

Hyponatremia in Joint Replacements

A 6-month audit in Bedford Hospital



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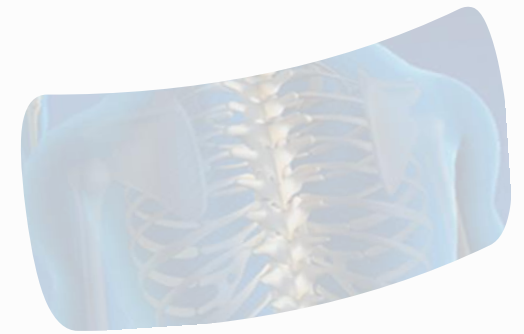
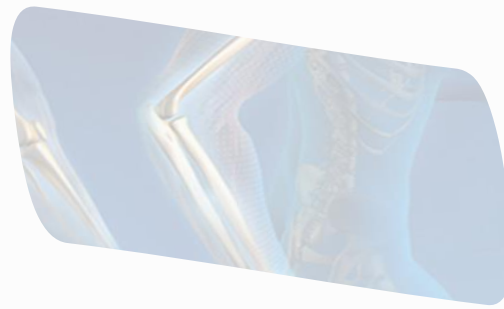
Bedford Hospital
Trauma room



2:30pm



17th Oct, 2023



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Introduction

Hyponatremia is a very common electrolyte derangement noted in patients who have undergone arthroplasty.

Justification

Hyponatremia has been found to be common in post-op joint replacements patients. It is associated with increased mortality and extended hospital stays, the worse the severity of hyponatremia, the higher the chances of mortality.¹

Aims and Objectives

Assess accuracy of investigations in patients with moderate and severe hyponatremia post KR and HR

NICE GUIDELINES²

- Hyponatraemia is defined as a serum sodium concentration of less than 135 mmol/L.
- It is the most common electrolyte disorder encountered in clinical practice and is usually an incidental finding on routine blood tests.
- The severity of hyponatraemia can be classified as:
 - Mild — serum sodium concentration 130–135 mmol/L.
 - Moderate — serum sodium concentration 125–129 mmol/L.
 - Severe — serum sodium concentration less than 125 mmol/L.
- The rate of onset of hyponatraemia can be classified as:
 - Acute — duration of less than 48 hours.
 - Chronic — duration of 48 hours or more.

²- <https://cks.nice.org.uk/topics/hyponatraemia/management/management/>

Audit process

Methodology

Inclusion criteria: All elective KR, All elective HR, Time frame between Nov 2022 – April 2023, Only Cases done in Bedford Hospital

Exclusion criteria: Traumatic NOF #s, patients without Viper records

Data sources: ICE, VIPER, NerveCentre, Medviewer

Data collection and analysis: Microsoft excel

DESCRIPTION	ConsultantName	Na level	Chronicity	Blood Pressure	Serum Osmolality	Urine Osmolality	Urine Na	0.9% NS IV Fluids Given	Fluid restriction	Na lowering Meds stopped	Na Tablets given	Type of Anesthesia	Number days on admission
Primary total prosthetic replacement of hip joint not using cement	MR Dan Arvinte	128	Acute	Hypovolemia	0	0	0	Yes	No	Not stopped	No	Spinal	6
Primary total prosthetic replacement of knee joint using cement	MR Dan Arvinte	129	Acute										5
Primary total prosthetic replacement of knee joint using cement	MR Guruvayankere Nayak	127	Acute		0	0	0		Yes				6
Primary total prosthetic replacement of hip joint not using cement	MR Guruvayankere Nayak	129	Acute	Euvolemia	0	0	0	No	No	Not stopped	Unknown		5
Primary total prosthetic replacement of knee joint using cement	MR Yadu Shankarappa	125	Acute	Euvolemia	283	0	29	Yes	No	Not stopped	No		4
Primary total prosthetic replacement of hip joint using cement	MR Manoj Sood	126	Acute	Euvolemia	0	274	77	Yes	Yes	Not stopped	No		19

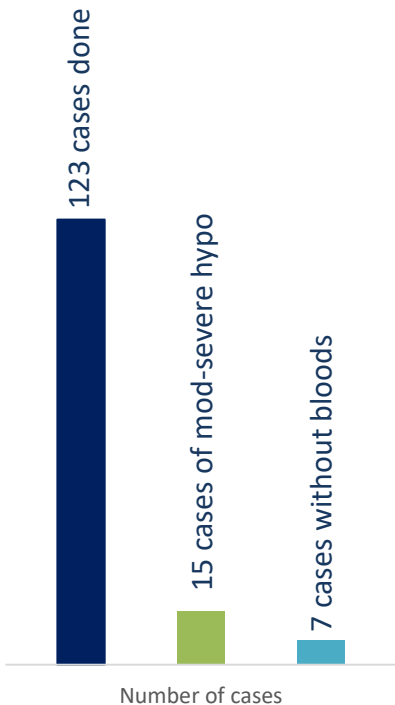
¹ - www.....

HR – Hip Replacements KR – Knee replacements

Audit process cont'd

Results

Figure 1



12% of all cases had moderate-severe hyponatremia

Figure 2.1

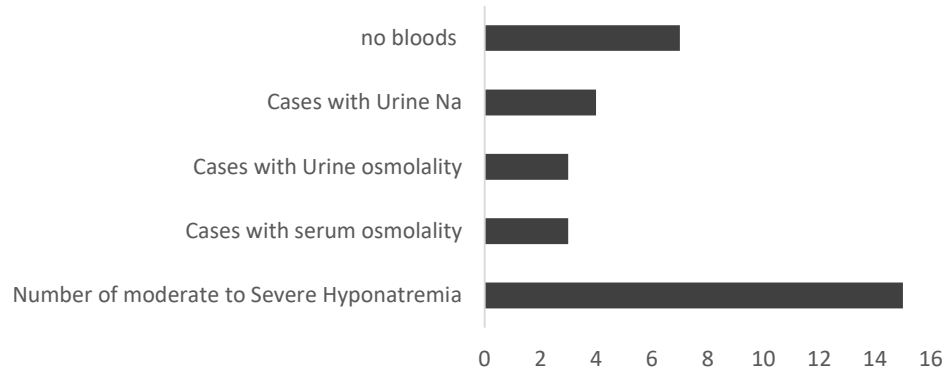
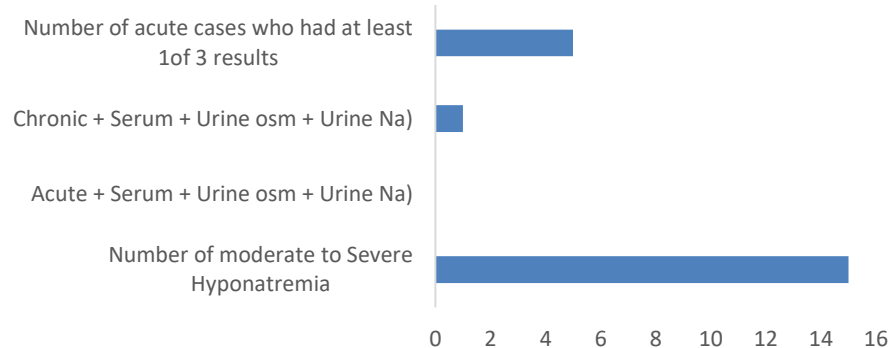


Figure 2.2



Insight

35.7 % of all acute cases of moderate to severe hyponatremia had at least 1 of 3 investigations of Urine osm, Urine Na, and serum osm reported.

Acute cases made up 93% of the moderate to severe hyponatremia cases seen.

¹ - www.....

Bias and challenges

- Pre-op bloods not routinely done.
- Post op bloods not checked, and where checked poor documentation.
- No appropriate guideline concerning correction.
- Lack of endocrinology input
- Small sample size(125)
- Margin g

Summary

- Hyponatremia though common in clinical setting appears to be overlooked in post-operative patients.
- If left unchecked can worsen. It has been observed that mortality is directly proportional to the severity of hyponatremia
- This audit showed 15 (12%) of arthroplasties done developed moderate to severe hyponatremia, 14 of which were acute and 1 chronic.
- Of all the moderate to severe hyponatremia cases, only 1 (6%) had all the 3 initial investigations recommended by NICE, and 5 (36%) had at least 1 of the 3 investigations done.
- Although there are other confounding factors noted, clinicians and team need to request for proper investigations and treatment options necessary for patients post-op to identify and optimize hyponatremia outcomes.

Recommendations

- Proper pre-operative assessment should be done according to the NICE guidelines
- Draw up routine checklist of investigation parameters to watch out for post arthroplasties hyponatremia
- Develop clear protocol for investigating hyponatremia post-op
- Raise awareness of nurses, lab technicians and junior doctors regarding the importance of adequate investigation of hyponatremia post-op
- Endocrinology team should be involved for guidance on treatment modalities.
- Consider audit to review adherence to treatment guidelines for post-op hyponatremia

Q&A



**Thanks for
listening**