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Title: Airway distensibility with lung inflation following allogeneic haematopoietic stem-cell transplantation (HSCT)

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Body: Background: In uncomplicated HSCT, absolute lung volume is reduced but the ability to reverse induced bronchoconstriction by deep-breath is enhanced. Aims: To study whether this effect may be due to increased airway distensibility. Methods: 23 subjects were studied before and 1-3 and 3-6 mo after HSCT. Resistance (Rrs) and reactance (Xrs) of the respiratory system were measured by FOT (5, 11 and 19 Hz) at FRC and TLC. The ratio of changes in respiratory conductance (Grs) from FRC to TLC to changes in lung volume ($\Delta\text{Grs}/\Delta V_L$) was used to estimate airway distensibility. Results: Grs at FRC was larger at all frequencies whereas Xrs at 5 Hz was less negative after than before HSCT.

TLC was decreased by $5\pm 2\%$ whereas FRC was not changed. $\Delta\text{Grs}/\Delta V_L$ was steeper after than before HSCT ($P<0.001$), without differences after salbutamol (interrupted lines).

Tissue lung density, measured by quantitative CT scan ($n=8$), was increased after HSCT by $18\pm 11\%$ ($P=0.0006$). Conclusions: Airway caliber and distensibility are increased after HSCT, likely due to an increased distending force of lung parenchyma.