Prescription of IV fluid therapy for fluid resuscitation

Clinical Audit

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Identifying the problem

- Fluid resuscitation is a very common intervention in acute medicine
- There are marked variations in clinical practice with selection and use of resuscitation fluids being determined empirically
- Errors in prescribing IV fluids and electrolytes are particularly likely in emergency departments, acute admission units, and general wards. [1]
- 1 in 5 patients on IV fluids and electrolytes suffer complications or morbidity due to their inappropriate administration[1]
- Mismanagement of fluid therapy is rarely reported as being responsible for patient harm

Objectives

- NICE guidelines [CG174, Intravenous fluid therapy in hospitalized adult patient] (December 2013), has set standards for IV fluid prescription for resuscitation [1]
- We audited practice against NICE standards, using system and people focused interventions to facilitate change

Methodology

- A prospective audit was carried out in 2014 (n=52)
- Following the audit the following interventions were made:
  - Removal of Gelatin based colloids from AMU (Forcing Function and Standardisation)
  - Introduction of National Guidelines for AKI management [NICE CG169] [3] (Checklists, Polices and Training)
  - Introduction of Sepsis-6 care bundle (Checklists, Polices and Training)
- In 2016, a prospective re-audit was completed with a sample of 113 patients.

Results

1. NICE Standard: The cause of fluid deficit and the need for fluid resuscitation to be identified and documented. Documentation improved significantly with use of checklists and training

2. NICE Standard: Use crystalloids that contain sodium in the range 130–154 mmol/l, for fluid resuscitation. Colloids were removed from base wards (only available on specific request). Normal saline used as principle resuscitation fluid leading to significant changes in practice

3. NICE standard: Give bolus of 500 ml over less than 15 minutes and reassess
   - 2014: achieved in 92% of audited patients
   - 2016 Audit: achieved in 99%

4. NICE standard : Patients who have already been given >2000 ml and still need fluid resuscitation require review by senior decision maker (SDM)
   100% of patients reviewed by SDM or ICU

5. NICE standard: For patients who receive IV fluid in hospital, clear incidents of fluid mismanagement are reported as critical incidents.
   - 2014 audit: No clinically significant incident.
   - 2016 audit: 4 cases of fluid overload after I.V fluid resuscitation were identified; reporting of incidents remained poor

Discussion

- Fluid prescribing is an important aspect of care and should be given the same status as drug prescribing
- NICE Standards provided an effective benchmark to compare practice to.
- Using a variety of interventions (systems and people focused) allowed common practices to be altered and improved.
- Reporting of incidents of fluid mismanagement for discussion in mortality and morbidity meeting is good practice. Use of DATIX style systems to be encouraged.
- Over the re-audit period no clear indications for use of colloids was identified. Removal provided not only improved care but also a reduction in costs.

Conclusion

- Compliance with NICE recommendations has improved after the implementation of first audit recommendations and relevant national guidelines.
- Using a mixed intervention approach was effective
- Further work is needed in improving the reporting of adverse events

References

1. Intravenous fluid therapy in adults in hospital, NICE guideline [CG174]
3. AKI, prevention, detection and management NICE Clinical guideline [CG169]