LETTERS

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Efficient inhaler devices

Sir,

I read with interest the paper by Jackson and Lipworth (December *Journal*, p. 683) on optimizing inhaled drug delivery in patients with asthma, and would concur with their conclusion that an important aspect of management with spacer devices is attention to technique. However, the implication that reservoir dry powder devices are inherently efficient must be treated with caution because lung deposition of drug depends critically on a correct inhalational rate.[1]

With all devices, education in technique is vital to optimize both pulmonary deposition of drug and pulmonary function.[1,2] Unfortunately, however, even with reservoir dry powder inhalers, incorrect technique is a common finding.[3]

One method of teaching technique with a range of devices is the use of scoring systems[3,4] which award one point for each correctly performed step in both preparation and usage. Thus, problems can be identified or different devices compared for ease of usage. However, the role of such systems in monitoring changes in performance over time is not fully known. Therefore, it was decided to audit the technique of our inhaler users to see if any improvements following training could be sustained.

Over a 3-month period, the inhaler technique of all patients attending the asthma clinic of one suburban practice was analysed using a scoring system which awarded one point for each of the following six correctly performed steps: cleanliness and serviceability; preparation; exhalation; positioning of mouthpiece; inhalation and/or activation; and breath-holding. Incorrect steps identified were explained to the patient, and corrected using verbal instruction and demonstration. At follow-up, technique was analysed again using the same scoring system. The assessor was unaware of the previous score.

Seventy-two patients were entered into the study; mean age was 22 years (range 1–84). Thirty-six patients used metered-dose inhalers (MDI), 13 dry powder capsule devices, 10 turbohalers, eight spacer devices and five diskhalers.

Overall correct usage, defined as a score of six points, was observed in 41 out of 72 patients (56.9%) during the assessment at visit 1. Following training, all patients were able to use their inhalers correctly. At visit 2, correct usage was noted in 62 out of 72 patients (86.1%), a significant improvement of 29.2% [McNemar corrected $\chi^2 = 17.4$, $P<0.001$, 95% confidence interval (CI) of difference 16.2–42.3%].

The two commonest faults found in all devices were adequate exhalation and breath-holding. These improved significantly. Adequate exhalation improved from 62 out of 72 (86.1%) to 70 out of 72 patients (97.2%) (difference 11.1%, McNemar corrected $\chi^2 = 5.44$, $P<0.05$, 95% CI of difference 3.3–18.9%), and adequate breath holding improved from 43 out of 72 patients (59.7%) to 62 out of 72 (86.1%) (difference 26.4%, McNemar corrected $\chi^2 = 15.43$, $P<0.001$, 95% CI of difference 13.4–39.4%).

This study shows that inhaler technique, and in particular, two of the most commonly found faults in technique, can be improved following instruction, and that this improvement can be sustained. Verbal instruction takes little time and has been shown to be as equally effective as the use of mechanical teaching aids.[5] Additionally, the recording of a score for each correctly performed step allows a systematic approach during consultations and clinics. Vigilance is important whichever type of inhaler is used because efficient devices are only the product of efficient technique.

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Inhaler devices for patients with asthma

Sir,

Ware writing in response to the recent discussion paper by Jackson and Lipworth (December *Journal*, p. 683) regarding the choice of inhaler device in patients with asthma. Whilst we agree with the essence of the article, that metered dose inhalers do not represent the most efficient of effective way of delivering either B2 agonists or corticosteroids to the lung, there are, in fact, few conclusive long-term data to suggest that the use of either dry powder devices or spacers has any measurable effect on patient outcome. The studies quoted concentrate particularly on lung deposition, and the clinical trials are either too short to be convincing or concentrate on the final steroid dose rather than functional ability and quality of life. There remains an absence of hard evidence. By utilizing a more sophisticated delivery system, patient asthmatic control functional status and quality of life may be improved. If this hypothesis were correct, one could imagine a significant cost saving overall, with a reduction in consultations and hospital admissions, but this remains to be quantified.

A recent study looking at the effectiveness of different inhalers in chronic obstructive pulmonary disease confirms that a large proportion of patients are unable to use metered dose inhalers effectively, but up to 96% of patients are able to use dry powder devices successfully.[1] The time has come to move away from proxy measures of health outcomes in asthma and look at what is important from the patient's point of view.

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