



Sunday , 03 September 2006



Hall B2-28 Session 127 12:50-14:40

TP Thematic Poster Session : The evolving role of spirometry

P1611

Comparison of an ultrasonic spirometer against a fully calibrated and quality assured pneumotachograph system over a one month period

C. Smith, R. Vaughn, R. Carter (Glasgow, United Kingdom)

Aims: To compare the results of spirometry testing over a one month period measured on an ultrasonic spirometer (EasyOne) calibrated at the beginning of the study period against a pneumotachograph system (Zan 100 Handy 1) which was calibrated and quality assured each day.

Methods: The spirometry systems were tested for accuracy using a Multiflow 3 litre volume calibration syringe. Three litres of air were pumped through each spirometer at 0.5, 1, 2, and 3 litres/s and the FVC was recorded. FEV₁ and FVC were measured on an individual subject on the two devices at each test session. This produced 21 sets of duplicate measurements (Total 126) over a one month period.

Results: The mean (SD)[95%CI] Litres, between device differences for FVC at 0.5 l/s was 0.053(0.02)[0.013-0.094], at 1.0l/s was 0.03(0.027)[-0.023-0.083], at 2.0 l/s was 0.025(0.021)[-0.015-0.0656] and at 4.0 l/s was 0.048(0.021)[0.006-0.089]. There was no trend to increasing difference between the two spirometers over the assessed time period. In the individual subject, between device differences for FEV₁ was 0.049(0.058)[-0.064 – 0.162], FVC 0.03(0.054)[-0.076-0.135]. There was no trend for an increasing difference in the spirometric indices over the assessed time period.

Conclusion: The data shows that there is close agreement between the EasyOne spirometer and a fully calibrated pneumotachograph system over the one month period. There was no trend to change in the agreement between the two spirometer systems over time. This suggests that the EasyOne spirometer is stable over this time period and would be suitable for clinical use providing correct usage and adequate quality assurance.