

Oropharyngeal colostrum therapy reduces the incidence of ventilator-associated pneumonia in very low birth weight infants: a systematic review & meta-analysis.

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Background and Objectives: Ventilator-associated pneumonia (VAP) is a frequent and severe complication in premature infants on mechanical ventilation. Low immune function in very low birth weight (VLBW) infants is a high-risk factor for VAP. Colostrum is rich in immunoglobulins (e.g. IgG, IgA, IgM and lactoferrin), of which secretory IgA (SIgA) is the highest in all exocrine fluids. Oropharyngeal colostrum (OC) is a novel feeding strategy to prevent complications of prematurity. A small amount of milk (usually 0.2 mL divided into two cheeks) is placed on the mucous membrane of the mouth for absorption. Colostrum contacts the mouth and oropharyngeal pouch and produces immune protection and stimulation of oropharyngeal receptors by the abundant anti-inflammatory and pro-inflammatory cytokines detected in the mother's colostrum and milk. **This meta analysis and a systematic review were conducted to investigate whether VLBW infants can benefit from the administration of Oropharyngeal Colostrum.**

ACADEMIC P.E.A.R.L.S

Pediatric Evidence And Research Learning Snippet

**Oropharyngeal colostrum therapy reduces VAP in VLBW infants**

•Inclusion criteria : Randomized controlled trials (RCTs). Population: Preterm <32 weeks gestation and/or <1500 g birth weight. Intervention: Administration of OC to premature infants. Comparison: Placebo alone (saline) or no intervention. Primary outcomes (e.g., VAP, necrotizing enterocolitis (NEC), bronchopulmonary dysplasia (BPD), retinopathy of prematurity (ROP), proven sepsis, clinical sepsis, late-onset sepsis, and death) and secondary outcomes (e.g., length of stay and time of full enteral feeding).

•Results: Eight RCTs met inclusion criteria were included. The sample size was 682 in total (OC group: 332; non-OC group: 350). **Ventilator-Associated Pneumonia:** Three studies included as primary outcome, reduction in the incidence of VAP (OR = 0.39, 95% CI: 0.17–0.88, P = 0.02) was significant, and the test result for heterogeneity was mild (P = 0.26, I² = 26%). **Necrotizing enterocolitis and bronchopulmonary dysplasia:** All eight studies obtained data regarding NEC, in which the differences were of potential statistical significance (OR = 0.51, 95% CI: 0.26–0.99, P = 0.05), and the test result for heterogeneity was ascertained to be non-significant (P = 0.60, I² = 0%). **Proven sepsis, clinical sepsis, and late-onset sepsis:** Seven trials assessed proven sepsis in premature infants and, although the results were not statistically significant, but observed a decreasing trend of proven sepsis (OR = 0.64, 95% CI: 0.40–1.01, P = 0.06). **Length of stay:** six studies covering 331 infants included the intervening effect of OC on length of stay. However, the results were not statistically significant (MD = -4.68, 95% CI: -12.52 to 3.15), P = 0.24). **Time of full enteral feeding:** Seven studies included this outcome, OC significantly shortened the length of full enteral feeding time (MD = -2.66, 95% CI: -4.51 to -0.80, P = 0.005). **Death:** Five studies included this outcome, (OR = 0.60, 95% CI: 0.34–1.08, P = 0.09). As per findings OC was associated with a decrease in mortality.

Conclusion: According to the results of the pooled analysis of the currently available data, OC indeed significantly reduced the frequency of VAP and full enteral feeding days in the NICU. Furthermore, OC is safe and feasible; the therapy process displays no side effects and does not require considerable costs. Overall, OC therapy is considered a cost-effective method for VLBW infants, and it is worthy of routine clinical application.

EXPERT COMMENT

“Oropharyngeal administration of colostrum (OAC) has been suggested as an alternative method of providing VLBW infants with the potential immune benefits of mother's early milk. Colostrum, the milk produced in the first few days following birth, contains significant concentrations of immune mediators that provide bactericidal and anti-inflammatory protection and is a very simple, innovative way to decrease VAP and other infections and also to decrease the time to achieve full enteral feeding in preterm neonates.”

**DR. MAMTA JAJOO, DNB**Professor Pediatrics, NICU Incharge, Head of Office
Chacha Nehru Bal Chikitsalaya, Delhi.

With warm regards,

**DR MANINDER S
DHALIWAL****DR. PIYUSH GUPTA**
IAP NATIONAL
PRESIDENT 2021**DR REMESH KUMAR R.**
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PAREKH**
IAP PRESIDENT
2020**DR G.V.
BASAVARAJA**
HON. SECRETARY
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pedpearls@gmail.com**Reference**

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