TACKLING HYPERNATREMIC DEHYDRATION IN LITTLE ONES AT THE EMERGENCY DEPARTMENT

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**INTRODUCTION** : Hypernatremia is defined as serum sodium level more than 145 mmol/L. Hypernatremic dehydration is a serious condition in paediatric that late recognition and delay treatment would lead to high risk of mortality and central nervous system morbidity, like seizure, intracerebral haemorrhage and venous sinus thrombosis. The purpose of this case report is to create awareness among emergency doctor regarding the treatment strategy in managing hypernatremic dehydration in paediatric population in the emergency department (ED).

**CASE DESCRIPTION** : We encountered a 3-months-old baby, brought to ED for diarrhoea and less active for two days. Examination revealed that the child was in shock, lethargic with severe dehydration. Blood gas shown metabolic acidosis with hypernatremia (serum sodium of 155 mmol/L). Fluid bolus of 20 ml/kg 0.9% saline was given followed by 10% fluid correction 0.9% saline over 48 hours with concurrent full maintenance fluid of 150cc/kg/day 0.45% saline with 5% dextrose. The child was then referred to paediatrics team for hospital admission.

**DISCUSSION** : The treatment for hypernatremic dehydration is often underestimate due to lack of awareness of its treatment strategy and disease complication in the emergency department. Administering hypotonic fluid rapidly can cause significant changes in extracellular fluid osmolality and a shift in the water towards intracellular fluid, leading to cerebral edema and irreversible cellular damage. Most expert recommend a goal reduction rate of serum sodium level of 0.5 mmol/L per hour with correction over 48 hours, although no consensus treatment guideline existed. In a shock patient, repeated fluid bolus might dilute the serum sodium rapidly. Simultaneous administration of hypertonic saline needs to be considered to prevent such an acute drop in sodium. It is a great challenge to recognize which patient will benefit from this regimen, given the limited literature on the use of hypertonic saline during hypernatremia correction.

**CONCLUSION** : Emergency doctors must have a good understanding of the treatment approach for managing hypernatremic dehydration in paediatric population in ED, as any missteps in the initial treatment could result in significant morbidity and mortality.

**KEYWORDS** : Dehydration, Hypernatremia, Paediatric