

Study for sodium content in enteral diets

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Although an advantage of enteral nutrition in many types of patients has been widely recognized, the formula of enteral formula has not been well investigated

Study 1: Daily urinary excretion, intake of sodium, and serum sodium concentration were evaluated in 43 critical ill patients during enteral nutrition using randomized blocked design of analysis of variance. Although sodium intake from intravenous infusion decreased significantly as the day passed ($P < 0.001$), urinary excretion did not decrease significantly and sustained approximately from 200 mEq to 400 mEq in most of patients. Sodium supply from current enteral diets ranged only from 30 mEq to 50 mEq. This brought significant decrease in serum sodium concentration ($P < 0.001$). Therefore sodium has been supplemented by adding salts to enteral diets by nurses in wards as a routine work.

Study 2: Since we have to supplement salt to current available enteral diets in many cases, it is essential to clarify the risk of microbiological contamination of enteral diets in the clinical settings for safety of patients and to minimize the care costs. A factorial experiment was carried out to clarify the risk of contamination of enteral diet. We selected three factors for the analysis. Those were "water addition", "salt addition", and "bottle". As for the water addition, we compared the contamination with the tap water addition and without water addition. Contamination from unsterilized salt was evaluated in the same manner. As for the bottle, we compared the irrigated bottle using a kitchen sponge and the sterilized bottle. Unsterilized water and salt addition were not contributed the contamination of enteral diet. The contamination from the bottle was clearly contributed ($p < 0.001$). No colony was found if we used sterilized bottle.

We need enteral diet in which sodium content increased sufficiently in advance for clinical use to prevent potential risk of nosocomial infection. Complete closed system of enteral diet is not necessary in terms of safety, convenience for modification of enteral diet, environmental pollution, and costs.