Reasons for non-compliance with cardiopulmonary exercise testing in cystic fibrosis

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**Objectives:** Cardiopulmonary exercise testing (CPET) is the gold standard for assessing exercise capacity in CF, and is recommended on an annual basis. However not all patients undertake a CPET. This service review identifies reasons why some patients do not perform CPET in a combined (adult and paediatric) CF centre in the UK.

**Methods:** Data for 179 (92 male) patients with CF was retrospectively reviewed. Reasons for non-compliance with CPET were identified from patient records, and when reasons were unclear, patients were directly asked at clinical appointments or via telephone.

**Results:** In 2017, 138/179 patients were eligible for CPET (41 patients (22.9 % of total) were too young (≤ 11 years)). Of the 73 (40.8 %) patients who undertook CPET, 60 (33.5 %) utilised full on-line gas analysis and 13 (7.3 %) did not use gas-analysis due to positive screening for NTM. For the remaining 65 patients who did not undertake a CPET, reasons for non-compliance were split into three categories: clinical (25/179, 14.0 %), refusal (18/179, 10.1 %) and ‘other’ (22/179, 12.3 %). Clinical reasons included being unwell/needing IV antibiotics (n = 5), musculoskeletal issues (n = 4), obesity (n = 4), pregnancy/maternity (n = 2), pre/post lung transplantation (n = 2) and additional clinical conditions such as fibromyalgia, cancer and myasthenia gravis. Patients refused a CPET for reasons including unwillingness to travel (n = 6) and dislike of the CPET (n = 2). Finally, patients who did not undertake CPET for ‘other’ reasons included difficulty contacting patients (n = 5) and transfer of care (n = 4). Logistic regression indicates neither gender nor FEV₁ predicted whether a patient undertook CPET.

**Conclusion:** This review identifies multiple reasons behind non-compliance with CPET. This allows care teams to intervene appropriately and further integrate CPET into the annual review process, particularly when there are no clear clinical contraindications for patients to undertake a test.