

A Challenging Case of Hypothalamic Dysfunction

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The hypothalamus plays an important role in homeostasis, or maintaining the body's status quo. Variables such as blood pressure, body temperature, fluid and electrolyte balance are held to a precise value called the set-point. Any interruptions to this fine balance could lead to deleterious effects.

We present a 31 year old gentleman, whom in 1992 had a subarachnoid bleed. This was managed surgically and complicated by secondary hydrocephalus. Five years later he had recurrent hospital admissions for hypothermia and dehydration. These episodes were complicated by severe electrolyte imbalance due to altered sensorium and reduced fluid intake. He was noted to be poikilothermic and would become labile at extremes of temperatures (<33°C and >35°C). A custom made heated thermal jacket (Chilli™ Heated Motorcycle Vest) was used to maintain his body temperature particularly during winter. Subsequently in 2003 he was diagnosed with adipsia and diabetes insipidus. He also had partial pituitary insufficiency.

He presents a challenging case as he is at risk of significant fluctuation of his temperature and electrolyte balance. Temperature regulation is achieved by checking his temperature on a four hourly basis. The novel custom made heated jacket is used during winter. In summer months, temperature regulation was achieved by reducing the number of layers or with the use of fan.

To maintain euvolaemia, his ideal body weight was established and daily weights were taken. His urine output was fixed by a set dose of DDAVP. Insensible fluid loss was taken into account and daily maintenance fluid was derived. When he was above his ideal body weight, he would be fluid restricted to a ratio of 1 L/kg below his maintenance fluid requirement. However when he was below his ideal body weight, the same ratio of 1 L/kg is applied but adding it on top his maintenance fluid requirements. Weekly electrolytes were checked to ensure that he does not drift into either hypo- or hypernatraemia.