Evaluation of physicians' knowledge regarding techniques of usage of inhalation devices

Thesis

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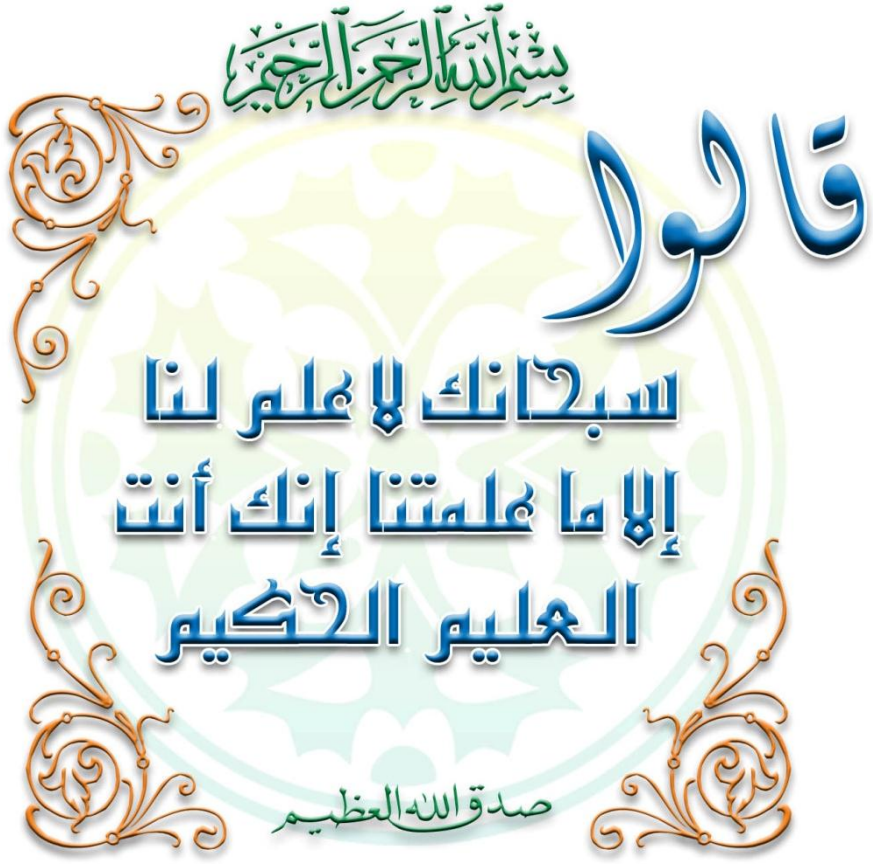

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List of Abbreviations

AMP..... Adenosine Monophosphate

BDP..... Beclometasone Dipropionate

BOLD ..... Burden of Obstructive Lung Diseases program

CFC ..... Chlorofluorocarbon Propellant

COPD ..... Chronic Obstructive Pulmonary Disease

DPI..... Dry poWder Inhaler

FDA ..... Food and Drug Administration

FEV_1 ..... Forced Expiratory Volume in one second

GINA ..... Global Initiative for Asthma

GOLD..... Global Initiative for Chronic Obstructive Lung Disease

HFA ..... Hydrofluoroalkane Propellant

HFA ..... Hydrofluoroalkane

IADs..... Inhalation Accessory Devices

ICS..... Inhaled Corticosteroids

IgE ..... Immunoglobulin E

Kg..... kilogram

LABA..... Long-Acting Beta2-Agonist

LTRA..... Leukotriene Receptor Antagonist

M..... Muscarinic

Mcg ..... Microgram

MDI ..... Metered Dose Inhaler

MHz ..... Mega Hertz

N.A ..... Not Applicable

NNT ..... Number Needed to Treat

OCS ..... Oral Corticosteroids

OPC ..... Out Patient Clinic

PMDI ..... Pressurized metered dose inhaler

SABA ..... Short-Acting Beta2-Agonist

SCIT ..... Subcutaneous Immunotherapy

SLIT ..... Sublingual Immunotherapy

SMI ..... Soft Mist Inhaler

VHCs ..... Valved Holding Chambers

Vit ..... Vitamin

Abstract

Objectives: to evaluate the knowledge and skills of physicians who can deal with asthma and COPD patients, regarding the techniques of usage of difference inhalation devices.

Methods: This study cross sectional observation study was conducted upon 250 practicing physicians frequently prescribing different inhalation devices at Cairo during the period between January 2016 and July 2016.

Results: 250 doctors responded to the questionnaire were subdivided into 5 groups; (50 physicians each), based upon their medical speciality (pulmonologists, internists, allergiologists, general practitioner, & pediatricians).

The most common inhalers that prescribed by doctors was Diskus 95.6%, followed by MDI 83.20%, Turbuhaler 50.80%, MDI + spacer 50% and both Aerolizer and handihaler 24.40%.

Regarding general questions, percentage of positive answers among doctors were 100% in the questions about how to use the inhalation devices and teaching patients how to use the inhalation devices; 99.6% in importance of inhaler technique; 94.8% in thinking about good results of inhaled medication; 64%

in patient observation during using inhalation devices and 30.8% in patients evaluation every medical visit.

Conclusion: There is a need for establishing regular educational programs for both patients and physicians regarding the proper usage of inhaler devices.

Observation and re-evaluation of patients by their physicians while using their inhalation devices are directly correlated with the degree of success of usage of such devices.

Introduction

Chronic obstructive pulmonary disease (COPD), a common preventable and treatable disease is characterized by persistent air-flow limitation that is usually progressive and associated with an enhanced chronic inflammatory response in the airways and the lung to noxious particles or gases. Exacerbations and comorbidities contribute to the overall severity in individual patients. It is the fourth leading cause of death in the world and further increase in it's prevalence in the coming decades ***(GOLD , 2015).***

Asthma is a common and potentially serious chronic disease that imposes a substantial burden on patients, their families and community. It causes respiratory symptoms, limitation of activity and flare up (attacks) that sometimes requires urgent health care and may be fatal, fortunately asthma can be effectively treated and most patients can achieve good control of their asthma ***(GINA , 2015).***

Inhaled therapy is the cornerstone in the management of asthma and COPD. There are two main groups of inhaler devices: metered dose inhalers (MDI) and dry powder inhalers (DPI), many devices have been developed and each has specificities on how to prepare the dose and deliver the drug to the airways. Although different devices have technological improvement to airway drug delivery, still important limitations remain ***(Virchow et al., 2008).***

In fact, decades after the introduction of inhaler devices, their incorrect use remains an obstacle to achieve optimal disease outcomes ***(Melani et al., 2011).***

Furthermore, it is recognized that inadequate use of inhaler devices is one of the most common reasons for failure to achieve asthma and COPD control ***(GOLD, 2015; GINA, 2015).*** Thus, patient education in proper handling of a prescribed inhaler device should be an essential part of the pulmonary clinic practice ***(Khassawneh et al., 2008).***

It is very important that the physicians prescribing aerosolized medication should evaluate their patients inhalation techniques regularly and this depend on physicians knowledge regarding proper use of different inhalers, since some patients might not perform the technique properly even after various counseling sessions and the correct technique can become inadequate over time ***(Souza et al., 2009).***

However, published studies from around the world suggest that as many as 25% of patients with asthma or COPD have never received verbal inhaler technique instruction. When given, instruction is often rushed, poor quality and not reinforced ***(Lavorini et al., 2008).***

Inhaler technique must be rechecked and education must be reinforced regularly in order to maintain correct technique, as inhaler technique deteriorates again after education ***(Basheti et al., 2005)***

Three months after training, loss of skills is associated with a deterioration in some asthma outcomes. Older patients may be particularly prone to losing technical skills over time ***(Crompton et al., 2006).***

Unfortunately many doctors assume their own technique is correct. Different studies proved that a high proportion (31–85%) of health professionals show incorrect technique when tested objectively ***(Barnes et al., 2005).***

Sometimes a confusion among health professionals over who should take responsibility for patient education may result in people not receiving follow-up education on the correct use of their inhalers, contributing to the high rates of poor technique reported ***(Bosnic-Anticevich et al., 2010).***