

Category : **Respiratory: ARDS**

A146 - Neither r/i ratio nor recruitable volume, differentiates recruiters from nonrecruiters by staircase recruitment maneuver.

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Introduction:

A single-breath method allows bedside measurement of recruitment-to-inflation (R/I) ratio and recruited volume (V_{rec}). To date, there is a limit number of studies regards to these parameters compare between recruiters vs. nonrecruiters identified by staircase recruitment maneuver (SRM). Using SRM, we hypothesize whether recruiters would have a higher R/I ratio and higher V_{rec} than nonrecruiters.

Methods:

We conducted a prospective experimental study in patient with acute respiratory distress syndrome (ARDS) who were admitted to a medical intensive care unit. All patients were measured for R/I ratio and V_{rec}. After that, SRM was performed to identify patients as recruiters (improvement of respiratory compliance (C_{rs}) \geq 30%) and nonrecruiters (improvement of C_{rs} $<$ 30%). Arterial blood gas parameters and respiratory mechanics were recorded at the baseline, end of SRM, 1-hr, and 4-hr following SRM. Primary outcome was difference in R/I ratio between recruiters vs. nonrecruiters. Secondary outcome was difference in V_{rec} between both groups.

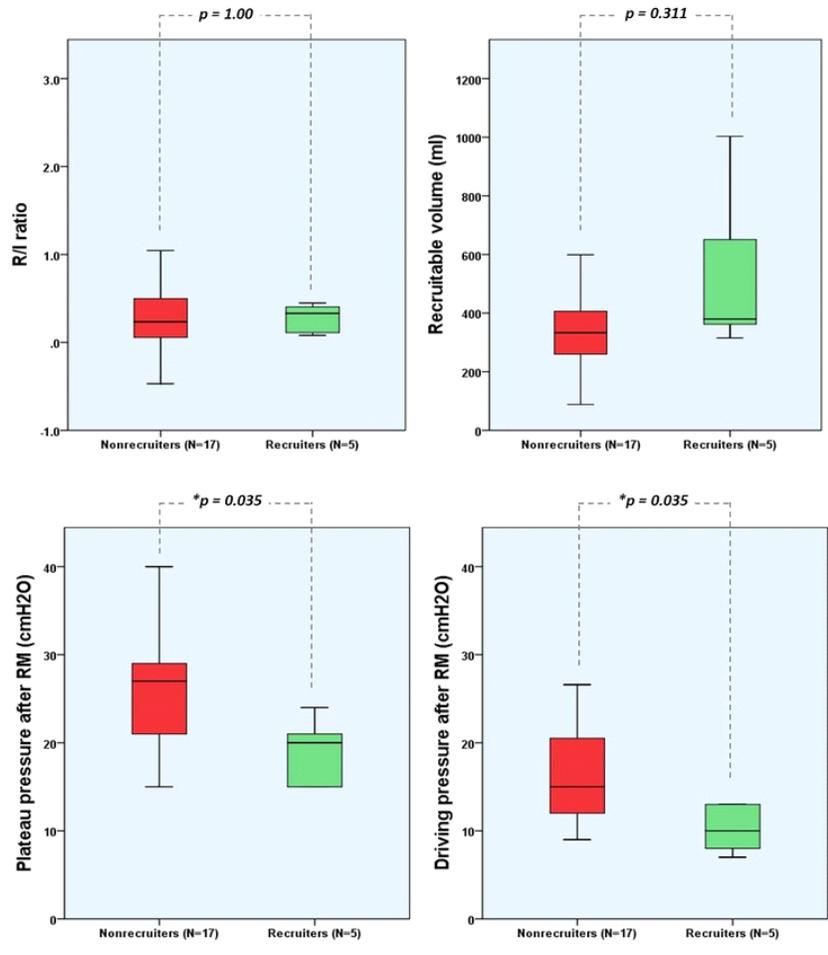
Results:

Twenty-two ARDS patients were enrolled. The most common cause of ARDS was pneumonia (n=16). Median PaO₂/FiO₂ ratio at the baseline was 176 (interquartile range 93-230). Using improvement of C_{rs} criteria following SRM, there were 17 nonrecruiters and 5 recruiters. No difference in R/I ratio was found between recruiters and nonrecruiters (0.33 vs. 0.23, p=1.0) (Fig.1 *upper panel*). Compared to nonrecruiters, there was a trend of higher V_{rec} in recruiters but not achieved statistically significant (330 mL vs. 380 mL, p=0.31). While there was no different in baseline plateau and driving pressure, Recruiters had significantly lower delta plateau and driving pressure following SRM (Fig.1 *lower panel*).

Conclusion:

In patients with ARDS, using R/I ratio may not help differentiate recruiters and nonrecruiters identified by C_{rs} improvement. However, there was a trend of higher V_{rec} in recruiters. These findings warrant further study.

Image :



Response to staircase recruitment maneuver (SRM) by compliance criteria

Response to staircase recruitment maneuver