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Demographics, management and outcome of females and males with acute respiratory distress syndrome in the LUNG SAFE prospective cohort study

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Shorter females with ARDS were less likely to receive lower tidal volume ventilation than shorter males, while mortality rates were higher in females with confirmed severe ARDS. Better ventilatory management may improve outcomes in females with ARDS. <http://bit.ly/2JIsUBz>

Cite this article as: McNicholas BA, Madotto F, Pham T, *et al.* Demographics, management and outcome of females and males with acute respiratory distress syndrome in the LUNG SAFE prospective cohort study. *Eur Respir J* 2019; 54: 1900609 [<https://doi.org/10.1183/13993003.00609-2019>].

This single-page version can be shared freely online.

ABSTRACT

Rationale: We wished to determine the influence of sex on the management and outcomes in acute respiratory distress syndrome (ARDS) patients in the Large Observational Study to Understand the Global Impact of Severe Acute Respiratory Failure (LUNG SAFE).

Methods: We assessed the effect of sex on mortality, intensive care unit and hospital length of stay, and duration of invasive mechanical ventilation (IMV) in patients with ARDS who underwent IMV, adjusting for plausible clinical and geographic confounders.

Findings: Of 2377 patients with ARDS, 905 (38%) were female and 1472 (62%) were male. There were no sex differences in clinician recognition of ARDS or critical illness severity profile. Females received higher tidal volumes (8.2 ± 2.1 versus 7.2 ± 1.6 mL·kg⁻¹; $p < 0.0001$) and higher plateau and driving pressures compared with males. Lower tidal volume ventilation was received by 50% of females compared with 74% of males ($p < 0.0001$). In shorter patients (height ≤ 1.69 m), females were significantly less likely to receive lower tidal volumes. Surviving females had a shorter duration of IMV and reduced length of stay compared with males. Overall hospital mortality was similar in females (40.2%) versus males (40.2%). However, female sex was associated with higher mortality in patients with severe confirmed ARDS (OR for

sex (male *versus* female) 0.35, 95% CI 0.14–0.83).

Conclusions: Shorter females with ARDS are less likely to receive lower tidal volume ventilation, while females with severe confirmed ARDS have a higher mortality risk. These data highlight the need for better ventilatory management in females to improve their outcomes from ARDS.