ISSN: 0975-833X

Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 8, Issue, 03, pp. 28236-28238, March, 2016

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

RESEARCH ARTICLE

A STUDY TO ASSESS THE KNOWLEDGE AND PRACTICE OF USING METERED DOSE INHALERS IN PATIENTS WITH BRONCHIAL ASTHMA AND CHRONIC OBSTRUCTIVE PULMONARY DISEASE ATTENDING OPD IN A SELECTED TERTIARY CARE HOSPITAL

***Maj Deepa Kumari, V. and Lt Col Ajee, K. L.**

Bioinformatics Centre, Gurucharan College, Silchar, 788004, India

ARTICLE INFO

Article History:
Received 20th December, 2015
Received in revised form
24th January, 2016
Accepted 28th February, 2016
Published online 31st March, 2016

Key words:

Infertility,
Growth differentiation factor 9,
Bone morphogenetic protein 15,
Folliculogenesis,
Follicle stimulating hormone.

ABSTRACT

Background: The increasing prevalence of obstructive respiratory diseases is a matter of concern, as of 2010 three hundred million people were affected worldwide, and in 2009 Bronchial Asthma caused more than two Lakhs deaths globally (GINA 2009). Proper practice and training of the correct steps of using MDI can minimize the drawbacks and therefore nurses need to observe and analyze the existing knowledge and practice on the use of MDI use.

Objectives: The objectives of the present study were to assess the patient knowledge regarding use of MDI, to observe the practice, correlate knowledge and practice and associate the knowledge and practice with selected socio demographic variables.

Methods: A descriptive cross sectional study was undertaken with two hundred and three randomly selected participants with Bronchial Asthma and COPD .The knowledge regarding the MDI use was assessed by using a semi structured interview questionnaire and practice was observed using an observation checklist.

Result: Majority were suffering from Bronchial asthma (87%, 177) and more than half had duration of disease of ≤ 10 years. The Mean knowledge score of the sample was 33.4 which fall into good category and mean practice score was 8.1. Socio demographic variables like age, gender, education, duration of using MDI had no significant association with both knowledge and practice of using MDI except the place of residence ($p<0.05$) and duration of disease suffering ($p < 0.005$).

Conclusion: Incorrect inhalation practice is common among Bronchial Asthma and COPD patients in a pulmonary outpatient clinic. The results of present study have shown that the correct use of MDI was found to be poor for most participants even though they had good knowledge. All participants had made at least one essential mistake in their inhalation practice and the study emphasizes on the importance of enhancing the patient's practice of correct steps of using MDI by providing regular reinforcement and training through an Asthma Action Plan or Chronic Obstructive Airway Disease Action Plan in the respiratory OPD using multimedia touch screen computer (MTS).

Citation: Maj Deepa Kumari, V. and Lt Col Ajee, K. L. 2016. "A study to assess the knowledge and practice of using Metered Dose Inhalers in patients with Bronchial Asthma and Chronic Obstructive Pulmonary Disease attending OPD in a selected tertiary care hospital", *International Journal of Current Research*, 8, (03), 28236-28238.

INTRODUCTION

The prevalence of bronchial asthma is rising in many countries, particularly in second decade of life where the disease affects 10-15% of the population. Similarly COPD is one of the major causes of chronic morbidity and mortality throughout the world. Presently it is the fourth leading cause of death in USA and as per Global Initiative for Chronic Obstructive Pulmonary Disease (GOLD) estimates; it will become third most common cause of death in the world by 2020 (Iqbal *et al.,* 2001).

****Corresponding author: Maj Deepa Kumari, V***
Bioinformatics Centre, Gurucharan College, Silchar, 788004, India.

Local administration of drugs by inhalation devices has become the main stay of treatment in patients of bronchial asthma and COPD owing to rapid action, maximal potency at the level of airways and minimal side effects.

Objectives

- Assess the knowledge of use of MDI in patients with Bronchial Asthma and COPD.
- Observe the practice of use of MDI in patients with bronchial asthma and COPD
- Determine the correlation between the knowledge and practice of use of MDI in patients with bronchial asthma and COPD.

Table 1. Association of knowledge and practice of using MDI with selected socio demographic variables

Selected socio demographic Variables	Statistical analysis	Association with knowledge	Association with Practice
Age	ANOVA	p>0.05	p>0.05
Gender	Mann Whitney U test	p>0.05	p>0.05
Education	ANOVA	P>0.05	p>0.05
Place of residence	Mann Whitney U test	P<0.05	p>0.05
Duration of use of MDI	Mann Whitney U test	p>0.05	p>0.05
Duration of disease	Mann Whitney U test	P<0.005	p>0.05

- Determine the association of knowledge and practice of use of MDI with selected demographic variables.

MATERIALS AND METHODS

Sample (203) was selected by simple random sampling from the sample frame and a semi structured interview questionnaire was applied to assess the knowledge and an observation check list was used to assess the practice of MDI technique. A face to face interview was conducted in a separate room under the supervision of pulmonologist in the OPD. The assessment of inhaler technique was made according to the requisite steps of correct usage of MDI and if the patient made a mistake in one or more of these steps or made them incompletely, it was recorded as improper inhaler technique. In this study researcher had used the non experimental quantitative research approach. Cross-sectional descriptive design was selected since it appeared suitable design to accomplish the objectives of the study in the given frame.

RESULTS

- Out of 203 samples 172 (84.7%) had good knowledge about MDI 15.2% had an average knowledge and none of the sample had poor knowledge.
- Mean knowledge sore of the sample was 33.4±3.82. Except place of residence (p<0.05) and duration of suffering from the disease (P<0.005) no other socio demographic variables had statistically significant difference in practice.
- The practice score of sample regarding the use of MDI was observed by using an observation check list consisting of 12 steps.
- More than half of the sample 54.1% (110) had an average practice score where as 44.8% had good practice and 0.99 had poor practice out of maximum practice score of 12 at mean 8.1(SD 1) at 95% of C I.
- The most important essential step of synchronising the breathing and actuating the MDI was performed by only 68% of the sample where as 73% had knowledge about it.
- Among the sample only 49% could remove inhaler from mouth after MDI actuation affecting the drug delivery to the lungs due to leakage of drug.
- Out of 203 samples only half could perform deep inhalation and slow and complete exhalation before taking a puff which was almost matching to the knowledge score of 66.5%. 8. There was no statistically significant difference observed in practice when associated with selected socio demographic variables like age, gender, education, duration of disease, duration of MDI therapy and place of residence.
- The Pearson's correlation coefficient was r = 0.40 and the correlation between knowledge and practice score was found statistically highly significant (p<0.0001) and there was a fair degree of positive linear relationship between the knowledge and practice of using MDI at 95% C I.

Statistical analyses: The collected data was tabulated and analysed using ANOVA and Mann Whitney U test.

Distribution of sample based on knowledge regarding use of MDI

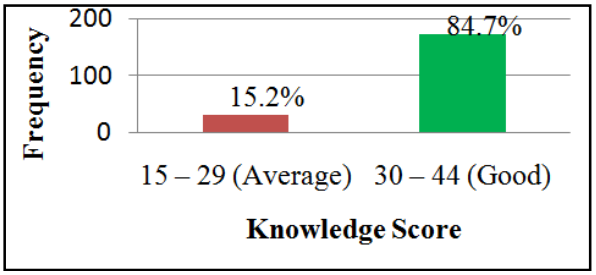

Figure 1. Bar diagram showing knowledge score regarding use of MDI

Distribution of sample based on practice of use of MDI

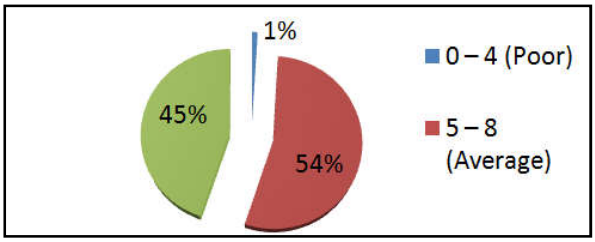

Figure 2. Distribution of sample as per the practice score

Relationship between knowledge and practice of using MDI

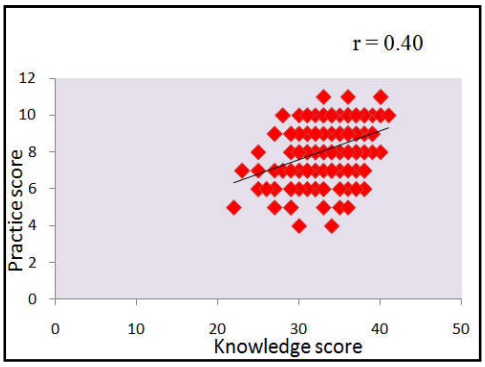

Figure 3. Scatter diagram showing correlation between knowledge and practice

DISCUSSION

In the present study, 84.7% (172) had good knowledge about using MDI which consisted of disease process and medication, risk factors, sign & symptoms and action to be taken while breathless and inhaler use and techniques. 15.2% had an average knowledge and no one had poor knowledge which was a great finding. Three fourth of the sample were knowing that inhalers are the most preferred mode of therapy for Bronchial Asthma and COPD and also knew that lifelong treatment was required for their disease condition. Majority (94%) of the sample knew that they should be away from dust which could be a trigger for respiratory symptoms. An European study by Partridge, Negro and Oloivieri regarding understanding patients with asthma and COPD insight from a European study 2011, also revealed that 35% of the sample had fear about side effects of MDI and the present study also showed nearly same data. In the same study only 60% of the sample knew that inhaler should be taken on regular basis whereas the present study 92% of the sample knew about it. The compliance of regular use of MDI is thought to be heavily influenced by the knowledge of the sample. It was supported by the study Tavasoli *et al*. Patient's knowledge about their disease has a great relation with their motivation, thus encouraging them to take inhaler through correct practice. In 1976, it was reported that 32 – 96% used inhaler incorrectly which was mentioned in the study by Anjum, Soomro, Memon and Soomro related to incorrect inhaler technique compromising quality of life of asthma patients 2012. Presently reported prevalence of an incorrect inhalation practice varied from 27 % to 89 %. In line with previous research, these errors were due to the result of failing hand lung coordination preventing the synchronisation of activating the inhaler while inspiring.

Numerous potential errors of inhaler technique is mentioned in an article - aerosol therapy for Obstructive Lung Diseases by Sims M W in CHEST 2011;140(3) and the researcher of the present study came across the same errors among the sample. Another most common error was failure in synchronize breathing with actuation (67.4%) and failure in shaking the inhaler (82%) whereas the present study showed that more than half of the sample had performed shaking of inhaler. The other errors were failure to breathe out slowly to remove the residual volume before actuation (63%) and not holding the breath for ten seconds after inhalation (71%). Failure to breathe out slowly after holding the breath (65.5%) was also one of the errors of inhalation. These findings from the present study were nearing to those from the study of assessment of inhalation technique in primary care asthmatic patients using metered dose inhalers with or without a spacer by Al-Wasil and Al-Mohaimeed (2003). In this study the sample characteristics of age, gender, educational qualification, diagnosis, were not associated with the knowledge and practice of using MDI which was similar with the study of Hesselink *et al.* and the study done by Baqai, Saleem and Abir-ul-Haq (2011) on assessment of metered dose inhaler technique in patients with chronic lung disease at government hospitals of Rawalpindi. The major clinical challenge includes helping patients to maintain inhaler technique once learnt and stay motivated to continue regular therapy for asthma and COPD when recommended.

Conclusion

Overall, the patients had good knowledge score regarding the use of MDI. But not even half of the sample had good score in technique of using MDI and none of the patients could perform all essential steps of using MDI correctly and even many of the essential steps were missed or not performed which is a very disturbing fact. An important finding is that knowledge score and practice score is correlated fairly well which shows that if knowledge is increased practice is also increased accordingly. Hence, it is essential to improve the knowledge and practice of using MDI. The findings of the present study will help the health care providers need to take measures to promote healthy behaviour in patients with asthma and COPD by improving the knowledge and thereby attitude which otherwise will increase the burden of exacerbations and complications and even death. Acute exacerbation of asthma is an emergency and the researcher could identify from the present study that the patients are not aware many important measures to be taken during emergency.

REFERENCES

Hesselink, A. E., Penninx, B.W.J.H., Wijnhoven, H.A.H., Kriegsman, D.M.W., Vanei, J.K.J.T.M. 2001. Determinants of an incorrect inhalation technique in patients with asthma or COPD. *Scand J Prim Health Care,* 19:255-60.

Iqbal, U., Ansari, J. K., Siddique, M. B. 2011. Comparison of inhalation technique of pressurized meterd dose inhaler before and after a session of instructions in male patients of obstructive airway diseases. *PAFMJ*, Mar; (1):1-3.

Khassawneh, B. Y., Al-Ali, M. K., Alzoubi, K. H., Batarsch, M. Z., Al-safi, S. A., Sharara, A. M. and Aluasr, H. M. 2008. Handling of inhaler devices in actual pulmonary practice: metered dose inhalers versus dry powder inhalers. *Resp Care*, 5(3):324-28.

Partridge, M. R., Negro, R.W.D., Olivereri, D. 2011. Understanding patients with asthma and COPD: insights from a European study. *Prim Care Respir J*., 20(3)315-23.

Tavasoli, S., Heidarnazhad, H. and Kazemnejad, A. 2006. Factors affecting patient's compliance to metered dose inhaler drugs in asthma clinics in Tehran, Iran. Iranian Jnl of Allergy, *Asthma and Immunology*, Dec; 5(4):187-93.

****