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Relative trends in hospitalizations and mortality among infants by the number of vaccine doses and age, based on the Vaccine Adverse Event Reporting System (VAERS), 1990–2010

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Abstract

In this study, the Vaccine Adverse Event Reporting System (VAERS) database, 1990–2010, was investigated; cases that specified either hospitalization or death were identified among 38,801 reports of infants. Based on the types of vaccines reported, the actual number of vaccine doses administered, from 1 to 8, was summed for each case. Linear regression analysis of hospitalization rates as a function of (a) the number of reported vaccine doses and (b) patient age yielded a linear relationship with $r^2 = 0.91$ and $r^2 = 0.95$, respectively. The hospitalization rate increased linearly from 11.0% (107 of 969) for 2 doses to 23.5% (661 of 2817) for 8 doses and decreased linearly from 20.1% (154 of 765) for children aged <0.1 year to 10.7% (86 of 801) for children aged 0.9 year. The rate ratio (RR) of the mortality rate for 5–8 vaccine doses to 1–4 vaccine doses is 1.5 (95% confidence interval (CI), 1.4–1.7), indicating a statistically significant increase from 3.6% (95% CI, 3.2–3.9%) deaths associated with 1–4 vaccine doses to 5.5% (95% CI, 5.2–5.7%) associated with 5–8 vaccine doses. The male-to-female mortality RR was 1.4 (95% CI, 1.3–1.5). Our findings show a positive correlation between the number of vaccine doses administered and the percentage of hospitalizations and deaths. Since vaccines are given to millions of infants annually, it is imperative that health authorities have scientific data from synergistic toxicity studies on all combinations of vaccines that infants might receive. Finding ways to increase vaccine safety should be the highest priority.

Keywords

VAERS, vaccine, childhood vaccines, immunization, epidemiology, infant mortality, SIDS, drug toxicology, human toxicology

Introduction

In 1986, Congress passed the National Childhood Vaccine Injury Act (PL-99-660) requiring health care providers to report suspected vaccine reactions to a centralized reporting system. As a result, the Vaccine Adverse Events Reporting System (VAERS), cosponsored by the Centers for Disease Control and Prevention (CDC) and the Food and Drug Administration (FDA), was established in 1990. VAERS is a postmarketing safety surveillance program that collects information about possible adverse reactions (side effects) that occur after the administration of vaccines licensed for use in the United States. Current and historic VAERS data are public access, available to health care providers, vaccine manufacturers, and the general public.

VAERS receives approximately 30,000 reports annually. Since 1990, VAERS has received over

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