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| **Pre-operative risk assessment for scoliosis patients – is spirometry enough?** |
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| **Introduction/Aim:** The Royal Perth Hospital (RPH) Surgical Operational Guidelines recommend pulmonary function tests (PFTs) for all patients undergoing scoliosis corrective surgery; however, these guidelines do not specify which PFTs are required. Comprehensive PFTs (spirometry, DLCO, plethysmography and mouth pressures) were performed for all pre-operative scoliosis patients. In December 2020 this was revised to spirometry only for patients with idiopathic scoliosis and comprehensive PFTs for patients with non-idiopathic scoliosis (i.e. complex neuro-muscular scoliosis). We aimed to determine if, after limiting preoperative PFTs for idiopathic scoliosis patients, there were post-operative adverse events (AE) that could have been forewarned by more comprehensive testing.**Method:** Prospective review of patients undergoing scoliosis repair surgery between August 2020 and February 2021 (Group 2, n=42). Post-operative outcomes were compared with data from a retrospective audit of patients between November 2015 and May 2017 (Group 1, n=30). A respiratory consultant reviewed peri- and post-operative AEs and determined whether they could be related to pre-operative lung function.**Results:** There were no post-operative respiratory complications in Group 1 and four in Group 2. All four post-operative respiratory complications in Group 2 were in patients with idiopathic scoliosis (spirometry only). Post-operative respiratory events included pneumothorax resulting from the surgical procedure (2), aspiration pneumonia and hypoxic respiratory failure. Following review, it was determined that only the hypoxic respiratory failureevent was related to baseline lung function. Pre-operative spirometry was abnormal for this patient (FEV1 75% predicted; FVC 81% predicted).

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|  | Group 1 (n=30) | Group 2 (n=42) |
| Age (yrs) | 17.8±3.67 | 17.5±6.98 |
| Cobb angle (°) | 53.5±10.49 | 62.82±13.73 |
| FEV1 (%pred) | 86±13 | 79±18 |
| FVC (%pred) | 88±12 | 82±19 |
| DLCO (%pred) | 88±17.8 | - |
| TLC (%pred) | 91±11.6 | - |
| LOS (days) | 8.9±3.5 | 8.2 ± 2.8 |
| Peri-operative complication (n) | 2 (6.7%) | 6 (14.3%) |
|  Respiratory (n) | 0 (0%) | 2 (4.8%) |
| Post-operative complication (n) | 11 (37%) | 27 (64%) |
|  Respiratory (n) | 0 (0%) | 4 (9.5%) |

**Conclusion:** Post-operative adverse events related to respiratory function are infrequent in patients undergoing scoliosis corrective surgery, with only one event observed across both study periods. In this small study, performing limited PFTs did not result in increased respiratory AEs, indicating comprehensive respiratory testing may not be required prior to surgery.**Key Words:** Spirometry, scoliosis, pre-operative**Nomination for New Investigator Award:** No**Grant Support:** Nil |