

# DIGITAL AIR LEAK MONITORING FOR PATIENTS UNDERGOING LUNG RESECTION: A RANDOMIZED CONTROLLED CLINICAL TRIAL

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## THORACIC SURGERY

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**BACKGROUND:** Digital chest drainage devices objectively measure airflow to guide chest tube management. There are contradictory results regarding their utility in reducing length of stay and chest tube duration. The objective of this study is to compare digital and analog devices in patients undergoing anatomical lung resection.

**METHODS:** A single institution randomized trial was conducted. Patients undergoing anatomical lung resection between November 2013 and July 2016 were randomized to digital or analog devices. Chest tubes were managed using a standardized protocol. Hospital length of stay and chest tube duration were primary outcomes. Chest tube clamping, post-chest tube removal pneumothorax, number of chest x-rays and chest tube re-insertion were secondary outcomes.

**RESULTS:** We randomized 215 patients with 107 in the digital group and 108 in the analog group. There was no significant difference in outcomes for length of stay ( $p = 1$ ), chest tube duration ( $p = 0.71$ ), number of chest x-rays performed ( $p = 0.78$ ), post-chest tube removal pneumothorax ( $p = 0.32$ ) or need for chest tube re-insertion ( $p = 0.21$ ). The only significant finding was a higher number of patients having their chest tube clamped prior to removal, with 47% in the analog group and 19% in the digital group ( $p < 0.0001$ ).

**CONCLUSIONS:** Digital devices did not result in reduced chest tube duration or hospital length of stay.