Understanding the Effect of Intravenous Fluids for Intoxicated Patients in the Emergency Department

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Research

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Summary

The Emergency Medicine Foundation funded a single-blind, randomised, controlled trial to compare intoxicated patients who received a single bolus of 20 mL/kg intravenous 0.9 per cent saline and

observation, against observation only of intoxicated patients. During the study period, 626 patients presented with alcohol intoxication as their primary diagnosis with 425 patients eligible by age criteria. Of these 425 patients, 164 patients were assessed for inclusion with 144 eligible for enrolment. Trial evidence suggested that intravenous (IV) fluids do not decrease the emergency department length of stay (EDLOS) of intoxicated patients regardless of administration of IV 0.9 per cent saline.

Key dates

Jun 2011

May 2012

Implementation sites

Gold Coast University Hospital

Partnerships

Emergency Medicine Foundation, Bond University, Griffith University

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Aim

The study aim was to compare treatment with intravenous 0.9 per cent saline with observation against observation alone in emergency department (ED) patients with acute alcohol intoxication.

Benefits

- Appropriate, timely care and treatment
- Efficient use of resources

Background

In the emergency department of Gold Coast University Hospital, from 1 January 2008 to 31 December 2009, 0.7 per cent of total patient population (~1512 patients) were given either a primary or secondary diagnosis of alcohol intoxication or alcohol abuse. Non-admitted patients with acute alcohol intoxication or alcohol abuse had an average emergency department length of stay of eight hours. This prolonged length of stay in the department contributes to additional resource allocation and increased morbidity through emergency department overcrowding.

Evaluation and Results

Both groups were comparable at baseline: blood alcohol content (BAC) was similar between treatment and control groups (0.20 per cent BAC vs 0.19 per cent BAC, P = 0.44) as were initial intoxication symptom scores (22.0 vs 22.3, P = 0.90). Both groups had a similar EDLOS (287 min vs 274 min, P = 0.89; difference 13 min [95 per cent CI ?37–63]) and treatment time (244 min vs 232 min, P = 0.94; difference 12 min [95 per cent CI ?31–55]). Change of breath alcohol levels, intoxication score and level of intoxication were not significantly different between the two groups.

Lessons Learnt

The research team found that the standard treatment of giving intoxicated patients intravenous fluids makes no difference to how quickly they recover. As a result, two of the largest emergency departments in Queensland, Gold Coast University Hospital and the Royal Brisbane and Women's Hospital, have stopped the routine use of IV fluids to treat intoxicated patients. Emergency departments in the Gold Coast Hospital and Health Service District treated more than 150,000 patients in 2015 and researchers estimated that up to $500,000 was saved by no longer treating intoxicated patients with unnecessary intravenous fluids.

Further Reading

Emergency Medicine Australasia Journal Article (2013)