Rotavirus Vaccines in Taiwan: Effectiveness, Fecal Viral Shedding and Cost-Effectiveness

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Prior to 2007, rotavirus infection accounted for an estimated 25% to 43% of all AGE hospitalizations among children under 5 years of age in Taiwan. Two rotavirus vaccines (Rotarix and RotaTeq) have been available on the private market in Taiwan since August 2006 but are not included in the expanded immunization program yet. We conducted a three-centers-based, case-control study to evaluate the effectiveness of both vaccines against severe rotavirus acute gastroenteritis (AGE) requiring hospitalization among Taiwanese children. Estimated vaccine effectiveness of a 2-dose Rotarix series or 3-dose Rotateq series against rotavirus gastroenteritis hospitalization was >90% for both controls, respectively.

We evaluated and characterized vaccine-virus shedding for rotavirus vaccine. A total of 87 infants were enrolled. After the first vaccine dose, the shedding peak time was between day 4 and day 7 with a positive rate of 80-90% by real time RT-PCR and 20-30% by EIA. Infants receiving Rotarix shed significantly higher viral loads than those receiving Rotateq. Clinical significance of viral shedding for both rotavirus vaccines should be further observed.

We also examined the potential impact and cost-effectiveness of vaccination, from the health care system perspective. A national rotavirus vaccination program, regardless of number of doses per course, would prevent 4 deaths, >10,500 hospitalizations, and >64,000 outpatient visits due to rotavirus infection among children <5 years annually and a ~$7 million decline in annual medical costs.