

SODIUM AND POTASSIUM LEVELS IN COLOSTRUM*

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SUMMARY: Yurdakök M, Oran O, Tekinalp G. (Department of Pediatrics, Hacettepe University Faculty of Medicine, Ankara, Turkey). Sodium and potassium levels in colostrum. *Turk J Pediatr* 33: 231-234, 1991.

The sodium and potassium concentrations of serum, urine and breast milk from 40 healthy, lactating mothers aged 18 to 35 years were measured. Nineteen women were primiparous and 26 were delivered prematurely for various reasons. No correlation was found between colostrum and urine sodium and potassium levels, and colostrum and serum potassium levels, however, there was a correlation found between colostrum and serum sodium levels ($r: 0.311, p<0.05$). *Key words: colostrum, sodium, potassium.*

When comparing the composition of colostrum with mature breast milk, the former is seen to be richer in mineral content^{1,2}.

Therefore, the present study was undertaken to investigate the sodium and potassium concentrations of colostrum, and their relation to serum and urine concentrations.

Material and Methods

The study population consisted of 40 healthy, lactating women aged between 18 to 35 years, 19 of whom were primiparous, and the remainder multiparous. Twenty-six of the mothers were delivered of pre-term babies for various reasons. They were on no medication other than vitamins, and were asked to continue with their usual diet.

Serum, urine and breast milk samples were obtained simultaneously from mothers at 9-10 a.m. during the first week of lactation. Sample collection time coincided with feeding time. Milk samples were collected in clean glass containers by emptying the right breast with a pump. After mixing, the fresh milk samples were analyzed. All mothers were requested to collect urine. Blood samples were taken from a peripheral vein. The sodium and potassium concentrations of blood, urine and milk were determined by flame photometry. The results were expressed as a mean $\pm$ SD and the Student's *t* test was used to compare the results.

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Results

The results are summarized in Tables I and II. Gestational age, birth weight, maternal age and maternal body weight were found to have no effect on serum sodium and potassium levels.

There was no correlation found between colostrum and urine sodium and potassium levels, and also between colostrum and serum potassium levels. But colostrum sodium and serum sodium levels showed a correlation ($r: 0.311$, $p < 0.05$).

TABLE I: Sodium and Potassium Levels in Colostrum

		Sodium (mEq / L)	Potassium (mEq / L)
Gestational age	32-34 w (n: 10)	33.65 $\pm$ 22.96	18.35 $\pm$ 6.76
	35-37 w (n: 16)	47.91 $\pm$ 29.50	15.27 $\pm$ 4.01
	38-41 w (n: 14)	42.84 $\pm$ 20.79 $p > 0.05$	15.62 $\pm$ 3.85 $p > 0.05$
Birth weight	< 2500 g (n: 21)	43.16 $\pm$ 25.99	16.19 $\pm$ 5.74
	$\geq$ 2500 g (n: 19)	41.92 $\pm$ 24.89 $p > 0.05$	16.13 $\pm$ 3.73 $p > 0.05$
Maternal age	$\leq$ 25 y (n: 19)	40.15 $\pm$ 29.74	15.97 $\pm$ 5.52
	> 25 y (n: 21)	44.74 $\pm$ 20.67 $p > 0.05$	16.00 $\pm$ 4.06 $p > 0.05$
Maternal relative weight*	$\geq$ 40 (n: 12)	40.33 $\pm$ 13.01	15.80 $\pm$ 4.17
	< 40 (n: 18)	43.44 $\pm$ 27.12 $p > 0.05$	16.63 $\pm$ 6.20 $p > 0.05$
Total	(n: 40)	42.57 $\pm$ 25.16	16.16 $\pm$ 4.83

* Maternal relative weight: Body weight X 100 / Height.

collected whole milk from the breast by using a pump. After mixing, we used this substance which contains foremilk and hindmilk to determine the sodium and potassium levels.

In some women, the composition of milk differs slightly from right breast to left breast, although the difference has not been found to be significant¹⁵. We excluded this possibility by taking milk samples from the right breast in all women.

Maternal age may also affect milk electrolyte concentrations. A study has recently shown that adolescent milk was consistently 50 percent lower in sodium when compared with adult milk¹⁶. However, in our study no difference was found in the sodium and potassium contents of the colostrum of women below or above the age of 25 years.

According to our findings, maternal age, infant birth weight and maternal body weight do not affect the sodium and potassium content of colostrum.

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