Improving Fluid Prescription in Trauma Patients

Dr S. J. Cross[1] and Dr L. S. Mclaughlan[2]

1.StR 5, 2. StR 3, Fife Acute Hospitals NHS Trust, UK.

NHS Lothian

Introduction

Studies show that new doctors have inadequate knowledge and sub-optimal fluid prescribing skills [1]. The Scottish Audit of Surgical Mortality states that problems with fluid management are thought to contribute to poor outcomes [2]. The recent publication of a British consensus guideline on IV fluid for surgical patients, GIFTASUP [3], has brought this controversial issue back into the limelight. Anecdotal evidence suggested fluid prescribing for perioperative trauma patients in Fife was poor.

Methods

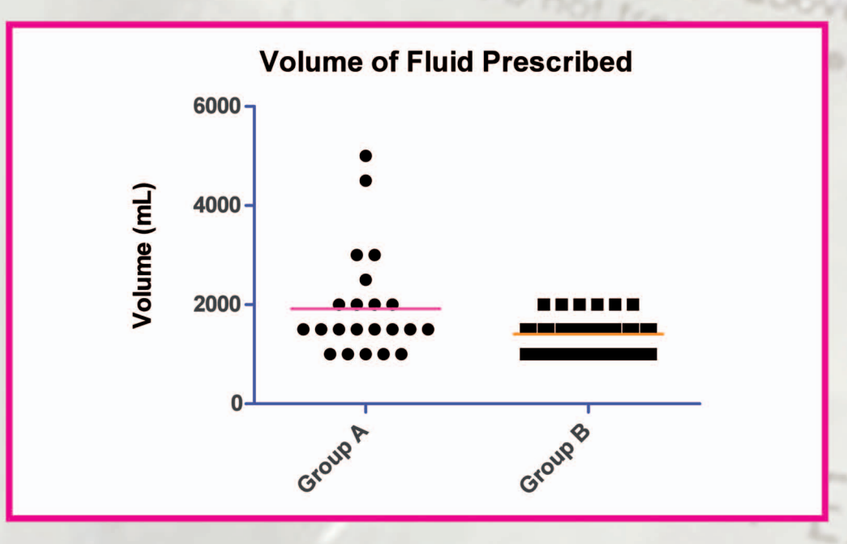
- Audit of prescription of preoperative maintenance fluids to adult patients on the trauma list for 20 days.
- Data included rate, type and volume of IV fluid prescribed, age, ASA and operation.
- All fluid given on the ward was assumed to be maintenance fluid given that fluid resuscitation was carried out in A&E on admission.
- A tutorial on fluid management was conducted for Foundation doctors.
- Key points included assessing fluid status and ensuring appropriate replacement of water, sodium and potassium in maintenance fluid.
- The audit was subsequently repeated.
- GraphPad Prism was used for data analysis.

Results

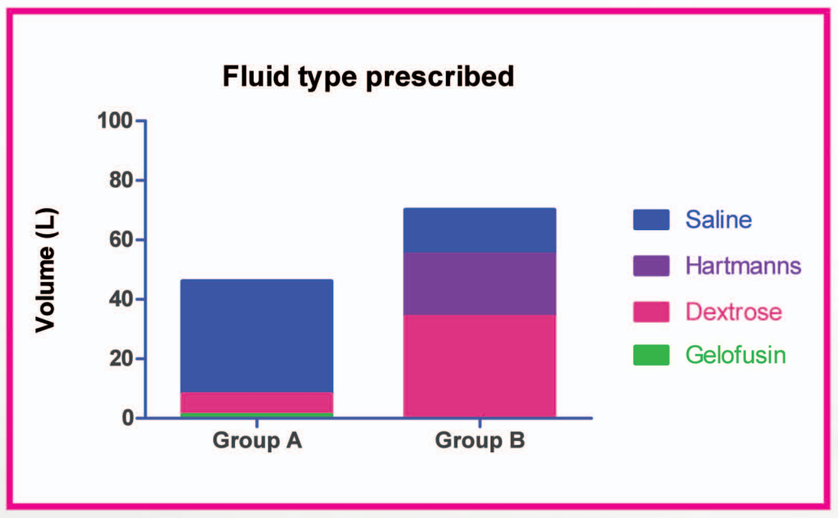
- There were 85 patients in the first group and 86 in the second.
- 2 patients in critical care were excluded as were 3 patients who were prescribed less than 12 hours of fluid.
- There was no significant difference between the groups in age (P=0.37), category of surgery (P=0.26) or ASA grade (P=0.68).

The data shows that more patients in the second group received fluids, 51 vs. 27 (P=0.0004), but that the duration of IV fluids was no different, 16.5 vs.16.8hrs (P= 0.87).

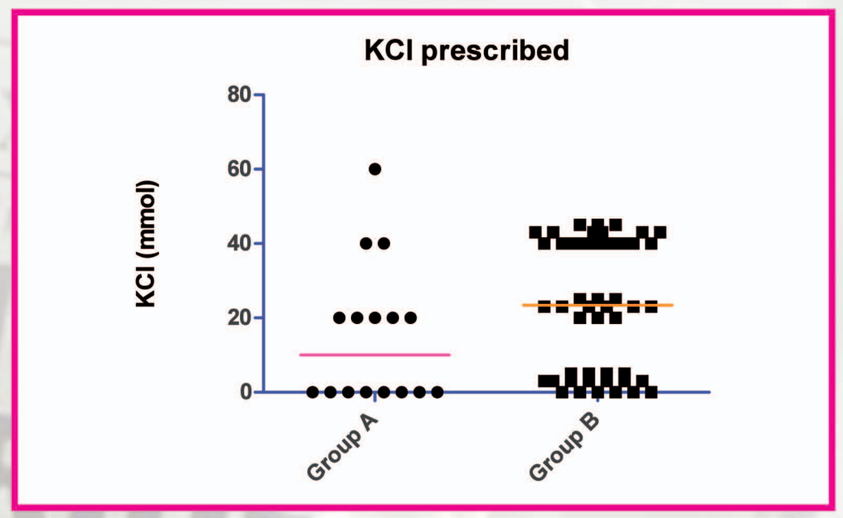
The volume of fluids prescribed per patient reduced from a mean of 1917mls to 1408mls (P=0.002) and was more consistent.



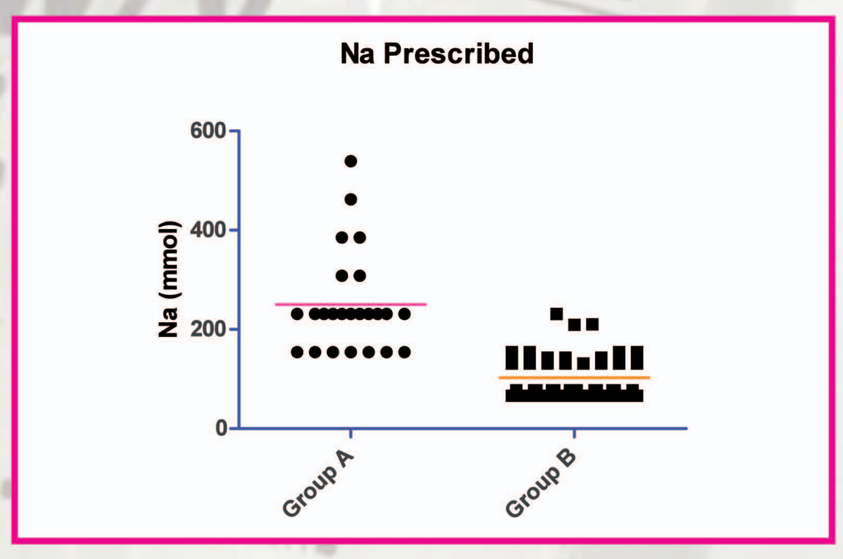
The type of fluid changed (P<0.0001) to include Hartmann's and less saline.



The potassium prescribed increased from a mean of 10mmol to 23mmol (P=0.002).



The sodium reduced from a mean of 250mmol to 102mmol (P=<0.0001) and was more consistent.



Discussion

- Following an education session, Foundation doctors prescribed fluids with much closer adherence to the recommended daily requirements.
- We demonstrated a reduction in sodium load, increased potassium prescribing and the introduction of balanced salt solutions.
- Limitations include lack of information regarding patients' fluid status and outcome.
- We hope this will contribute to reducing morbidity and mortality.
- A regular teaching session and undergraduate Computer Assisted Learning package is being developed to ensure these changes are sustained.

REFERENCES

1. Lobo DN, Dube MG, Neal KR, et al. Problems with solutions: drowning in the brine of an inadequate knowledge base. *Clinical Nutrition.* 2001;20(2):125-30.
2. The Scottish Audit Of Surgical Mortality Summary Report 2009 (2008 Data). NHS National Services Scotland/Crown Copyright 2009
3. Powell-Tuck J, Gosling P, Lobo DN, et al. British consensus guidelines on intravenous fluid therapy for adult surgical patients. GIFTASUP 2008.

ACKNOWLEDGEMENTS

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