A498 - Acute respiratory failure (ARF): differences in diaphragmatic ultrasonography in medical and surgical patients

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Introduction:
ARF is common in critically ill patients. We compared diaphragm contractile activity in medical and surgical patients admitted to ICU with a diagnosis of ARF.

Methods:
Adult medical and major abdominal laparotomic surgical patients admitted to a general ICU with a diagnosis of ARF were enrolled. ARF was defined as a PaO2/FiO2 ratio ≤ 300 mmHg/%) and need for mechanical ventilation (MV) for at least 24 hours. Diaphragmatic ultrasound was realized bedside when the patient was stable and able to perform a trial of spontaneous breathing. A convex probe was placed in right midaxillary line (8th-10th intercostal space) to evaluate right hemidiaphragm. Diaphragmatic respiratory excursion and thickening were evaluated in M-mode on 3 consecutive breaths and thickening fraction (TF) was calculated. Anthropometric, respiratory and hemodynamic parameters, SAPS2, SOFA score, duration of MV, need for tracheotomy and timing, septic state and site of infection, superinfections, ICU and inhospital length of stay (LOS) and outcome were recorded. Patients with trauma and neuromuscular disorders were excluded. P<0.05 was considered significant.

Results:
We enrolled 30 patients: 40% medical and 60% surgical, without differences for age, sex, BMI, SAPS2, SOFA score, sepsis and superinfections. Moderate ARF was prevalent in both groups. During diaphragmatic examination, no differences were recorder for respiratory rate, hemodynamic state and fluid balance. Surgical patients showed a lower but not significant diaphragm excursion (1.6 vs 1.8 cm), instead TF was significantly reduced (58 vs 90%, p<0.05). No differences emerged on duration of MV, but tracheotomy were higher in medical ones (30 vs 11%, p<0.05). ICU and inhospital LOS do not differ between medical and surgical patients and mortality rate was respectively 17% and 22%.

Conclusion:
In ARF, surgical patients showed a lower diaphragm contractility compared to medical ones, maybe due to the combination of anesthetic and surgical effects, but with no influence on outcome.