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| **Characterising patients based on the concordance/discordance between oscillometric and spirometric bronchodilator responses** |
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| **Introduction/Aim:** Oscillometry can detect a positive bronchodilator response (BDR) in patients with a negative spirometric BDR. However, little is known about the patients who have discordant BDR. We aimed to characterise patients based on the BDR measured by both oscillometry and spirometry.  **Methods:** Oscillometry and spirometry were measured before and 10 minutes after 400ug of salbutamol via spacer in 216 patients who attended the Airways Clinic at Royal North Shore Hospital. Spirometry data 1 year following the first data point was available in 112 patients. Oscillometry measured respiratory system resistance (R5) and reactance (X5) at 5Hz and a positive BDRX5 was considered > 1.38 cmH2O·s·L−1 increase. Spirometric BDR was assessed using the 2005 ATS criteria (BDR2005). Data were compared using one-way ANOVA tests with Bonferroni post-hoc analyses.  **Results:** 143/216 (66%) patients had negative BDR by both spirometry and X5 (BDR\_neg), 16/216 (7%) patients had positive BDR by both spirometry and X5 (BDR\_pos), 49/216 (23%) had a positive BDR by X5 but not by spirometry (BDR\_X5), and 8/216 (4%) had a positive BDR by spirometry but not by X5 (BDR\_Spiro). Compared to the BDR\_neg group, the BDR\_X5 group had worse baseline FEV1, FVC, FEV1/FVC, R5 and X5 (p < 0.001 for all). Compared to the BDR\_pos group, the BDR\_X5 group had similar baseline FEV1, FVC, FEV1/FVC, R5 and X5 (p > 0.05 for all). The BDR\_X5 group did not have a change in FEV1 z-score at 1 year whereas the BDR\_pos group had a worsening of FEV1 (change z-score 0.07 vs -0.94, p < 0.001).  **Conclusion:** Over 20% of patients had a positive oscillometry BDR but negative spirometric BDR. Patients with only a BDR in X5 had similar baseline lung function as those with both spirometry and X5 BDR, but they did not have a fall in lung function over time.  **Key Words:** oscillometry, forced oscillation technique, bronchodilator responsiveness  **Grant Support:** Nil |