

Freeman study overview



Background to the study

- In order to aid recovery both during and after surgery, it is sometimes necessary for large volumes of fluid to be administered to the patient,
- The objective is to prevent complications such as major organ failure following surgery
- The technique of oesophageal Doppler monitoring is a minimally invasive method of monitoring blood and fluid levels which can reduce complications through fluid optimisation
- The aim of the study carried out at the Freeman hospital was to establish the effect of optimising patients' fluid status before and after surgery
- The study in the Freeman hospital used the CardioQ, an inexpensive oesophageal Doppler monitor which uses a disposable ultra-sound probe inserted into the oesophagus to determine the amount of blood being pumped around the body. The CardioQ costs £7,000 to purchase initially, and each disposable probe costs £55

Detail of the study

- Alan Horgan, Consultant colorectal surgeon and his team at the Freeman hospital, Newcastle Upon Tyne Hospitals NHS Trust carried out a controlled clinical trial of 108 patients undergoing colorectal surgery
- All patients received a standard general anaesthetic, and all had continuous oesophageal Doppler monitoring using the CardioQ
- Both the surgical team and the anaesthetist were blinded to the oesophageal Doppler readings
- Postoperative care was standard across all patients, using the same clinical and nursing teams as well as the same surgical wards

Results

The study's main findings showed that patients using CardioQ:

- were fit for discharge three days sooner (6 days versus 9 days)
- were discharged from hospital 2 days sooner (7 days versus 9)
- suffered significantly fewer post-operative complications (2% versus 15% in the control group)
- did not require unplanned admission to critical care (0% versus 11%)
- tolerated food significantly earlier (2 days versus 4 days)

The results in context

- Comparison between the Freeman study and the NHS Institute shows that the average length of stay for patients using the CardioQ is almost half that of the NHS average (7 days compared with 15)*
- If all patients having major surgery were healthy enough to leave hospital two days sooner, the NHS could save over £400 million per year
- A day in an NHS general or surgical ward costs up to £400 a day, depending on additional care required. In an intensive care unit it costs £1,200 or more

* It should be noted that the Freeman study shows the median length of stay for patients, and the NHS Institute data shows the mean length of stay