



Editorial

Inhaler Devices: Better Management or New Devices? The Blind Leading the Blind[☆]



Nuevos inhaladores o mejora en el manejo de los actuales. La parábola de los ciegos (Brueghel)

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Inhaled therapy is very useful for administering drugs for asthma and chronic obstructive pulmonary disease (COPD). Its efficacy is associated with the amount of drug directly deposited in the airway, which in turn depends on the type of administration device and dosing technique used, i.e., the maneuvers required for the release and inhalation of the indicated dose must be performed correctly. Health professionals need to be familiar with the available devices, their characteristics and procedures, critical issues associated with their use, and the instructions they must give their patients.¹

The pressurized metered dose inhaler (pMDI) was introduced in the 1960s and quickly became the preferred pocket inhaler of both doctors and patients. Despite its apparently easy and intuitive technique, the inhaler has always been susceptible to misuse. In Spain, the earliest studies^{2–4} revealed that fewer than 30% of patients used it correctly. Subsequent studies confirmed that incorrect use was still a problem. A Spanish multicenter study published in 1998 showed that pMDIs were used correctly by only 9% of 746 patients, 15% of 446 nurses, and 30% of 428 physicians.⁵ Fourteen years later, in 2012, the same level of ignorance persisted among health professionals.⁶ Dry powder inhalers (DPI) were developed, in part, to eliminate the coordination difficulties associated with the pMDI; however, experience has shown that these devices also present problems for many patients.

The defective use of inhalers is a serious clinical problem, since it hampers disease control in asthma⁷ and increases the frequency and severity of exacerbations in COPD. A recent review of errors in inhalation technique⁸ found that at least 1 in 3 patients makes critical mistakes in 1 or more of the required maneuvers, thus delivering very little or no medication in each puff. The situation has remained unchanged for more than 40 years, since pMDIs and DPIs

were first introduced, despite efforts to improve their design and the implementation of numerous educational strategies.⁸ However, almost all patients can learn how to use an inhaler correctly. True enough, each patient must receive individualized training, time and effort must be spent on repeating the procedures, the right device for each individual must be selected according to his or her preferences, techniques must be checked in successive visits, and effective educational methods must be used.¹ Can recently introduced novel devices be of assistance in this process? Independent studies will be needed to evaluate these new inhalers, but they do appear to simplify the inhalation maneuver, increase the amount of drug deposited in the lung and adapt to the preferences of each patient, and they are safe and effective if used correctly.

The analysis of poor inhalation techniques begs another question: is the inhalation technique more than a physical skill? The relationship between poor technique and poor adherence is well established.⁹ Patients are more motivated to comply if they have an understanding and knowledge of their disease and its management, and this positive attitude may result in improved inhalation techniques. The quality of the maneuver is clearly linked with therapeutic adherence, and both of these factors are influenced by a good doctor–patient relationship, a positive attitude from health personnel, an understanding of the disease and its treatment, a discussion of phobias, misconceptions or fears, and the patient's participation in the choice of device, while avoiding the simultaneous use of systems that require different inhalation techniques.

The need to improve inhalation techniques is an unresolved challenge and a message often repeated in all medical settings in Europe,¹⁰ embodied in the regulations and guidelines. These guidelines insist on the need to regularly check patients' inhalation technique and list the most common factors leading to misuse: lack of prior training on the right technique, use of several different inhalers, and advanced age. It is clear, then, that proficiency in the use of inhalers is an integral and indispensable part of the treatment of asthma and COPD, and doctors will only succeed in transmitting these messages to their patients if they fully

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understand the required inhalation technique and the specific features of the devices used, and are diligent in training and monitoring their patients.

Several Spanish investigators^{3–5} have spent years drawing attention to the lack of understanding and motivation shown by doctors, pharmacists, and nurses with regard to the use of inhalers in our setting, and believe that errors on the part of medical staff are just as significant and much more common than those revealed in studies conducted in patients. The situation is reminiscent of Brueghel's masterpiece, *The Blind leading the Blind*. The priority, then, is to concentrate our efforts on motivating health professionals to improve their understanding of inhalation technique, correctly educate their patients in the use of inhalers, and continuously monitor their technique; we cannot expect the new inhalers to be solely responsible for improving therapeutic efficacy. Naturally, the development of new devices and drugs must continue, but the current situation can be greatly improved if the attitudes and perceptions of patients and those who serve them are modified. Given the structure of the medical care system, the physician is ultimately responsible for spearheading this change, which will come about only when the majority of doctors, nursing staff, and pharmacists are capable of and willing to train and guide their patients in the correct use of their inhalers.

References

1. Sanchis J, Corrigan C, Levy ML, Viejo JL. Inhaler devices. From theory to practice. *Respir Med*. 2013;107:495–502.
2. Agusti AGN, Ussetti P, Roca J, Montserrat JM, Rodríguez-Roisin R, Agusti-Vidal A. Proper use of metered-dose inhalers. *Chest*. 1985;88:159–60 [letter].
3. Borderías Clau L, Hueto Pérez de Heredia J. Aerosoles para inhalación Presente y perspectiva. *Med Clin (Barc)*. 1989;93:653–5.
4. Hueto J, Borderías L, Eguia VM, González-Moya JE, Colomo A, Vidal MJ, et al. Evaluación del uso de los inhaladores Importancia de una correcta instrucción. *Arch Bronconeumol*. 1990;26:235–8.
5. Plaza V, Sanchis J. Medical personnel and patient skill in the use of metered dose inhalers: a multicentric study. CESEA Group. *Respiration*. 1998;65:195–8.
6. Plaza V, Sanchis J, Roura P, Molina J, Calle M, Quirce S, et al. Physicians knowledge of inhaler devices and inhalation techniques remains poor in Spain. *J Aerosol Med Pulm Drug Deliv*. 2012;25:16–22.
7. Molimard M, Raheison C, Lignot S, Balestra A, Lamarque S, Chartier A, et al. Chronic obstructive pulmonary disease exacerbation and inhaler device handling: real-life assessment of 2935 patients. *Eur Respir J*. 2017;49. <http://dx.doi.org/10.1183/13993003.01794-2016>, pii:1601794.
8. Sanchis J, Gich I, Pedersen S. Systematic review of errors in inhaler use. Has patient technique improved over time? *Chest*. 2016;150:394–406.
9. Takemura M, Kobayashi M, Kimura K, Mitsui K, Masui H, Koyama M, et al. Repeated instruction on inhalation technique improves adherence to the therapeutic regime in asthma. *J Asthma*. 2010;47:202–8.
10. Crompton GK, Barnes PJ, Broeders M, Corrigan C, Corbetta L, Dekhuijzen R, et al. Aerosol Drug Management Improvement Team. The need to improve inhalation technique in Europe: a report from the Aerosol Drug Management Improvement Team. *Respir Med*. 2006;100:1479–94.