

PAEDIATRICS

Early postoperative oral fluid intake in paediatric day case surgery influences the need for opioids and postoperative vomiting: a controlled randomized trial[†]

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Abstract

Background. In children younger than 4 yr, it is difficult to distinguish the cause of postoperative distress, such as thirst, pain, and emergence delirium. This may lead to inappropriate treatment, such as administration of opioids. The aim of this study was to evaluate the influence of early postoperative oral fluid intake on the use of opioid analgesics and the incidence of postoperative vomiting (POV) after paediatric day case surgery.

Methods. After ethics committee approval and with parental informed consent, planned day surgery patients aged 6 months to 4 yr were randomized to the liberal group (LG), in which apple juice (10 ml kg⁻¹) was offered first if the Face Legs Activity Cry COnsolability (FLACC) score was ≥ 4 in the PACU, or to the control group (CG), in which children were treated after surgery according to the institutional opioid protocol, and drinking was allowed only upon the return to the ward. Bayesian statistical analysis was used to compare POV incidence and opioid use across groups.

Results. Data from 231 patients were analysed. The incidence of POV in the LG and the CG was 11.40 and 23.93%, respectively. An opioid was needed in 14.04% (mean total dose: 0.18 mg kg⁻¹) and 35.89% (mean total dose: 0.20 mg kg⁻¹) of the patients in the LG and the CG. The PACU stay was 53.45 and 65.05 min in the LG and the CG, respectively (all differences were statistically significant).

Conclusions. In our paediatric outpatient setting, early postoperative oral fluid intake was associated with a reduction in opioid use and POV incidence. These results deserve confirmation in other settings.

Clinical trial registration. NCT02288650.

Key words: paediatrics; postoperative; postoperative nausea and vomiting; pain; surgery; ambulatory

In children <4 yr old, it is usually difficult to differentiate between the causes of postoperative distress, such as thirst, hunger, pain, postoperative vomiting (POV), and emergence delirium. This may lead to inappropriate treatment, including

administration of opioids, which may increase POV.¹ In children undergoing ambulatory surgery, POV is common and has been shown to influence postoperative outcome, including delayed discharge home, unplanned hospital admission, increased

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Editor's key points

- During the early postoperative period, distress in small children has many causes, including thirst.
- Oral intake is not usually permitted on the postanesthesia care unit.
- The authors investigated the influence of a liberal fluid strategy on opioid consumption and vomiting.
- Small children who, when distressed, were first offered apple juice had less opioid use and less vomiting.

discomfort, and reduced patient or parent satisfaction.^{2–5} In France, the incidence of POV in children irrespective of age or type of surgical procedure is estimated to be 30%.⁶ Causes of POV are multifactorial, including postoperative pain and opioid use.^{7–11} A study found that children who are allowed to eat and drink might have less distress without an increase in POV.¹²

The aim of this randomized, placebo-controlled study was to assess the influence of liberal oral intake in the postanesthesia care unit (PACU) on the incidence of POV and pain in children undergoing day surgery under general anaesthesia.

Methods

After ethics review board approval (CPP Est IV, Professor Philippe Wolf, approval date 14/05/2013; ANSM French Ministry

of Health, approval date 02/07/2013; ClinicalTrials.gov ID: NCT02288650) and with parental informed consent, all children aged 6 months to 4 yr, ASA status I–III, undergoing day surgery under general anaesthesia at the Paediatric Surgery Unit of the Haute-pierre University Hospital, Strasbourg, France were enrolled prospectively between September 2013 and June 2014. The exclusion criteria included anaesthetic or surgical constraints preventing oral intake in the immediate postoperative period, known digestive pathology predisposing to POV (e.g. hiatal hernia and gastro-oesophageal reflux), and enrolment in another study.

In the PACU, independent research personnel not associated with the study assigned patients to one of two groups based upon a randomly generated number contained in a sealed envelope, as follows: children in the liberal group (LG) were offered diluted apple juice (10 ml kg⁻¹) if the Face Legs Activity Cry Consolability (FLACC) score was ≥ 4 ; whereas children in the control group (CG) received i.v. opioids if the FLACC score was ≥ 4 according to an institutional pain protocol. In this group, oral intake was allowed only upon the return to the ward. In the LG, if the FLACC remained ≥ 4 after consuming apple juice, the institutional postoperative i.v. analgesic protocol was applied. At no time were the children in the LG group forced to consume apple juice.

A standardized anaesthetic technique was used for all patients, including premedication with midazolam 0.3 mg kg⁻¹ rectally (HypnovelTM; Roche, Boulogne Billancourt, France) or hydroxyzine 0.5 mg kg⁻¹ orally (AtaraxTM; UCB Pharma SA,

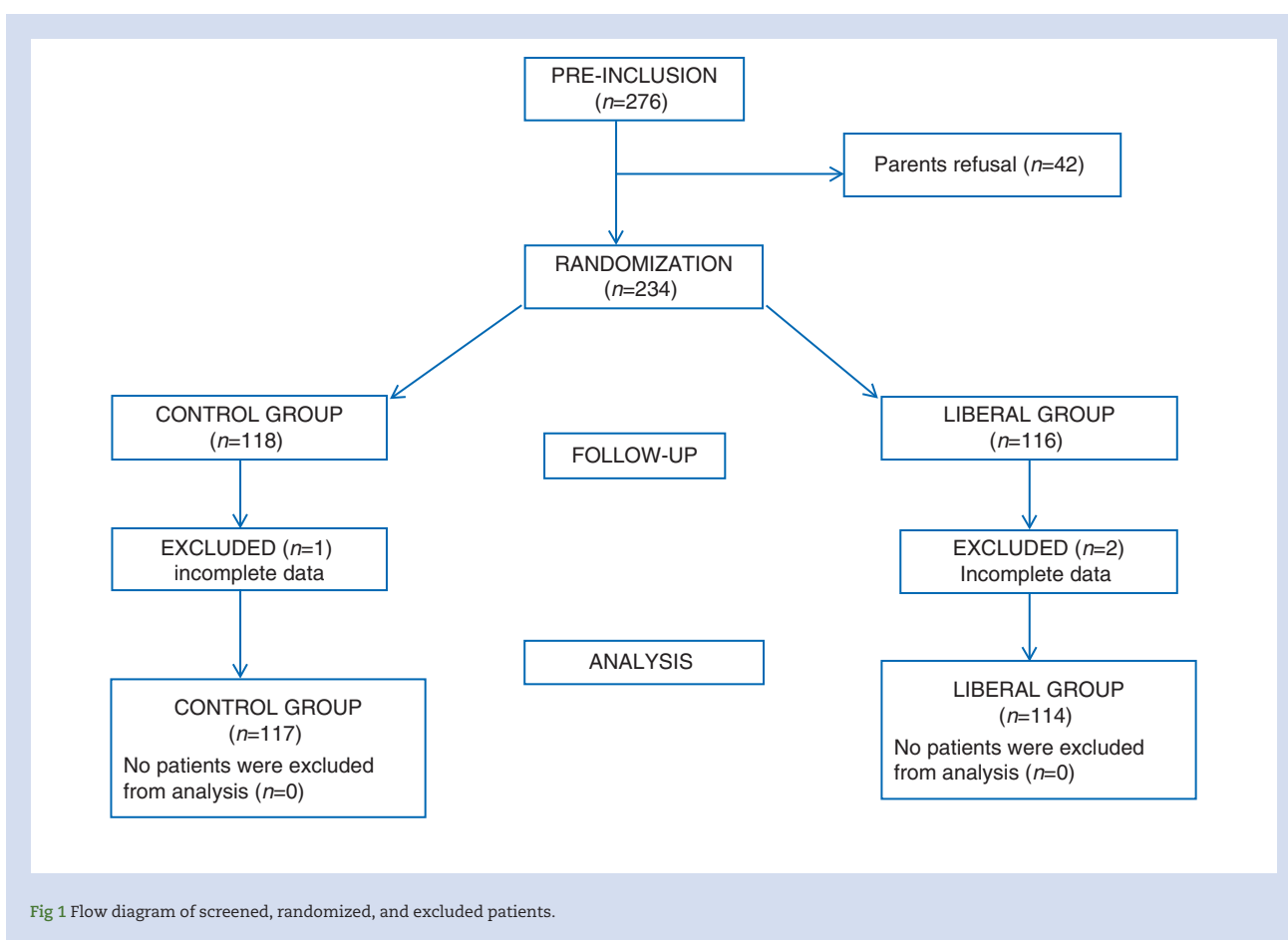


Fig 1 Flow diagram of screened, randomized, and excluded patients.

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