases such as the traffic accidents have increased in children aged 1-4 years.

Child mortality due to pneumonia has decreased to 935,000 in 2013 from 1.68 million in 2000 at the rate of 5% a year though pneumonia has received less attention and international aids than malaria and HIV/AIDS. Etiology of pneumonia in developing countries is changing with decreasing bacterial etiology including non-typhoidal salmonella while increasing suspected viral etiology with increase in stridor. Despite reducing bacterial infections, prescription of antibiotics for ARI has increased in low and middle-income countries while many hospitals lack oxygen treatment to prevent death due to hypoxemia. PCV immunization induces considerable change in nasopharyngeal microbiota, which needs to be studied in developing countries.

Poor environmental and nutritional situations for children in developing countries can enhance exposure to pathogens and development into pneumonia so that PCV there could not only provide effective prevention of invasive pneumococcal diseases, but also lead to rapid and massive non-vaccine serotype replacement and microbial substitution. Children exposed to poor environment like indoor air pollution tend to repeat pneumonia after discharge with high mortality. Although disease-specific interventions such as vaccination are effective against the targeted diseases, comprehensive interventions for environmental improvement and promotion of community health are required.

keywords : child mortality, developing countries, pneumonia, pneumococcal conjugated vaccine, indoor air pollution