CORRESPONDENCE

Sputum induction in young cystic fibrosis patients

To the Editor:

We read with great interest, the study by De Boeck et al. [1] on the safety of sputum induction in children with cystic fibrosis (CF). The authors showed that sputum induction with sodium chloride in concentrations 0.9–6.0% using an ultrasonic nebulizer was safe in this group of patients. Sputum induction with different concentrations of saline delivered using ultrasonic nebulizers have been previously reported to be safe in asthma and chronic obstructive pulmonary disease [2, 3].

We performed sputum induction with 3% solution of hypertonic saline delivered using a jet nebulizer (Pari LC Plus with Pari TurboBoy compressor, Pari Medical Ltd, West Byfleet, Surrey, UK) in 12 adult CF patients mean (range) age 23.8 (17–42) yrs and forced expiratory volume in one second (FEV1) of 2.73 (0.63–4.93) L. Six patients did not expectorate and six patients had sputum induction. The patients were in a stable stage of the disease with no exacerbations for ≥2 weeks prior to testing. We compared the CF patients with nine healthy volunteers age 27.6 (22–39) yrs who had sputum induction with 3% hypertonic saline performed using a jet nebulizer (Pari LC Plus) and a ultrasonic nebulizer (Ultra-Neb 2000 DeVilbiss Health Care UK Ltd, Wollaston, West Midlands, UK) on two separate occasions. All subjects had spirometry, peak expiratory flow (PEF), blood pressure (BP), pulse and clinical examination performed before (pre) and 5 min after (post) inhalation. Percutaneous oxygen saturation (Sao2) was monitored throughout the procedure. Symptoms were recorded pre- and postprocedure using symptom score. After sputum induction, the sputum was weighed and sent for microbiological assessment (CF patients only). All CF patients were able to induce sputum using the Pari LC Plus nebulizer. The mean change in weight of sputum, for all CF patients, post sputum using the Pari LC Plus nebulizer, weight 2.98 (0.00–9.58) g (p<0.05). Eight out nine (89%) volunteers were able to induce sputum using DeVilbiss Ultra-Neb 2000 nebulizer, weight 2.98 (0.00–9.58) g (p<0.05).

Recently, it has been shown that sputum induction using nebulized 3% saline solution and an ultrasonic nebulizer resulted in a fall in Sao2 without any fall in FEV1 in smokers, asthmatics and healthy volunteers [4]. In our study, it was found that sputum induction did not produce any significant change in Sao2, but FEV1 was reduced without any clinical significance. In asthmatic patients, sputum induction was more successful when an ultrasonic nebulizer was used [5]. We found that CF patients, in contrast to healthy volunteers, were able to induce sputum using a jet nebulizer. We also found that the use of jet nebulizer is adequate to induce sputum for microbiological analysis even in patients, who do not expectorate. Because jet nebulizers are more readily available in the clinical setting, this method of obtaining secretions for microbiological analysis should be tried in CF patients who do not produce sputum on regular basis.

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References