Expression of host defence peptides in the lip vermilion mucosa during early infancy.

Abstract:
Emerging resistance to antibiotics has become a major problem. Host defence peptides (HDPs), which are effector molecules of the innate immune system, show broad antimicrobial activity. Synthetic derivates are currently being investigated as new anti-infectious agents. In infants, the use of conventional antibiotics is limited to a few substances because of adverse reactions. The new HDP substances might become alternatives to conventional antibiotics, but knowledge of the physiological quantities of the HDPs in infants is essential because of a narrow therapeutic index of currently available derivates. This study compares the mRNA levels of five major HDPs between infants and adult controls to test the hypothesis that HDP gene expression differs between these groups. Expression profiles of human beta-defensin (hBD)-1, hBD-2 and hBD-3, psoriasin and RNase 7 were assessed in the lip vermilion mucosa of infants (n = 15) and adult controls (n = 15) using real-time polymerase chain reaction. A significantly lower expression of hBD-2 (P = 0.043), hBD-3 (P = 0.014) and psoriasin (P = 0.018) was found in infants. No difference between the groups was noted with respect to transcript levels of hBD-1 and RNase 7. In conclusion, several HDPs are expressed at lower levels in infants, but not all. The results emphasize the need to adjust
the dose of agents based on the specific HDP level for the treatment of infantile infections.