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Title: Can lung ultrasound predict prone positionning response in ARDS?

Solene 18290 Guinard soleneguinard@yahoo.fr MD [1], Gwenael 18291 Prat gwenael.prat@chu-brest.fr MD [1], Nicolas 18292 Bizien nicolas.bizien@chu-brest.fr MD [2] and Prof. Erwan 18293 L'Her erwan.lher@chu-brest.fr MD [1]. [1] ICU, University Hospital, Brest, France, 29200 and [2] Pneumology, University Hospital, Brest, France, 29200 .

Body: Introduction: Prone positioning (PP) is an alternative in the management of patients with severe ARDS. Among patients treated with that technique: only 70% are responders as they improve their P/F but at present we are not able to predict the patient's responsiveness. The aim of our study was to determinate whether the lung aspect observed with US before PP can predict or not the prone positioning response. Patients and settings Prospective monocentric study (medical ICU university hospital Brest France) including patients with severe ARDS (P/F< 200 with FiO2 ≥ 0.7). A standard lung US exam with 12 lung areas to explore (superior/inferior, anterior/ lateral/ posterior, right/left) was practiced before prone positioning (12 hours according unit's procedure).Before PP, after 2 hours of PP and 2 hours after turning back the patient supine, haematosis parameters were collected. Lung aspect was evaluated a posteriori by 3 physicians and graded in 4 stages (normal aspect, and 3 stages of lung compression) Observation of the P/F ratios course permitted to classify patients as responders or non-responders. Statistics: Fisher's exact test Results 17 patients were enrolled in the study. - For the early response: the absence of lung compression in anterior and superior areas is associated with an improvement of P/F ratio > 20 mmHg, whereas posterior areas aspect is not predictive of the response to PP. - For the late response, we have not found any relationship between the lung aspect and the pp response. Discussion The first analysis showed that lung's US aspect could predict the patient's response to PP and could help physician in routine practice to place or not sever ARDS patient in PP.