Barriers to and competency with the use of metered dose inhaler and its impact on disease control among adult asthmatic patients attending University of Gondar comprehensive specialized hospital: Prospective cross-sectional study

By Efrata Ashuro (Mbarara University of science and technology)

Abstract

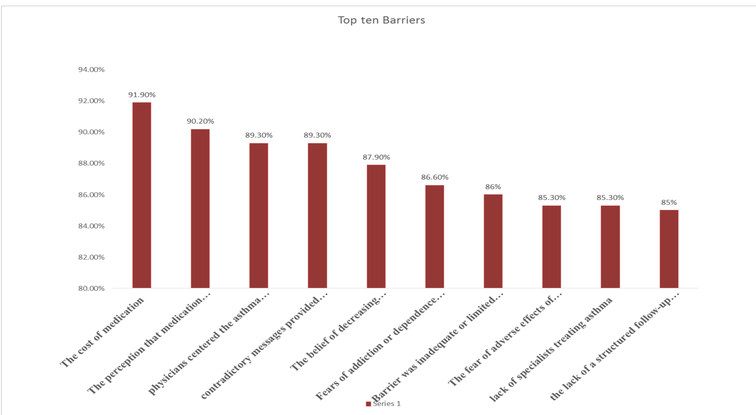
Background: Asthma is one of the chronic diseases which affects the airway, and inhalers are the preferred medications to treat this problem. Improper inhalational technique leads to decreased efficacy of the medication by reducing its deposition in the lungs. The aim of this study was to assess the barriers to and competency with the use of Metered Dose Inhaler (MDI) and its impact on disease control among adult asthmatic patients.

Methods: A prospective cross-sectional study was conducted in University of Gondar comprehensive specialized hospital outpatient department (OPD) chronic follow up from 12-March-2018 to 15-May- 2018. Patients were interviewed face to face with questions which determined their competency, asthma control level and barriers for inhaler use.

Result: Overall, 307 asthmatic patients were included in the study. More than half of participants were females, 170 (55.4%) and lived in urban area 185 (60.3%). The mean age of the respondents was 51.77 years with a standard deviation of ±15.40. The cost of medication, 282 (91.9%) and the perception that medication should be used in response to symptoms but not on a regular basis 277 (90.2%) were the most identified barriers. Only 56 (18.2%) were competent for Metered Dose Inhaler use (MDIU) and 17 (5.5%) patients had well controlled asthma. Being not competent AOR 0.168[0.41–0.687] was one of the factors decreasing asthma control.

Conclusion: Generally from this study, cost of the medication and the perception that medication should be used only for symptoms were the major identified barriers that affect the MDI use among asthmatic patients. Patients show very poor competence to their MDI which in turn led to poor asthma control. So, patients need to be taught the correct inhaler technique in the hospital and pharmacy while they came for follow up every time.

Keywords: Asthma, Control, Barrier, Competency, Metered, Dose, Inhaler



•Cost is also a barrier in many chronically ill patients like asthma, heart failure, and depression especially on those having low income.(*Sokol MC et al,2005)*

•A regular administration of inhaled corticosteroids might lead to long term adverse effects which in turn play as a significant barrier for MDIU.(*Horne R et al,2006*)

•Further, lack of instruction given to patients about the use of MDI was stated as a major barrier in asthmatic patients.(*Williams MV*

Significance of the study

•comes up with recommendations for decreasing the potentially modifiable barriers which leads to a better disease control, minimize cost and further complications and increase quality of life of asthmatic patients.

•provides a base line information for further studies.

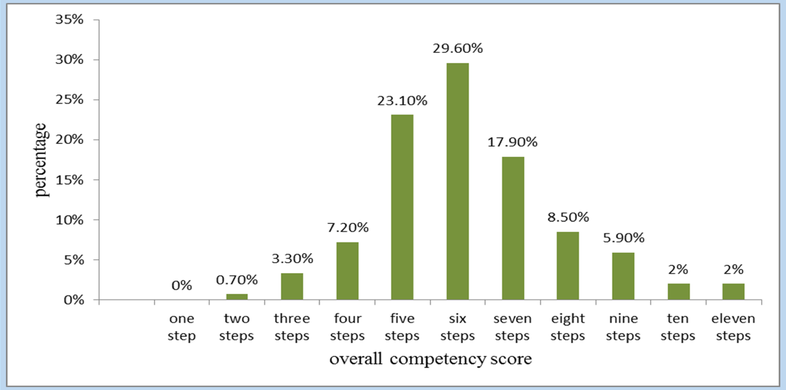
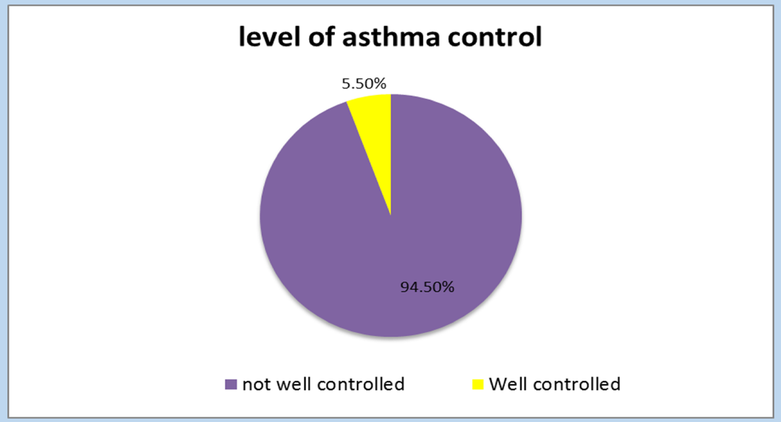
•alert policy makers and health care administrates to work on prevention of poor asthma control.

- 60.3% of patients failed in Pakistan(*Farooq MZ et al, 2016)*
- 66% of patients failed in texas,(*Bonds RS, 2015)*

Steps	Competency	Correct N (%)	Incorrect or missed N(%)
1*	Shake the contents well	273 (88.9%)	34 (11.1%)
2*	Remove the cap	304 (99%)	3 (1%)
3	Hold the inhaler upright	154 (50.2%)	153 (49.8%)
4	Tilt the head back slightly	65 (21.2%)	242 (78.8%)
5*	Breath out slowly	57 (18.6%)	250 (81.4%)
6*	Open mouth with inhaler 1to 2 inches away or in the mouth with the lips tightly sealed around.	241 (78.5%)	66 (21.5%)
7*	Begin breath in slowly and deeply through the mouth and actuate the canister once	133 (43.3%)	174 (56.7%)
8*	Hold breath for 10–20sec	77 (25.1%)	230 (74.9%)
9	Exhale and wait one minute before the second dose	78 (25.4%)	229 (74.6%)
10	Shake again before the second dose	222 (72.3%)	85 (27.7%)
11	After use, replace the mouth piece cover	300 (97.7%)	7 (2.3%)
Level of competency		Competent	Not competent
		56 (18.2%)	251 (81.8%)

*essential steps according to NAEPP

Overall score of the respondents on MDI technique



- 8.1% in Nigeria (Desalu OO et al,2012)
- uncontrolled asthma was nearly 50% in 5 Europe countries (Demoly P et al, 2009
- 42% had uncontrolled asthma under a specialist care in cameroon (Hugo MNB et al,2016)
- 76.1% in Jimma (Zemedkun K et al,2014)