

European Respiratory Society Annual Congress 2012

Abstract Number: 2405

Publication Number: P661

Abstract Group: 1.4. Interventional Pulmonology

Keyword 1: Bronchoscopy **Keyword 2:** Surgery **Keyword 3:** Thoracic oncology

Title: Airway injury after intubation for lung surgery: Double lumen tube compared to EZ blocker

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Body: Background Double lumen tubes (DLT) or bronchial blockers (BB) are used for isolated lung ventilation. DLT's can be positioned faster and remain firmly in place, but are more difficult to introduce. BB's are more difficult to position and need more frequent intraoperative repositioning. The design of a Y-shaped BB, the EZ-Blocker (AnaesthetIQ BV Rotterdam Netherlands, EZB) combines advantages of both techniques. This randomized study investigated efficiency, efficacy and safety of DLT's vs EZB and focused on airway injury caused by intubation. Methods 100 patients were randomly assigned to DLT or EZB group. Incidence and severity of damage to laryngeal, tracheal and bronchial structures were analysed by bronchoscopy before and after surgery. All procedures were recorded and injury was scored by a pulmonologist blinded for intubation type. Further the ease and time of placement, incidence of malpositions, quality of lung deflation, postoperative hoarseness and sore throat were assessed. Results There was a significantly higher incidence of airway injury after DLT compared to EZB. Marked tracheal and bronchial hematomas were found in 58% vs 26% (P=0.002) and 31% vs 6 % (P=0.007). No differences were found in vocal cord and main carina injury. Placing single lumen tubes and EZB's took more time but was rated easier. The majority of EZB's and DLT's were initially malpositioned (42/49 DLT, 37/50 EZB). Lung deflation was comparable. Fewer patients in the EZB-group complained of sore throat. Conclusions The EZB is an efficient and effective device for lung isolation and causes less injury and sore throat than DLT. Bronchoscopic control is recommended for both devices to ensure correct positioning.