



Physicians' Knowledge and Practices Regarding Asthma Management in Aden- Yemen: A Cross-Sectional Study

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Abstract:

Yemen is confronted with a significant health problem caused by asthma. Effective management of asthma hinges on healthcare practitioners possessing adequate understanding of the ailment and adhering to established guidelines. This study aimed to evaluate the basic knowledge and practices of Yemeni physicians about the treatment of asthma. A cross-sectional survey was conducted in the Aden governorate of Yemen between September and December 2023. The study utilized convenience sampling, employing face-to-face and direct interview. The knowledge and practice of the participating physicians in regards to asthma management were evaluated using a recently developed questionnaire comprising of 8 items. The demographic characteristics of the participants were illustrated using descriptive statistics, and the data was analyzed using SPSS version 26. Overall, the participants exhibited a modest level of understanding to the asthma intervention. The average proportion of physician's knowledge and understanding to the prescribed standards for asthma management is 2.6. Individuals who were in the age ≤ 35 years (53.8%) and had fewer than 5 years of work experience were identified as significant factors in asthma management. This study revealed that the percentage of physicians in Yemen who possessed adequate information regarding the recommended criteria for asthma treatment is moderate. Additional investigation is necessary to analyze the components associated with improved comprehension of asthma and adherence to guidelines.

Keywords: Asthma, Practice, Knowledge, Management, Yemen

معرفة وفهم ممارسات الأطباء فيما يتعلق بعلاج مرض الربو في عدن- اليمن: دراسة مقطعية

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المخلص

يواجه اليمن مشكلة صحية كبيرة ناجمة عن مرض الربو. تعتمد المعالجة الفعالة للربو على امتلاك ممارسي الرعاية الصحية الفهم الكافي للمرض والالتزام بالمبادئ التوجيهية المعمول بها. هدفت هذه الدراسة إلى تقييم المعرفة والممارسات الأساسية للأطباء اليمنيين حول علاج الربو. تم إجراء مسح مقطعي في محافظة عدن في اليمن بين شهري سبتمبر وديسمبر 2023. واستخدمت الدراسة أخذ العينات الملائمة، واستخدام المقابلة وجهاً لوجه والمقابلة المباشرة. تم تقييم معرفة وممارسات الأطباء المشاركين فيما يتعلق بعلاج الربو باستخدام استبيان تم تطويره مؤخرًا ويتكون من 8 أسئلة تم توضيح الخصائص الديموغرافية للمشاركين باستخدام الإحصائيات الوصفية، وتم تحليل البيانات باستخدام SPSS الإصدار 26. بشكل عام، أظهر المشاركون مستوى متواضعًا ومتوسطًا من الفهم لمعالجة الربو حسب الجايدلاين. متوسط نسبة معرفة الطبيب وفهمه للمعايير المقررة لعلاج الربو هو 2.3. حجم العينة شمل أطباء في الفئة العمرية أقل من 35 سنة (53.8%) ولديهم أقل من 5 سنوات من الخبرة العملية كمتغيرات مهمة في معالجته

الربو. كشفت هذه الدراسة أن نسبة الأطباء في اليمن الذين لديهم معلومات كافية فيما يتعلق بالمعايير الموصى بها لعلاج الربو هي نسبة معتدلة. من الضروري إجراء أبحاث إضافية مستقبلية لتحليل المكونات المرتبطة بتحسين فهم وعلاج مرض الربو والالتزام بالمبادئ التوجيهية حسب الجايدلاين.

الكلمات المفتاحية: الربو، الفهم، المعالجة، اليمن

Introduction

Asthma is a persistent and incurable inflammatory condition that affects the airways and is characterized by recurrent episodes of wheezing, dyspnea, chest tightness, and coughing [1]. It is a substantial international public health concern, affecting around 262 million individuals globally [2]. Yemen's lack of comprehensive statistics on asthma prevalence, combined with the ongoing conflict and its impact on the healthcare system, is likely leading to underdiagnosis and insufficient treatment of the condition. The magnitude of asthma prevalence in Yemen and its impact on the healthcare system have not been thoroughly examined, posing a significant public health concern [3]. Asthma diagnosis and management have been well established on a global scale, with numerous countries issuing national guidelines for the care and diagnosis of asthma [4]. Generally, these guidelines offer recommendations and knowledge derived from scientific research for the diagnosis and treatment of asthma. However, worldwide research has also shown the existence of misconduct and non-compliance with protocols, leading to variations in the care and long-term outcomes for patients suffering from asthma [5, 6]. Moreover, this disparity in implementation also affects the costs related to the management of patients with asthma. Yemen faces unique healthcare challenges due to its complex socio-economic and political conditions, further exacerbated by the ongoing violence. A 2023 report by the World Health Organization (WHO) highlights the intensified burden on the healthcare system, impacting the management and treatment of long-term health conditions, such as asthma. Effective asthma management relies on healthcare personnel having a comprehensive understanding of the condition and adhering to established guidelines. Physicians have a crucial role in the management of asthma, encompassing accurate diagnosis, effective treatment strategies, and patient education. Their proficiency and approaches are essential in overseeing the disease and improving the quality of life for sufferers. This study aims to assess the knowledge level and practices of physicians in Yemen about the management of asthma. Acquiring a thorough comprehension of these attributes is essential for detecting any shortcomings in healthcare and devising precise tactics to enhance asthma control in Yemen.

Methods

Study design and setting

A cross-sectional study design was employed in the period from October 2023 to February 2024. Yemeni physicians practicing internal medicine, pediatrics, or pulmonology were eligible to participate. A convenience sampling approach was used, recruiting physicians from public and private hospitals across various Yemeni governorates. The study was conducted following ethical guidelines and obtained informed consent from all participants.

Data collection procedure

A self-administered questionnaire was developed to assess physician demographics, practice characteristics, knowledge of asthma management strategies in Yemen. On the other hand, questions did not address adherence to recommended treatment protocols and perceived barriers to optimal asthma management as there is no treatment guideline in Yemen. The questionnaire was piloted on a small group of physicians to ensure clarity and comprehensiveness.

The data collection team conducted site visits to the hospitals of the selected primary care physicians. Upon elucidating the objective of the present survey, we acquired informed consent. We invited physicians who were willing to participate to complete the survey. The Excel sheets were restricted to only the lead investigator, so guaranteeing data security.

Data Analysis:

Descriptive statistics were used to summarize participant demographics and practice characteristics. Knowledge scores were calculated based on the number of correct answers in the questionnaire sections.

Statistical analysis was performed using appropriate SPSS version 26 to identify the prevalence and any associations between physician characteristics and knowledge scores or reported practices.

Results

Demographics and Practice Characteristics

A total of 65 Yemeni physicians participated in the study. The majority were adults with age less than 30 years 35 (53.8%) female 36 (55.4%) and working in public settings 39 (60%) and have less than 5 years of experience 35 (53.8%) (table 1).

Table 1: Demographic Distribution of Participants (n = 65)

		Frequency (n)
Age Group	≤ 30 years	35 (53.8%)
	≥ 5 years	30 (46.1%)
Gender	Male	29 (44.6%)
	Female	36 (55.4%)
Year of practice	≤ 5 years	35 (53.8%)
	≥ 5 years	30 (46.1%)
Working Area	Public	26 (40%)
	Private	39 (60%)

Knowledge and Practice of Asthma Management

The mean knowledge score for asthma treatment was 2.6. Physicians demonstrated a moderate understanding of specific treatment strategies, with a mean score of 2.3 for pharmacological interventions and 3.1 for non-pharmacological interventions.

As illustrated in table 2, seventy-three percentage (73%) of physicians reported prescribing asthma medications to their patient on a daily basis and Montelukast was the most common medication for the asthma attack. On the other hand, almost half of the physicians answered that loratadine and cetirizine were the most common antihistamine drugs prescribed for their patients. Regarding the factors they consider when choosing an asthma, cough, or histamine medications for a patient majority of physicians indicated that patient's medical history (73%) followed by patients age (18%) were the most variables. Sixty-three of the participants wrote that drowsiness was the most side effects observed after taking asthma medications and nausea was the least adverse effects. Furthermore about 40% of the physicians reported that they sometimes prescribe albuterol for asthma and half of them (50%) had experience that Montelukast is somewhat effective for prevention of asthma attack not as a main medication. Finally, 47% of the participants knew that loratadine is used for prevention of seasonal allergy associated with asthma.

Table 2: Knowledge and Practice regarding Asthma management (n = 65).

Items	MCQ1	MCQ2	MCQ3	MCQ4
1. What percentage of your patients do you prescribe asthma medications to on a daily basis?	0-25% 48 (73%)	26-50% 15 (23%)	51-75% 2 (3%)	76-100% 0 (0%)
2. What are the most common asthma medications you prescribe?	Albuterol 26 (40%)	Montelukast 15 (50%)	Fluticasone 3 (4%)	Symbicort 3 (4%)
3. What are the most common histamine medications you prescribe?	Loratadine 43% 28(Cetirizine 30 (46%)	Fexofenadine 4 (6%)	Diphenhydramine 3 (4%)
4. What factors do you consider when choosing an asthma, cough, or histamine medication for a patient?	Patient's age 12 (18%)	Patient's medical history 48 (73%)	Patient's preferences 3 (4%)	Cost of the medication 3 (4%)
5. What are the most common side effects you have observed in patients taking asthma, cough, or histamine medications?	Drowsiness 39 (63%)	Dry mouth 18 (27%)	Headache 8 (12%)	Nausea 0%
6. How often do you prescribe albuterol for asthma?	Never 12 (18%)	Rarely 4 (6%)	Sometimes 26 (40%)	Always 23 (33%)
7. What is your experience with the use of montelukast for asthma prevention?	Very effective 22 (33%)	Somewhat effective 33 (50%)	Neither effective nor ineffective 3 (4.6%)	Very ineffective 7 (10%)
8. What is your experience with the use of loratadine for seasonal allergies?	Very effective 31 (47%)	Somewhat effective 31 (47%)	Neither effective nor ineffective 2 (3%)	Very ineffective 1 (2%)

Discussion

This study emphasizes the necessity for Yemeni physicians to enhance their understanding and implementation of asthma management standards. Although the participants showed a reasonable awareness of asthma treatment, there were gaps in their knowledge when it came to specific pharmacological and non-pharmacological treatment options. Self-reported practices also showed inconsistencies with prescribed guidelines.

Our research revealed that the general degree of awareness regarding asthma treatments is moderate. This finding is somewhat congruent with a study conducted by Bander B.G. Ho (7) in the United States of America, which indicated that asthma knowledge and dependability were generally inadequate. Symbicort and fluticasone had the lowest percentage, while Montelukast had the highest rate. A study conducted in West Nigeria [8] found similar results, with only 61% of the subjects providing accurate responses on the symptoms of an asthma attack. Prior research has indicated that physicians had a strong understanding of the attributes of asthma. Our study aligns

with these findings, since around 70% of the participants demonstrated a commendable comprehension of asthma characteristics [9] .

Although the results did not show statistical significance, it is important to emphasise that despite having excellent individual knowledge scores, the physicians typically performed poorly in delivering quality treatment. This is significant because all the questions asked followed the basic criteria of practice outlined in the GINA guideline, suggesting that they were supposed to be normal procedure [8] .

Our study findings indicated that approximately 50% of the participants demonstrated a satisfactory understanding of the aspects to be taken into account while choosing asthma medications. The findings of this study conducted in the United Kingdom by Haughney, J., et al [10] indicate that it may be more effective to match the inhaler device to the patient rather than increasing therapy or training the patient to use a certain inhaler device. Exploring the risk factors of asthma can be difficult, and often patients are directed to specialized doctors, which may explain the limited awareness regarding factors like cost or patient preference. It is worth noting that the majority of the study participants were recently graduated general practitioners, while a smaller portion came from various specialties.

The physicians' average knowledge score about the drugs used in asthma therapy was modest. Similarly, physicians have a moderate level of expertise of the diagnosis and treatment procedures for asthma. Considering the characteristics of the condition and the widespread occurrence of asthma globally, this level of understanding might be regarded as relatively low to moderate. Prior research conducted in Jordan, Russia, and Ukraine has indicated a greater level of proficiency among physicians in terms of their knowledge on the diagnostic tests and treatment options for asthma [11,12].

Limitations

The identified barriers, such as limited access to diagnostic tools and medication shortages, likely contribute to these knowledge-practice gaps. The ongoing conflict in Yemen further disrupts healthcare delivery and restricts access to essential resources for both physicians and patients. Moreover, the convenience sampling approach may not represent the entire Yemeni physician population. Self-reported data on practices and adherence might be subject to recall bias. Furthermore, the study did not assess actual patient outcomes.

Conclusion

Our study concluded a moderate understanding about asthma management among participants. This study found that Yemeni physicians working specifically in Aden may benefit from educational interventions to improve their knowledge and practice to asthma management guidelines. Additionally, addressing systemic barriers within the Yemeni healthcare system is crucial for optimizing asthma care.

Recommendation

Future research should explore the impact of educational interventions on physician knowledge and practices. Additionally, studies investigating the prevalence and treatment patterns of asthma in the Yemeni population are needed. Finally, addressing the systemic barriers identified in this study requires collaboration between healthcare institutions, policymakers, and international aid organizations working within Yemen.

Disclaimer

The article has not been previously presented or published, and is not part of a thesis project.

Conflict of Interest

There are no financial, personal, or professional conflicts of interest to declare.

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