

Criteria For Tracheal Extubation Of Pediatric Liver Transplant Patients In The Operating Room

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INTRODUCTION: Traditionally, the standard of care for postoperative pediatric liver transplant patients has been ICU admission with continued mechanical ventilator support. However, recent reports of successful early tracheal extubation after pediatric liver transplant have been published. Standard criteria utilized to help determine the success of early extubation in this population have yet to be defined. We sought to delineate the criteria which would help determine the success of early extubation after transplant.

METHODS: A retrospective chart review of all liver transplant patients at one children's hospital over a five-year period from 1999-2004 was performed. A total of 46 liver transplants were performed on 43 patients. Multiple preoperative and intraoperative variables were analyzed. Patients were divided into two groups: group 1 patients were those who were successfully extubated in the operating room or within 12 hours of their surgery; while group 2 were those patients who remained intubated 12 hours or longer postoperatively. Using univariate analysis, criteria which were found to correlate significantly with successful early extubation were determined.

RESULTS: Criteria which were statistically significant for successful extubation include: (1) no ICU admission or ventilation immediately prior to surgery, (2) decreased surgical times, (3) decreased use of inotropes (6 of 26 patients in group 1 vs. 16 of 20 in group 2), (4) increased mean arterial blood pressure at the conclusion of surgery (79mmHg in extubated group vs. 68mmHg in intubated group) and (5) increased urine output. Patient variables such as age, weight, primary diagnosis, intraoperative fluid/blood replacement and cross-clamp time were not found to be predictive of successful immediate post-operative extubation.

CONCLUSION: Our data demonstrates that increased blood pressure, increased urine output, decreased inotrope support and no preoperative ICU admission are reliable indicators that allow for safe early extubation. Moreover, utilizing these parameters allows for decision-making without significant risk of reintubation.