

Expression of Staphylokinase Gene *S. aureus* Strains Isolated from Breast Milk and Clinical Outcomes in Breastfed Infants

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Abstract

© 2016, Springer Science+Business Media New York. This study aimed to look for the presence of the immune evasion gene cluster in the strains of *Staphylococcus aureus* isolated from breast milk of women and to estimate their possible role in development of infant's staphylococcal infections. Strains of *S. aureus* are isolated by bacteriological examination of breast milk in a hospital (24 strains) and an ambulatory (11 strains) basis. Breastfed infants had staphylococcal infections (42.9 %), intestinal infections (5.7 %), and respiratory infections (20 %), and 11 (31.4 %) infants were intestinal carriers of *S. aureus*. PCR analysis of 35 strains *S. aureus* was carried out to detect genes of staphylokinase (*sak*), inhibitor of the system of complement (*scn*), inhibitor of chemotaxis of leukocytes (*chp*), and β -hemolysin (*hly*). *Sak* gene was found in 20 (57 %) *S. aureus* isolates. *Scn*, *chp*, and *hly* genes in *S. aureus* isolates were not detected. Infants received breast milk infected with *sak* positive *S. aureus* strains more frequently had *S. aureus* intestinal colonization than infants who received breast milk infected with *sak* negative *S. aureus* (OR 4.5 (1.02; 20.30)). Presence of *sak* gene in *S. aureus* strains from breast milk was not associated with development of staphylococcal infection in infant (OR 1.2 (0.3–4.7)). In conclusion, *sak* is an important factor in avoiding immune defense by *S. aureus* strains in infected breast milk. Expression of *sak* gene by *S. aureus* in infected breast milk may be an important factor for *S. aureus* intestinal colonization of infants, but not the development of staphylococcal infections in breastfed infants.

<http://dx.doi.org/10.1007/s12668-016-0364-0>

Keywords

Breast milk, Immune evasion cluster, Infant, *S. aureus*, Staphylokinase

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