

## SMALL INTESTINAL REHABILITATION WITH ORAL ADMINISTRATION OF NACL

Chieko Hisamatsu<sup>1,2</sup>, Masao Yasufuku<sup>3</sup>, Sachi Sekine<sup>1</sup>, Kyoaki Yabe<sup>1</sup>, Yasuhiko Mishima<sup>1</sup>, Satoshi Yamaki<sup>1</sup>, Shizu Miura<sup>1</sup>, Keiichi Morita<sup>1</sup>, Yuichi Okata<sup>1</sup>, Hiroaki Fukuzawa<sup>1</sup>, Makoto Nakao<sup>1</sup>, Akiko Yokoi<sup>1</sup>, Kosaku Maeda<sup>1,2</sup>

<sup>1</sup>*Department of Pediatric Surgery, Kobe Children's Hospital, Kobe, Japan*, <sup>2</sup>*Division of Pediatric Surgery, Department of Surgery, Kobe University Graduate School of Medicine, Kobe, Japan*, <sup>3</sup>*Department of Pediatric Surgery, Kakogawa Central City Hospital, Kakogawa, Japan*

**Aim of the Study:** Glucose and amino acid are absorbed in the small intestine by cotransport with sodium (Na). To verify the absorption mechanism, we investigated the effects of oral administration of NaCl in infants undergoing intestinal surgery.

**Methods:** Twenty-one infants who underwent ileostomy, colostomy, or small bowel resection and were administered NaCl orally from 2010 to 2016 were retrospectively reviewed. The total Na intake, body weight gain, albumin level, and ratio of stool output to milk intake were all examined. The patients were divided into two groups based on the Na measurement methods: serum Na (Group S, n=13) or serum and urine Na (Group SU, n=8). We compared the total Na intake, body weight gain, nutrition support, serum and urine Na level between the two groups.

**Main Results:** NaCl administration significantly increased the total Na intake ( $p<0.0001$ ), body weight gain ( $p=0.003$ ), and albumin level ( $p=0.03$ ) and significantly decreased the ratio of stool output to milk intake ( $p=0.04$ ). Group SU gained significantly more weight ( $p=0.009$ ) than Group S ( $P=0.33$ ). In Group S, 2 of 13 patients could not be weaned off parenteral nutrition, and 3 showed serum Na <135 mEq/L; however, no patients in Group SU were similarly affected. Urine Na <10 mEq/L was defined as severely deficient. In Group SU, NaCl supplementation significantly increased the median urine Na level from 9 to 30 mEq/L ( $p=0.02$ ). There were no statistically significant differences between the two groups in the total Na intake ( $p=0.08$ ).

**Conclusion:** The oral administration of NaCl was effective for small intestinal rehabilitation with Na supplementation, and these successful results are attributed to the orally administered NaCl which promoted the absorption of nutrients by means of the cotransport with Na. The routine monitoring of serum and urine Na helps to prevent Na deficiency.