Abstract

Comparison of Two Training Methods to Ensure Asthmatic Children Use their Pressurized Inhalers Correctly

Nussaibah Al-Hyari; Wesam G Ammari and Nathir Obeidat

Introduction: Healthcare providers normally train their patients verbally on the correct inhaler use. Patients, however, continue to misuse their inhalers despite repeated verbal counselling (VC). Recently, Clement Clarke International, UK, has developed the Trainhaler (TH) as a pressurized metered dose inhaler (pMDI) training tool. The TH is designed with multiple feedback mechanisms to train patients use the correct, slow inhalation flow rate (IFR) (≤ 60 l/min) along with good pMDI hand-lung coordination. The current work obtained research ethical approval to compare the VC with the TH tool in children with asthma attending respiratory outpatient clinics.

Methods: Informed consent was signed by eligible children and their parents. At visit 1, stable asthmatic children, 7-17 years old, with fast pMDI inhalation flow (> 60 l/min) and poor hand-lung coordination were randomized into either the VC group that received verbal pMDI training; or into the TH group that were trained on- and given the TH device to practice with at home. Asthmatic children with correct IFR ≤ 60 l/min formed the control group (CT). The pMDI technique, the IFR through the inhaler, the Asthma Control Questionnaire (ACQ), the Pediatric Asthma Quality of Life Questionnaire (PAQLQ) and the Pediatric Asthma Caregivers Quality of Life Questionnaire (PACQLQ) were evaluated. These outcome measures were reevaluated after 6 to 8 weeks (visit 2).

Results: Seventy-six children completed the two study visits; CT (n=30), VC (n=21) and TH (n=25) groups. Sixty-two percent VC and 76% TH children had correct pMDI hand-lung coordination at study end. The VC decreased the children’s mean IFR through the pMDI from 104 l/min at visit 1 to 84.8 l/min at visit 2 (p < 0.05). The TH did significantly (p < 0.05) reduce the children’s mean IFR from 113.5 to 71.4 l/min. Five (16.7%) CT children did not maintain their correct pMDI use at visit 2. Significant (p < 0.05) improvements in the asthma control and quality of life were noticed within the VC and TH groups.

Conclusions: Both the VC and TH improved the asthmatic children’s pMDI technique and inhalation flow which was reflected on better asthma control and quality of life. Although comparable to VC, the TH tool achieved greater IFR reductions through the pMDI. This is important for aerosol lung deposition. Moreover, the parents’ quality of life improved. Being available to the patients all the time to practice with, the TH tool might maintain the good inhaler use for a longer period and, thus, decrease the need for the patients’ regular verbal inhaler technique training on every routine clinic visit.

Parts of this thesis have been already presented and published as follows:


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