

OXIDATION-REDUCTION POTENTIAL IN THE MILK FROM MOTHERS OF PRETERM INFANTS

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Health benefits of mother's milk depend on the level of the total antioxidant capacity (TAC). In mother's milk, the TAC should refer to the sum of activities derived from active enzymatic antioxidant systems (e.g. superoxide dismutase, catalase, glutathione peroxidase etc.), non-enzymatic antioxidants, such as vitamins C and E, and the presence of other bioactive factors (e.g. lactoferrin, uric acid etc.). Measuring oxidation-reduction potential (ORP) using RedoxSYS Analyzer may be an alternative to classic methods of measuring TAC.

Aim

We compared the results of OPR and ascorbic acid content in milk from mothers of preterm infants.

Methods

Milk was obtained from ten mothers of preterm infants (gestational age 28-36 weeks; birth weight 900-2,470 g). Milk samples were obtained within the first 4 days after delivery (colostrum), from day 4 to two weeks (transient), and 6 weeks and later (mature milk). Static oxidation-reduction potential (ORP) of milk from mothers of preterm infants was measured using RedoxSYS Analyzer (Luoxis Diagnostics, Englewood, CO). Ascorbic acid content was measured in milk samples and results were expressed as mg/l. Procedure suggested by the manufacturer was used (Reflect quant® ascorbic acid test for reflectometerRQflex®, Merck KGaA, Germany, 2006).

Results and conclusion

There are similarities in the results of OPR and vitamin C concentration in colostrum, transient and mature milk from mothers of preterm infants. Vitamin C concentration influenced the value of OPR most.

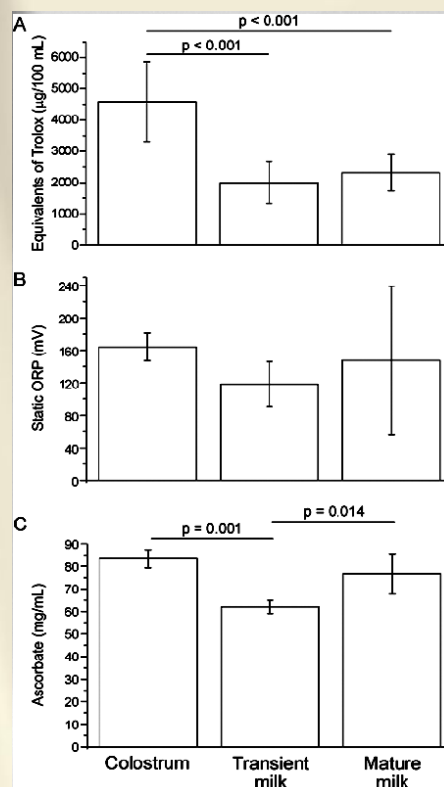


Fig 1. Results for OPR of colostrum, transient and mature milk from mothers of preterm infants compared with ORAC and Vitamin C

	Milk	Skim	Whey
Colostrum	7015	6867	5620
Transient milk	4764	3983	3387
Mature milk	4317	3685	3350

Table 1. Table 1 ORAC values expressed as vitamin C mg/L

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