Efek cairan perioperatif terhadap kadar natrium darah, glukosa darah, hemoglobin dan hematokrit: kajian terhdap pemberian berbagai cairan pada pasien anak yang menjalani pembedahan kolorektal dengan anestesi umum = Effects of perioperative fluid on blood sodium, blood glucose, hemoglobin, and hematocrit levels: a study on administration of various fluids in pediatric patients undergoing colorectal surgery

Henry Tandow, author

Abstrak

Latar Belakang: Pemberian cairan intravena perioperatif, yang meliputi cairan prabedah dan cairan intrabedah, adalah salah satu persiapan pembedahan pada pasien anak. Akan tetapi, pemberian cairan intravena memiliki potensi menyebabkan gangguan dalam parameter-parameter laboratorium, seperti natrium darah, glukosa darah, hemoglobin, dan hematokrit. Penelitian ini bertujuan untuk mengetahui efek pemberian berbagai jenis cairan perioperatif terhadap kadar natrium darah, glukosa darah, hemoglobin, dan hematokrit.
Metode: Penelitian ini merupakan studi kohort prospektif. Subjek penelitian adalah pasien anak dengan usia kurang dari 5 tahun yang akan menjalani pembedahan kolorektal elektif dengan anestesia umum. Cairan prabedah diberikan diberikan oleh sejawat Ilmu Kesehatan Anak, sementara pemberian cairan intrabedah ditentukan oleh anestesiologis yang melakukan prosedur anestesia. Data laboratorium (hemoglobin, hematokrit, kadar glukosa darah, dan kadar natrium) diambil pada saat admisi, sebelum insisi, dan setelah pembedahan selesai.
Hasil: Penelitian ini melibatkan 33 subjek penelitian. Terdapat penurunan hemoglobin, hematokrit, dan kadar natrium darah serta peningkatan kadar glukosa darah yang signifikan (p <0,001) setelah pemberian cairan prabedah menggunakan larutan hipotonik dengan glukosa. Sementara itu, tidak terdapat perbedaan yang signifikan pada kadar hemoglobin, hematokrit, dan kadar glukosa darah setelah pemberian cairan intrabedah menggunakan larutan isotonik (p >0,05). Terdapat peningkatan kadar natrium darah yang signifikan setelah pemberian cairan intrabedah (p = 0,024).
Kesimpulan: Pemberian berbagai cairan perioperatif memengaruhi kadar natrium, glukosa, hemoglobin dan hematokrit pasien anak yang menjalani pembedahan kolorektal dengan anestesia umum.
.....Background: Perioperative intravenous fluid administration, which includes preoperative fluids and intraoperative fluids, is one of the surgical preparations in surgical pediatric patients. However, intravenous fluid administration has the potential to cause disturbances in laboratory parameters, such as blood sodium, blood glucose, hemoglobin, and hematocrit. This study aims to determine the effect of various types of perioperative fluids on blood sodium, blood glucose, hemoglobin, and hematocrit levels.
Methods: This is a prospective cohort study. The research subjects were pediatric patients aged less than 5 years who were going to undergo elective colorectal surgeries under general anesthesia. Preoperative fluids were administered by pediatricians, while intraoperative fluid administration was determined by the anesthesiologist performing the anesthetic procedure. Laboratory data (hemoglobin, hematocrit, blood glucose level, and sodium level) were collected at the time of admission, before incision, and after surgery was completed.

Results: This study involved 33 research subjects. There was a significant decrease in hemoglobin, hematocrit, and blood sodium levels, as well as a significant increase in blood glucose levels ($p < 0.001$) after administration of preoperative fluids using hypotonic solutions with glucose. Meanwhile, there was no significant difference in hemoglobin, hematocrit, and blood glucose levels after administration of intraoperative fluids using isotonic solutions ($p > 0.05$). There was a significant increase in blood sodium levels after intraoperative fluid administration ($p = 0.024$).
Conclusions: Perioperative administration of various fluids affects sodium, glucose, hemoglobin and hematocrit levels in pediatric patients undergoing colorectal surgery under general anaesthesia.