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OC04 - HypoNa-RESCUE: pilot insights from a multicentre surveillance study on the impact of aetiology on outcomes in severe hyponatraemia

S. Rafi,[1] A. Ling Jie Yee,[1] A. Chandran,[2] A. Manta,[1] A. Iqbal,[3] P. Kempegowda,[1] and M. Arshad[3]
[1]Birmingham Medical School, College of Medicine and Health, University of Birmingham, Birmingham, United Kingdom; [2]Department of Diabetes and Endocrinology, Sheffield Teaching Hospitals, Sheffield, United Kingdom; [3]Department of Diabetes and Endocrinology, Sheffield Teaching Hospitals, Sheffield, United Kingdom; Department of Diabetes and Endocrinology, University of Sheffield, Sheffield, United Kingdom

Background/Introduction: Severe hyponatraemia (serum sodium <125 mmol/L) is associated with increased morbidity and mortality. However, data on outcomes based on underlying

aetiology are limited, and existing classification methods are inconsistently applied in routine care. To address this, we established *HypoNa- RESCUE* (Rapid Evaluation and Surveillance of Critical Urgencies in Endocrinology), a multi-centre system for real-world evaluation of severe hyponatraemia.

Purpose: To assess how aetiological classification influences outcomes in adults admitted with severe hyponatraemia.

Methods: This retrospective study was conducted across two UK tertiary hospitals, including adults admitted with severe hyponatraemia (serum sodium <125 mmol/L) between January and December 2024. Patients on diuretics or lacking urinary data were excluded. Aetiology was categorised using urinary osmolality and sodium into four groups: low, appropriate, inappropriate, or intermediate antidiuretic hormone (ADH) activity. Demographics, biochemical trends, and outcomes—including intensive care unit (ICU) admission, sodium correction rate, readmission, and mortality—were analysed using SPSS v30.0. Results are reported as medians, interquartile ranges (IQRs), and proportions as appropriate.

Results: Of 885 eligible admissions, 262 met inclusion criteria (Median (IQR): Age-72.0 years (61.0–81.0), Charlson Comorbidity Index- 4.0 (IQR 3.0–5.0). Aetiological distribution included inappropriate ADH (30.9%;n=81), appropriate ADH (3.8%;n=10), low ADH (0.8%;n=2), and intermediate (64.5%;n=169). 60.9% presented without symptoms, and 71.4% without any identifiable risk factors. Target sodium correction (≤10 mmol/L/24h) was achieved in over 88% of participants across all groups. ICU admissions were highest in cases of inappropriate ADH hyponatraemia (96.1%), followed by intermediate (93.3%), appropriate (87.5%), and low ADH (50.0%) ($p = 0.054$). One-year readmissions were highest in appropriate ADH (40.0%), though absolute numbers were low. The overall in-hospital mortality rate was 1.5% (n=4).

Conclusion(s): Preliminary findings suggest the aetiology of hyponatraemia impacts clinical outcomes. The high prevalence of intermediate ADH highlights the real-world diagnostic uncertainty. Despite high ICU admission rates, inappropriate ADH hyponatraemia did not translate into higher mortality or readmission risk. Ongoing data collection and expanded phenotyping are needed to inform future management algorithms and service models.