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## Research Article

# Association between Severe Dehydration in Rotavirus Diarrhea and Exclusive Breastfeeding among Infants at Dr. Hasan Sadikin General Hospital, Bandung, Indonesia

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Received 7 September 2015; Revised 20 October 2015; Accepted 20 October 2015

Academic Editor: Peter Leggat

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**Background.** Rotavirus is the leading cause of severe acute diarrhea in children. Infants who are exclusively breastfed develop fewer infections and have less severe illnesses. This study aimed to determine association between severe dehydration in rotavirus diarrhea and exclusive breastfeeding. **Methods.** This is a cross-sectional study in infants  $\leq 6$  months old with acute diarrhea in Dr. Hasan Sadikin Hospital, Bandung, Indonesia. **Results.** From 134 infants  $\leq 6$  months old with acute diarrhea enrolled from April 2009 to December 2012, there were 88 (65.6%) boys and 46 (34.4%) girls in this study. Rotavirus was detected in 60 (44.8%), 32 (53.3%) of whom were exclusively breastfed. From rotavirus positive subjects, severe dehydration occurred in 4 (12.6%) exclusively breastfed infants and 6 (21.5%) not exclusively breastfed infants. No significant association was found between severe dehydration and exclusive breastfeeding ( $p = 0.491$ ) in rotavirus diarrhea. **Conclusions.** In rotavirus diarrhea, there was no significant association between exclusive breastfeeding and severe dehydration.

## 1. Background

The main cause of diarrhea in children worldwide is rotavirus [1]. In recent years, rotavirus has been recognized as one of the most common causes of diarrhea, both in developed and in developing countries [1]. Globally, in 2008, rotavirus diarrhea is estimated to cause 453,000 deaths (95% CI, 420,000–494,000) in children younger than 5 years, contributing to 37% of all deaths due to acute diarrhea [2].

Rotavirus was isolated in 30–73% of diarrhea cases in children in the Asian region [1]. In Thailand, from 2001 to 2003, community surveillance showed the proportion of cases of rotavirus diarrhea in the community to be much lower than that in the hospitalized population (12.2% versus 43%) [3]. In Hong Kong and Iran, the rate of rotavirus diarrhea in children under 5 years of age was 30% [4] and 59.1% [5], respectively. In 2003, 39.8% of children under five years of age with acute gastroenteritis admitted to three pediatric hospitals in Turkey

[6]. In Indonesia, the rate of rotavirus diarrhea in under-five inpatients was 37–69%, while a 40% rate was seen among outpatients [7]. In Bandung, the prevalence of rotavirus in hospitalized children was 47% in 2006 [8].

Breast milk contains nutrients, antioxidants, hormones, and antibodies needed by a child to survive and develop [9]. Infants who are exclusively breastfed during the first 6 months of life and continue to be breastfed until two years of age develop fewer infections and less severe illnesses [9]. Infants who are not breastfed have a sixfold greater risk of dying from infectious disease in the first two months of life, including from diarrhea [9]. Breastfeeding could reduce gastrointestinal infections as breast milk contains lactadherin, secretory IgA, T and B lymphocyte, bactericidal lactoferrin, oligosaccharides, and human milk glycans [10, 11]. Although the anti-rotavirus antibodies in human milk play a small role, the main component of human milk that prevents rotavirus infection seems to be lactadherin [12].