

Management of Asthma in Primary Health Care

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Abstract

Asthma is a chronic disease of high morbidity and mortality. For that, we performed an extensive literature search of the Medline, Cochrane, and EMBASE databases on 12 December 2019 using the medical subject headings (MeSH). Papers discussing the management of asthma in primary health care were screened for relevant information. There were no limits on date, language, age of participants or publication type. Management of asthma in primary care constitutes a major challenge among physicians due to the similarity of manifestations with other respiratory diseases such as chronic obstructive pulmonary diseases. Appropriate diagnosis is the key issue for better management of asthmatic patients. Once the diagnosis is established treatment of asthmatic patients passes through the identification and removal of triggering factors in addition to pharmacological therapy. If the patient resists medical treatment, referral to specialized hospital is mandated.

Keywords: Asthma; Management; Primary Health Care; Review

Introduction

Asthma constitutes a global health concern since prevalence of asthma is increasing in spite of advances made in treatment over the past decades, Such increase has been accompanied by an increase in morbidity and mortality. The increasing incidence of asthma has increased the need for well-developed strategies for better management of diagnosed cases [1]. Black individuals are at greater risk of asthma development in addition to the more frequent visits of the emergency department compared to other races [2]. Approximately, 25 million patients were diagnosed with asthma in the united states in 2010, out of these, children comprise about one-third of diagnosed

cases [1]. The prevalence of asthma in primary health care is estimated to be about 6% in the adult population and is heterogeneous among different studies due to the difference in socioeconomic status, residence and exposure to triggering factors among the different populations [3-5]. Hasselgren, *et al.* reported that the prevalence of asthma was 6% individuals admitted to the primary care unit; meanwhile 7.3% individuals were receiving anti-asthmatic treatment [3].

Diagnosis of asthma in primary health care is problematic due to the similarity of asthma manifestations with some diseases such as chronic obstructive pulmonary disease (COPD) and the lack of well-trained practitioners in primary care units [6]. Akker *et al* demonstrated a misdiagnosis of asthma around 84% of the population confirmed by spirometry [5]. Several questionnaires have been developed to assess the efficacy of asthma management in primary care units [7,8]. In this paper, we aimed to discuss the management of asthma in primary health care.

Methods

We performed an extensive literature search of the Medline, Cochrane, and EMBASE databases on 12 December 2019 using the medical subject headings (MeSH) (Asthma [MeSH Terms] AND management [MeSH Terms] and primary health care). Papers discussing the management of asthma in primary health care were screened for relevant information. There were no limits on date, language, age of participants or publication type.

Diagnosis of asthma

History

The diagnosis of asthma contributes to the major part of the asthma management algorithm. History talking after consultation of medical advice is essential for proper asthma diagnosis. Family history of asthma and exposure to triggering factors such as drugs, exercise, air pollution, infection and psychological factors constitutes an important item for history talking in asthmatic patients [9].

Examination

Asthmatic patients usually presented with cough, chest tightness and dyspnea [10]. Tachycardia, audible wheezes and atopic findings may be found during a physical examination performed by the physician [10]. Complicated asthmatic patients may be presented with signs and symptoms of pneumonia, respiratory failure, corticosteroid side effects and mortality in advanced stages of the disease [11].

Investigations

Serum IgE comprises the cornerstone in the diagnosis of many allergic diseases including asthma [12,13]. Sunyer, *et al.* reported that current asthma and current wheezes but not past asthma were associated with an increased rate of serum IgE [14]. Respiratory function tests measured by spirometry are considered important tests in the diagnosis of asthmatic patients where the ratio of forced expiratory volume₁ (FEV₁)/forced vital capacity (FVC) is decreased in those patients [15,16]. The chest x-ray is not mandated for diagnosis of asthma especially among school children to avoid the associated complications of irradiation; however, a peak flow meters can be used to measure how well air moves out of the lung. In fact, the device can alert the primary health care physician to breathing issues at early stage before the surfacing of any asthma symptoms [17]. On the other hand, referral to specialist may be needed to rule out other diagnosis that are suspected by the primary care provider.

Management

Every individual with asthma should have an asthma action plan in writing. The plan should provide information and instructions on how to cope with asthma. Several organizations have issued guidelines for the management of asthma such as National Asthma Education and Prevention Program (NAEPP), Global Initiative for Asthma (GINA) and Saudi Initiative of Asthma (SINA).

The guidelines are updated periodically to assist the healthcare workers who are dealing with asthma patients.

Removal of triggering factor

Luskin., *et al.* reported that asthma severity was associated with repeated exposure in the triggering factors [18]. Avoidance of those triggers comprises the key role in asthma management. Treatment of infections in addition to cessation of active smoking, severe exercise and drugs with known allergic manifestations in some individuals are helpful in the reducing frequency and the severity of the asthmatic attacks [19]. In the randomized controlled trial of Bobb., *et al.* asthmatic patients were allocated into two arms: structured allergen avoidance advice (AAA) group (patients received usual care of asthma in addition to avoidance of exposure to allergic triggers) and usual care group [19]. After 6 months of follow up, the allergic avoidance group yielded a significant improvement in peak expiratory volume (PEF), FEV1 and FEV1/FVC. Moreover, the allergic avoidance group showed a significant improvement in therapy compliance and inhaler technique.

Pharmacological therapy

The goal of pharmacological therapy is to diminish asthma manifestations with high efficacy and low associated side effects. Pharmacological treatment includes the use of relief and control agents. Such medication should be added or removed from the regimen as the frequency and severity of the patient’s symptoms changes. Rapid medical treatment is needed in the first step of management such as inhaled corticosteroids then the stepwise approach will be used for asthma control (Table 1) [20,21]. Cases of mild and moderate asthma can be managed by the primary care physician. Meanwhile, a referral is mandated in acute or chronic severe asthma which resist medical treatment for better controlling of the disease.

Steps	Drugs used
Step 1	Low dose inhaled corticosteroids
Step 2	Low dose inhaled corticosteroids + leukotriene receptor antagonist
Step 3	Low dose inhaled corticosteroids + long-acting β 2 agonist
Step 4	Medium-dose inhaled corticosteroids + long-acting β 2 agonist
Step 5	Considering alternative therapy such as anti-IgE drugs
Step 6	Referral to a specialized hospital in primary health care

Patient education

Understanding the causes of asthma, common presenting symptoms, associated complications and when to seek medical advice is essential in asthmatic patients which provide a cornerstone in asthma management and survival [22]. The randomized controlled trial of Gallefoss., *et al.* indicated that educated asthmatic patients had marked improvement of symptoms and quality of life as well compared to the control group [23]. Furthermore, educated asthmatic patients had fewer mean visits to the hospital with acute attacks of asthma rather than non-educated groups [24].

Conclusion

Asthma is a chronic disease with high morbidity and mortality. Proper diagnosis and management are essential for decreasing mortality rates in primary health care.

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Conflicts of Interest

No conflicts related to this work.

Bibliography

1. Akinbami Lara J., *et al.* "Trends in Asthma Prevalence, Health Care Use, and Mortality in the United States, 2001-2010" (2012).
2. McDaniel Marla., *et al.* "Racial Disparities in Childhood Asthma in the United States: Evidence from the National Health Interview Survey, 1997 to 2003". *Pediatrics* 117.5 (2006): e868-e877.
3. Hasselgren Mikael., *et al.* "Estimated Prevalences of Respiratory Symptoms, Asthma and Chronic Obstructive Pulmonary Disease Related to Detection Rate in Primary Health Care". *Scandinavian Journal of Primary Health Care* 19.1 (2001): 54-57.
4. Bollag Ueli., *et al.* "Trends in Primary Care Consultations for Asthma in Switzerland, 1989-2002". *International Journal of Epidemiology* 34.5 (2005): 1012-1018.
5. Looijmans-Van den Akker., *et al.* "Overdiagnosis of Asthma in Children in Primary Care: A Retrospective Analysis". *British Journal of General Practice* 66.644 (2016): e152-e157.
6. Montnémery P., *et al.* "Accuracy of a First Diagnosis of Asthma in Primary Health Care". *Family Practice* 19.4 (2002): 365-368.
7. Lindberg, Malou., *et al.* "Patient Questionnaires in Primary Health Care. Validation of Items Used in Asthma Care". *International Journal for Quality in Health Care* 12.1 (2000): 19-24.
8. Ehlers Per-Olof., *et al.* "Brief Questionnaires for Patient-Reported Outcomes in Asthma: Validation and Usefulness in a Primary Care Setting". *Chest* 129.4 (2006): 925-932.
9. Ritz Thomas., *et al.* "Perceived Triggers of Asthma: Evaluation of a German Version of the Asthma Trigger Inventory". *Respiratory Medicine* 102.3 (2008): 390-398.
10. Patadia Monica Oberoi., *et al.* "Asthma: Symptoms and Presentation". *Otolaryngologic Clinics of North America* 47.1 (2014): 23-32.
11. Song Woo-Jung., *et al.* "Future Risks in Patients with Severe Asthma". *Allergy, Asthma and Immunology Research* 11.6 (2019): 763-778.
12. Douglass Jo A and Robyn E O'Hehir. "1. Diagnosis, Treatment and Prevention of Allergic Disease: The Basics". *Medical Journal of Australia* 185.4 (2006): 228-233.
13. Perzanowski Matthew S., *et al.* "Relevance of Specific Ige Antibody Titer to the Prevalence, Severity, and Persistence of Asthma among 19-Year-Olds in Northern Sweden". *Journal of Allergy and Clinical Immunology* 138.6 (2016): 1582-1590.
14. Sunyer J., *et al.* "Total Serum Ige Is Associated with Asthma Independently of Specific Ige Levels. The Spanish Group of the European Study of Asthma". *European Respiratory Journal* 9.9 (1996): 1880-1884.
15. Rosias Philippe PR., *et al.* "Childhood Asthma: Exhaled Markers of Airway Inflammation, Asthma Control Score, and Lung Function Tests". *Pediatric Pulmonology* 38.2 (2004): 107-114.
16. Myers Timothy R and Liza Tomasio. "Asthma: 2015 and Beyond". *Respiratory Care* (2011).
17. Hederos Carl-Axel., *et al.* "Chest X-Ray Investigation in Newly Discovered Asthma". *Pediatric Allergy and Immunology* 15.2 (2004): 163-165.

18. Luskin Allan T., *et al.* "Impact of Asthma Exacerbations and Asthma Triggers on Asthma-Related Quality of Life in Patients with Severe or Difficult-to-Treat Asthma". *The Journal of Allergy and Clinical Immunology in Practice* 2.5 (2014): 544-552.e2.
19. Raheison C., *et al.* "Updated Guidelines (2015) for Management and Monitoring of Adult and Adolescent Asthmatic Patients (from 12 Years and Older) of the Société De Pneumologie De Langue Française (Splf) (Full Length Text)". *Revue des Maladies Respiratoires* 33.4 (2016): 279-325.
20. Chambers CV., *et al.* "Health Beliefs and Compliance with Inhaled Corticosteroids by Asthmatic Patients in Primary Care Practices". *Respiratory Medicine* 93.2 (1999): 88-94.
21. "Managing Asthma in Primary Care; Putting New Guideline Recommendation in to Context". *Mayo Clinic Proceedings* (2009).
22. Wilson Elizabeth AH., *et al.* "Media and Memory: The Efficacy of Video and Print Materials for Promoting Patient Education About Asthma". *Patient Education and Counseling* 80.3 (2010): 393-398.
23. Gallefoss Frode., *et al.* "Quality of Life Assessment after Patient Education in a Randomized Controlled Study on Asthma and Chronic Obstructive Pulmonary Disease". *American Journal of Respiratory and Critical Care Medicine* 159.3 (1999): 812-817.
24. Wilson Sandra R., *et al.* "A Controlled Trial of Two Forms of Self-Management Education for Adults with Asthma". *The American Journal of Medicine* 94.6 (1993): 564-576.

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