Evaluation Of An Automatic Referral System For Inpatients With Hyponatraemia: Prompt Referral Leads To Active Intervention

J Mannar Mannan, M Joshi, B Whitelaw, B Jafar-Mohammed, J Gilbert, S J B Aylwin
Endocrinology- King’s College Hospital, London, United Kingdom
aimeyaylwln@nhs.net

Introduction
Inpatients with hyponatraemia have a high mortality and longer length of stay. We instituted a system of automatic referral to the endocrinology team where any inpatient with a serum [Na+] \(\leq 125\) mmol/L was referred automatically from their biochemical results.

Aim
We evaluated the diagnosis, management and outcome of the patients referred with hyponatraemia via automated system over 6 months.

What we did...
- Prospective data
- Data collected: Demographics, serum sodium levels at point of referral and at discharge, Length of stay
- Hyponatraemia work-up (paired osmolalities, urinary electrolytes, cortisol status, Thyroid function test)
- Patient categories based on volume status and endocrine diagnosis
- Treatment given: Fluid restriction, Normal saline, Hypertonic (1.8% saline)/-high dose furosemide, Tolvaptan

What we found...
- All patients with [Na+] <125 mmol/L alerted to endocrine team
- Experience of first 6 months
  - 61 referred, 56 actively managed
  - ‘True’ low [Na+] in 54/56
  - Cortisol status determined 81.5%; TFT in 89%
  - Correction of sodium ([Na+] ≥130 mmol/L) was achieved in 64.8% after a mean of 6 days.

Automate the system

Generate the data

In-patient stages of sNa evaluation | Median (Range) |
--- | --- |
Referral serum sodium, mmol/L | 121 (111-126) |
Discharge serum sodium, mmol/L | 135 (116-144) |
Endocrine input | 56/61 (91.8%) |
Average days for sNa to reach ≥ 130 mmol/L | 5 (1-12) |
No of patients sNa ≥ 130 mmol/L in percentage | 82.3 (38/61) |

Initial assessment
- Hypervolaemia 26%
- Hypovolaemia 22%
- Euvolaemia 51%

SIADH causes | N (n=25) | Treatment modalities | % of patients (n=56) |
--- | --- | --- | --- |
Idiopathic | 13 | Normal saline (0.9%) | 66.2 |
Drug induced | 5 | Fluid restriction | 52.3 |
HIV | 1 | Hypertonic saline (1.8%) | 29.2 |
TBI | 1 | Furosemide + hypertonic saline (1.8%) | 12.3 |
Cancer related | 5 | Tolvaptan | 10.8 |

Length of stay (days) | 29.6 days |
Readmission rate | 24.6% |
Mortality rate | 16.9% |

OUTCOME
Automatic referral to a specialist team from the laboratory was appropriate in >90% and led to a prompt diagnostic evaluation and active intervention.