

Factors associated with improper metered-dose inhaler technique among adults with asthma in a primary care clinic in Malaysia

ABSTRACT

Introduction: Metered-dose inhalers (MDI) are the most used inhalers worldwide. However, improper MDI techniques remain a significant problem and cause uncontrolled asthma. Studies worldwide have reported that the causes of inefficient inhaler technique are multifactorial. However, this topic has been less well studied in the Asian population. This study aimed to evaluate the MDI technique and associated factors among adults with asthma in a primary care setting in Malaysia. **Method:** This was a cross-sectional study with universal sampling conducted between July and October 2017. A total of 146 patients with asthma aged 18 years and older in a primary care clinic in Putrajaya, Malaysia were recruited. Logistic regressions were used for statistical analysis to examine the association between improper MDI techniques and their related factors. **Results:** The majority (83%) of respondents were female with a median age of 37 (IQR = 30.75-49.25) years, and the median duration of asthma of 20 (IQR = 10-30) years. An improper MDI technique was observed in 100 (71.9%) patients. The most frequently missed step was exhaling gently and fully before inhalation (51.4%). Respondents who were not on an MDI preventer (adjusted OR: 2.487, 95% CI: 1.121-5.519, $p = 0.025$) or had used an MDI 5 years or fewer (adjusted OR: 3.369, 95% CI: 1.425-7.964, $p = 0.006$) were more likely to employ an improper MDI technique. **Conclusion:** There was a high proportion of improper MDI techniques among patients with asthma. Patients not using an MDI preventer or who had used an MDI less than 5 years were at higher risk of improper MDI technique.

Keyword: Metered-dose inhaler; Adult; Asthma; Primary care setting; Technique