The role of staphylococci of breast milk in gut colonisation and development of late-onset sepsis in preterm neonates

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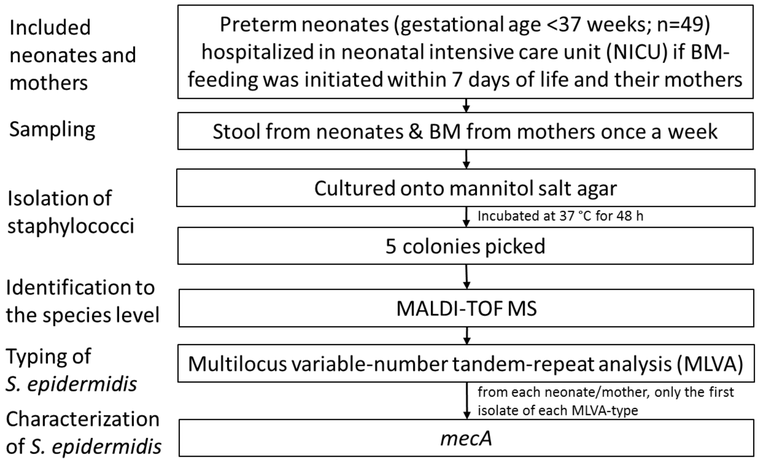
Background & Aim

- In preterm neonates LOS is mostly caused by *mecA*-positive *S. epidermidis* (MRSE) and rarely by *mecA*-negative *S. epidermidis* (MSSE) that may originate from gut.
- The protective effect of mother's breast milk (BM) on LOS may arise from enrichment of gut with less resistant strains.
- We aimed to describe gut colonization of preterm neonates with MSSE strains present in BM.

Materials and Methods



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Acknowledgments:
The study was supported by the Target Financing of Estonian Ministry of Education and Research (SF0180004s12), European Regional Development Fund (project SFOS WP1-NeuroAIDS) and Archimedes Foundation Project No. 3.2.1001.11-0032. This research was supported by national scholarship program Kristjan Jaak, which is funded and managed by Archimedes Foundation in collaboration with the Ministry of Education and Research

Results

- MRSE colonized gut of nearly all neonates and MSSE BM of the majority of mothers, but gut of only half of neonates (Figure 1)

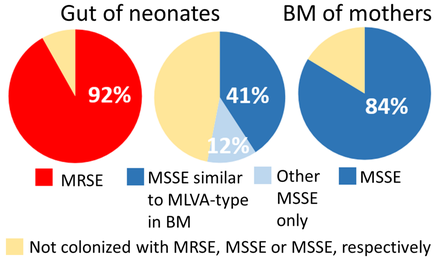

Figure 1. Prevalence of colonization with MRSE and MSSE in neonates and mothers

- MRSE colonized gut of neonates at earlier postnatal age than MSSE (Figure 2)

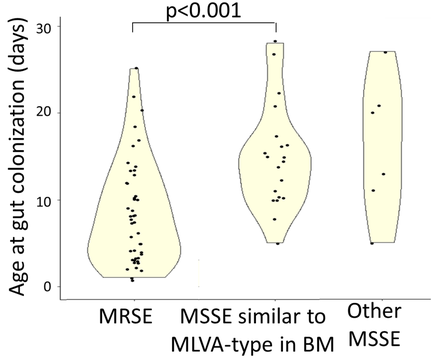

Figure 2. Postnatal age of neonates at gut colonization with MRSE or MSSE

- Neonates colonized with MSSE similar to MLVA-type in BM compared with other MSSE harboured MSSE in larger proportion of stool samples (Figure 3)

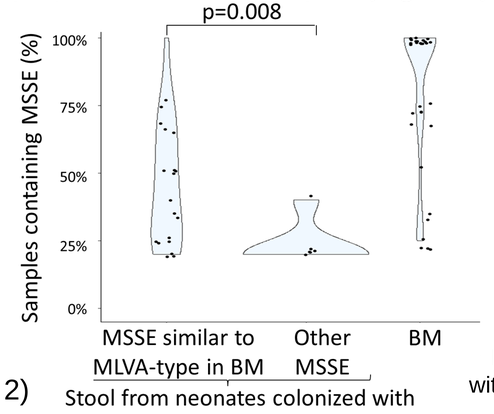

Figure 3. Proportion of stool or BM samples containing MSSE in neonates and mothers

- Length of NICU stay, LOS, antibacterial treatment and higher count of staphylococci in BM were associated with colonization with MSSE similar to MLVA-type in BM (Figure 4), but not amount of BM fed or postnatal age at the initiation of BM-feeding

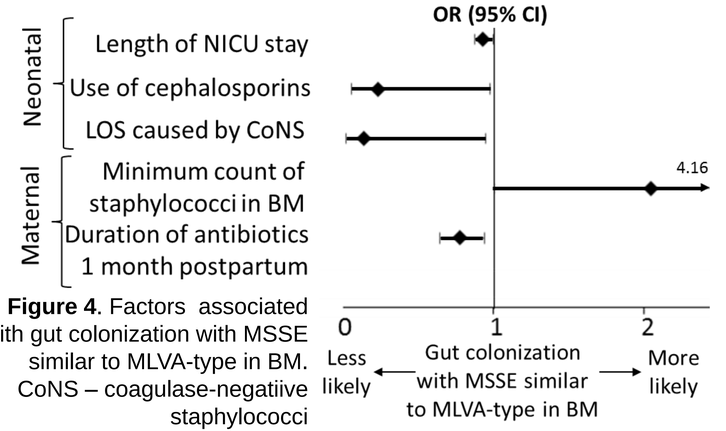

Figure 4. Factors associated with gut colonization with MSSE similar to MLVA-type in BM. CoNS – coagulase-negative staphylococci

Conclusion

- In preterm neonates, gut colonization with MSSE of similar to MLVA-type in BM is promoted by higher count of staphylococci in BM, but disturbed by antibacterial treatment of neonate and mother and longer hospitalization in NICU.

Mother's BM as a source of MSSE might be associated with lower risk of LOS caused by coagulase-negative staphylococci.