BCP exceeding 40 cmH2O after lateral positioning and change in the minimum bronchial cuff volume (BCV), that is, the smallest BCP without air leak, after lateral positioning. The relationships of airway pressure, compliance, and body mass index to the change in BCP after lateral positioning were evaluated.
Results and Discussion: Thirty patients scheduled for elective lung surgery were enrolled. The initial set maximum BCP increased significantly from a mean (SD) value of 26.0 (9.3) cmH2O in the supine position to 28.3 (11.6) cmH2O in the lateral decubitus position (p=0.040). In 10% (3/30) of the patients, the initial established pressure exceeded 40 cmH2O after lateral positioning. The minimum BCVs were 0, 0.5, and 1 ml for 16 (53%), 10 (33%) and 4 patients (13%) in the supine position, and had no change in 20 (67%), decreased in 6 (20%), and decreased in 4 (13%) after lateral positioning. Change in BCP showed no significant correlations to airway pressure, compliance, and body mass index.
Conclusion: The initial set maximum BCP significantly increased after lateral positioning, although the factors influencing this could not be determined. Therefore, BCP must be managed with caution to avoid overinflating it, and further studies are needed to determine influencing factors.

01AP17-5

Tetralogy of Fallot: a challenging case

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Background: Tetralogy of Fallot (TOF) is the most common form of cyanotic heart disease accounting about 6% of congenital heart disease. The cardinal features are ventricular septal defect, abnormally positioned aortic valve, right ventricular outflow tract obstruction and right ventricular myocardial hypertrophy.[1] As life expectancy increases, it has become more frequent the need to manage these patients outside Cardiac Surgery scope.
Case Report: 23-year-old male patient with known history of uncorrected TOF was admitted for elective mandibular cyst extraction. Patient presented a functional capacity of about 4 METs. Current outpatient medication was aspirin 100mg. The patient evidenced peripheral, central cyanosis (basal SpO2 86% on room air) and clubbed fingers. Cardiac auscultation revealed a grade 3 pansystolic murmur at the pulmonary area. Secondary polycythaemia was documented (hemoglobin 22.0g/dL, hematocrit 58%). Echocardiography showed an extreme TOF with stenotic pulmonary valve and anterograde flow gradient of 80mmHg,large intraventricular communication and overriding dilated aorta. Biventricular function was within normal limits. Major aortopulmonary collateral arteries were identified. ECG showed sinus tachycardia with P pulmonale and Chest X-ray showed boot-shaped heart. Prophylaxis for endocarditis was administered with Ampicilin 2g. After pre-oxygenation with 100% O2,induction was achieved with fentanyl(1mcg/kg), etomidate(0,2 mg/kg) and rocuronium(0,6 mg/kg).General Anesthesia was maintained with Desfluorane(MAC 0,8-1). Monitoring used was the ASA standard, BIS and noninvasive hemodynamic monitoring-Starling SV. Hemodynamic stability was maintained throughout the procedure. After neuromuscular block reversal with sugammadex,the patient was extubated and moved to the post-anesthesia care unit, where he remained stable. He was discharged home 24hours after the procedure.
Discussion: The anesthetic goals as maintaining haemodynamic stability, euvolemia, systemic vascular resistance, avoiding hypoxia and increases in oxygen demand, are crucial for a successful outcome.
References:
1. Stout KK, et al, AHA/ACC Guideline for the Management of Adults with Congenital Heart Disease,2018
Learning points: Anesthesia management of TOF patients requires a thorough understanding of the pathophysiology of this condition and the altered haemodynamics. A detailed preoperative assessment is required to understand the severity of the underlying heart disease and optimization.

01AP17-6

The prevalence of Post-Thoracotomy Pain Syndrome in a cohort of 96 patients who underwent minimally invasive pulmonary resection surgery.

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Background and Goal of Study: Post-Thoracotomy Pain Syndrome (PTPS) is defined as pain along the thoracotomy scar recurring or persisting for more than 2 months after surgery. PTPS is characterized by neuropathic traits and chronic evolution. According to some studies its incidence is higher after thoracotomy than in VATS (33% vs 25%) [1]. The aim of our work is to evaluate the incidence of PTPS and sensory disturbances over a 6-month period.
Materials and Methods: Ninety-six patients after minimally invasive pulmonary resection surgery, treated with multimodal analgesia, were followed up for 6 months. Demographic data, surgical approach and intra- and post-operative antalgic control were recorded. PainDETECT questionnaire (PD-Q) [2] and Numeric Rate Scale (NRS) were evaluated with phone calls 1, 3 and 6 months after surgery.
Results and Discussion: At 3 and 6 months after surgery, the incidence of pain was 28% and 21% respectively. No one met the criteria for neuropathic pain according to the PD-Q. We, therefore, looked for demographic and perioperative factors that could have influenced higher scores (PD-Q ≥ 3), suggesting a higher likelihood of neuropathic symptoms. At 6 months the Video-Assisted Thoracic Surgery (VATS) group showed lower scores compared to the minithoracotomy group (p=0.05). Between female patients, we observed a strong tendency to suffer from sensory disturbances more than males. Finally, patients treated with locoregional analgesia techniques before surgical incision showed a strong tendency to have better scores compared to those treated at the end of the surgery.
Conclusions: Our data are consistent with actual literature about the incidence of chronic pain. The incidence of neuropathic pain instead seems to be lower than in other studies on this topic, maybe due to the fact that we always perform multimodal analgesia and that in our study only minimally invasive surgical approaches were included. In our experience, locoregional techniques may also lower the prevalence of sensory disturbances. Further data are needed to assess if also other factors like perioperative adjuvants could play a role.
References:
1. Bayman EO et Al. A Prospective Study of Chronic Pain after Thoracic Surgery. Anesthesiology. 2017; 126:938–951.
2. Steegers MA et Al. Only half of the chronic pain after thoracic surgery shows a neuropathic component. J Pain. 2008; 9(10):955-961.

01AP17-7

A new algorithm to quantify cardio-pulmonary interaction in patients with atrial fibrillation.

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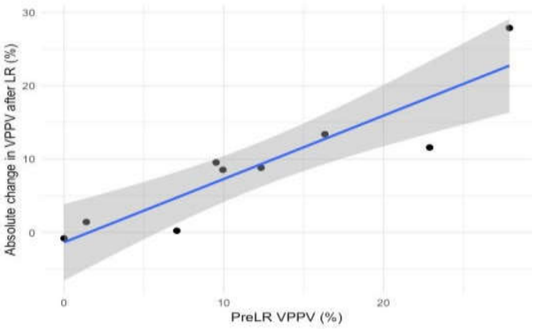
Background and Goal of Study: Traditional formulas to calculate Pulse Pressure Ventilation (PPV) can't be used in patients with Atrial Fibrillation (AF) because of their intrinsic irregular beat-to-beat variation. We developed a new algorithm that is able to mathematically decompose the variation in Pulse Pressure (PP) into its causes. This enable us to quantify venitation induced Pulse Pressure Ventilation (VPPV) in patients with AF. In this study we tested the effect of changing loading conditions on this parameter. Extrapolating from the knowledge of PPV in patients with sinus rythm, we hypothesize a decrease in VPPV after a leg-raising test (LR), especially when the pre-LR value is high.
Materials and Methods: After ethical approval and informed consent, patients with active AF scheduled for an ablation of the pulmonary vein, were included. ECG and invasive arterial waveforms were recorded during general anaesthesia with full mechanical ventilation (TV=8ml/kg). Two observation periods of 60 s were assessed, before and after leg-raising test (pre-LR, post-LR). We constructed a generalized additive model for each patient on each observation period. Based on our earlier findings (1), the impact of AF was modelled on the 2 preceding RR intervals of each beat (RR0, RR-1).The impact of ventilation and long-term PP trends were modelled as separate splines.
Gam: PP ~ Intercept + s(RR0) + s(RR-1) + s(Ventilation) + s(trend)
VPPV was defined as 100 * range (s(Ventilation))/Intercept.
The pre-LR VPPV and the change in VPPV were assessed using a regression model.
Results and Discussion: 9 patients were included. The models showed excellent predictive abilities with a median r^2= 0.92 (range = [0.60 – 0.98]). Pre-LR VPPV values ranged from 0.1 % to 27.9 %. The post-LR VPPV values decreased to 0%-11.3% (p<0.001). The relation between the Pre-LR values and the magnitude of the changes imposed by the LR was statistically significant (p<0.0001).(see fig)



Conclusion: These findings show the ability of this algorithm to quantify ventilation induced PPV in patients with AF along with its load dependent property.
Reference:
1. Wyffels et al. Am J Physiol-Heart Circ Physiol 2016