Management of Asthma in Primary Health Care

Mohammed Esmail Qashqary1*, Abdulrahim Samer Yaghmour2, Huda Hasan Almahal3, Hussam Sbitan Alenazi4, Sulafah Sameer Abduljawad5, Naish Abdullah Alghamdi6, Solyman Abdullah Abdullah7, Mahmood Abdalmajed Awari8, Ahmed Mohammad Althui9, Ammar Mohammed Jamal10, Anwar Hamidi Alenazi11 and Ayat Essam Shaban12

1Department of Family Medicine, University of Jeddah, Jeddah, Saudi Arabia
2Department of Family Medicine, Al-Noor Specialist Hospital, Mecca, Saudi Arabia
3Department of Internal Medicine, Al Amal Hospital, Buri, Bahrain
4College of Medicine, Medical University of Silesia, Katowice, Poland
5Department of Family Medicine, King Fahad Armed Forces Hospital, Jeddah, Saudi Arabia
6College of Medicine, King Khalid University, Abha, Saudi Arabia
7College of Medicine, Medical University of Lublin, Lublin, Poland
8College of Medicine, Medical University of Lodz, Lodz, Poland
9Department of Family Medicine, Armed Forces Hospital, Southern Region, Saudi Arabia
10Department of Family Medicine, King Abdulaziz Hospital, Mecca, Saudi Arabia
11College of Medicine, Alfarabi Colleges, Riyadh, Saudi Arabia
12Primary Health Care Center, Ministry of Health, Jeddah, Saudi Arabia

*Corresponding Author: Mohammed Esmail Qashqary, Department of Family Medicine, University of Jeddah, Jeddah, Saudi Arabia.

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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

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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 ling. 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).
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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.

<table>
<thead>
<tr>
<th>Steps</th>
<th>Drugs used</th>
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<tbody>
<tr>
<td>Step 1</td>
<td>Low dose inhaled corticosteroids</td>
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<tr>
<td>Step 2</td>
<td>Low dose inhaled corticosteroids + leukotriene receptor antagonist</td>
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<tr>
<td>Step 3</td>
<td>Low dose inhaled corticosteroids + long-acting β2 agonist</td>
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<tr>
<td>Step 4</td>
<td>Medium-dose inhaled corticosteroids + long-acting β2 agonist</td>
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<tr>
<td>Step 5</td>
<td>Considering alternative therapy such as anti-IgE drugs</td>
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<tr>
<td>Step 6</td>
<td>Referral to a specialized hospital in primary health care</td>
</tr>
</tbody>
</table>

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

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Bibliography


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