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Khalid Alsaleh

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THE MOST GRACIOUS,
THE MOST MERCIFUL**

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Editorial

From Editor's Desk.....



Our current COVID-19 pandemic situation has fundamentally altered our way of life. There are now new forms of concerns, which have the potential to prolong this difficult and ongoing predicament. The WHO designated B.1.1.529 as a variant of concern, naming it Omicron. Following the delta variant, this “Omicron” may become a concern once more. The variant possesses a variety of genetic alterations that may facilitate rapid transmission, possibly even among the vaccinated. Despite the virus’s rapid spread, initial observations indicated that hospital admissions were low. Additional information, however, is required to confirm this. In-depth research is being conducted to determine whether the Omicron variant has any impact on the efficacy of the COVID-19 immunizations.

Individuals in Saudi Arabia can now receive the third dose of the COVID-19 vaccination, often known as a booster shot, three months after receiving the second dose, according to the country’s Ministry of Health. The announcement comes as the world braces itself for the possible spread of the new COVID-19 Omicron strain. Recent research found that after three doses of the vaccine, neutralising levels against the virus’s Omicron variation were generally similar to those against the virus’s Delta variant, which had received two doses of the vaccine.

According to sources, it is probable that COVID patients in hospitals with multidrug-resistance (MDR) isolates would prove to be super spreaders of MDR germs, just as they were for SARS CoV-2 in the community. The use of biocidal chemicals for environmental and personal disinfection, even outside of healthcare settings, is also a growing cause of concern.

Dr. Khalid Mohammed Alabdulwahhab
Editor in Chief



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Original Article :

Analysis of knee arthroplasty surgeries in Asir province, Kingdom of Saudi Arabia—Techniques, pre-operative criteria, and comorbidities

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Abstract

Background & Aims:

The aim of this study was to analyze the increasing numbers of total knee arthroplasty procedures and examine utilization in Asir province, Abha, Kingdom of Saudi Arabia.

Methods:

In this retrospective study, patients who underwent total knee arthroplasty at Asir Central Hospital from 2018 to 2020 were analyzed according to demographic characteristics, including age, gender, and procedure type.

Results:

We found an increase in the incidence of knee arthroplasties from 2018 to 2019 and a drastic decrease from 2019 to 2020. Most patients were women older than 65 years. The most common pre-operative diagnosis was osteoarthritis. Diabetes mellitus and hypertension were the most chronic comorbid chronic illnesses reported for the patients in this study.

Conclusion:

We found substantial variance in the numbers of knee arthroplasties performed during the study period. We expect an increase in the number of knee arthroplasties performed in the future, which may pose a financial burden on the healthcare system in Abha, Saudi Arabia.

Keywords:

Knee arthroplasty, gender, incidence, Saudi Arabia

Introduction

The introduction of bicondylar knee arthroplasty occurred in 1970, as the first reported general arthroplasty¹, and soon became adopted for clinical application in Sweden, Finland, Norway, Germany, USA, Australia, Canada, New Zealand, Saudi Arabia, and many other countries worldwide. Knee arthroplasty is among the most common and well-known surgical procedures used for the management of knee osteoarthritis (OA) to relieve pain and improve functional health^{2,3}. However, these procedures are costly, and the number of knee arthroplasty procedures performed is expected to increase significantly due to an increasing incidence in arthritis among the global aging population^{4,5}. Estimates suggest that the demand for knee arthroplasty will continue to increase over the next ten years⁶, with an increasing number of younger patients undergoing knee arthroplasties, particularly in western populations^{7,8}. Differences in the frequency of total knee arthroplasty (TKA) procedures have been observed between geographical locations and among age groups^{9,10}. On a global scale, attempts have been made to improve and standardize existing TKA procedures and establish worldwide registries of patients who undergo knee arthroplasties. Prospective advantages exist

to combining data obtained from various countries, which might reveal variations in the disease presentation, treatment procedures, and outcomes¹¹. However, not all hospitals and doctors report their TKA procedures or outcomes to medical registries, resulting in a lack of available data¹². Therefore, we addressed two primary objectives in this study: 1) examine the incidence of TKA procedures in Asir province; and 2) identify differences in postoperative complications according to age and gender

Materials and Methods

Data collected between 2018 and 2020 were provided by Academic Affairs, Abha, Kingdom of Saudi Arabia, which included pre-operative diagnosis, surgical procedures, and postoperative complications associated with knee arthroplasty procedures performed at Asir Central Hospital, Abha, Kingdom of Saudi Arabia.

The Asir Central Hospital Research Ethics Committee (REC # 2019-01-13) approved the present study, which was performed in accordance with the ethical standards of the local ethical committee.

Information was obtained for all patients who underwent TKA, and subgroup analyses were performed according to age and gender

SPSS software (version 21.0 for Windows; SPSS, Inc, Chicago, USA) was used to

conduct statistical analyses, and data were evaluated and graphically demonstrated. Descriptive statistics were used to characterize the sample.

Results

A slight increase in the number of TKA procedures performed was observed between 2018 and 2019, and a drastic decrease was observed between 2019 and 2020. During the investigated 3-year period, 102 TKAs were performed in 2018, 116 were performed in 2019, and only 39 were performed in 2020 (Table. 1).

Table 1: Knee arthroplasty procedures performed .from 2018 to 2020

Year	No. of procedures
2018	102
2019	116
2020	39

Approximately 69.6% of all procedures were performed in women (Table. 2), and nearly 68.8% of patients were older than 65 years (Fig. 1).

Table 2: Percentage of knee arthroplasty procedures performed according to gender

Gender	Percentage of procedures (%)
Male	30.4
Female	69.6

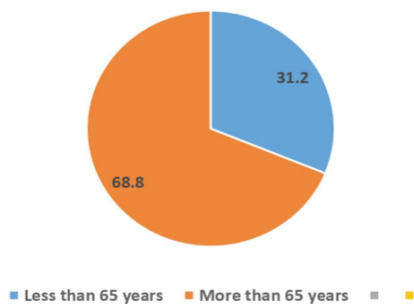


Figure 1: Percentage of knee arthroplasty procedures performed according to age.

A greater number of TKA procedures were performed on the left side (52.1%), compared with the right side (37.7%), with the remaining procedures performed bilaterally (10.1%). A decrease in the number of bilateral TKA procedures was observed comparing between 2018 and 2020 (Fig. 2).

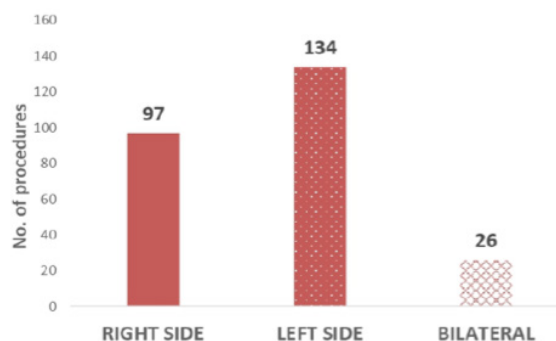


Figure 2: Percentage of knee arthroplasty procedures performed according to side.

The majority of patients (97.6%) who underwent TKA were diagnosed with osteoarthritis, with the remainder diagnosed with other conditions such as rheumatoid arthritis, post-traumatic conditions. (Fig. 3).

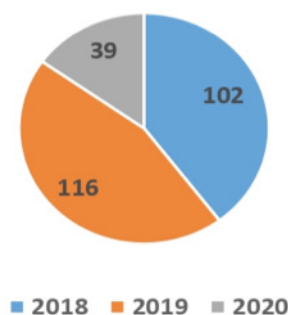


Figure 3: Pre-operative diagnosis of the patients who undergo knee arthroplasty.

Prior to surgery, patients were diagnosed with hypertension (43.5%), diabetes (41.6%), and other conditions such as ischemic heart diseases, renal diseases etc.

(Fig. 4), and the number of hypertensive patients who underwent TKA increased each year. The majority of procedures used components manufactured by Depuy (43.5%), followed by Stryker (29.1%), Smith & Nephew (21%), and other companies. Among patients who underwent knee arthroplasty, more than two-thirds of patients were classified as overweight or obese.

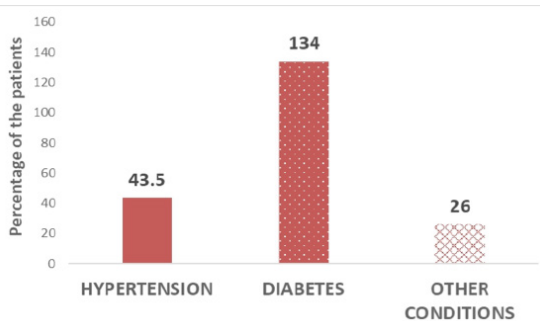


Figure 4: Chronic illnesses among patients who undergo knee arthroplasty.

Discussion

The aim of the present study was to evaluate the occurrence of TKA procedures performed between 2018 and 2020 in the Asir region, Abha, Saudi Arabia, according to age, gender side, pre-operation diagnosis, manufacturer of materials used, and patient comorbidities.

The incidence of knee arthroplasties has been increasing yearly in Saudi Arabia based on the statistics available in the present study. To our knowledge, this is the first study to provide an overview of the incidence of knee arthroplasty procedures performed at Asir Central Hospital, Abha,

Saudi Arabia, over a period of three years, with consideration for various contributing factors.

A slight increase in the number of knee arthroplasty procedures performed in Saudi Arabia was observed between 2008 and 2018, which is consistent with the reports of studies performed in Italy and the United States^{6,13}. This increase might be associated with the patient selection criteria for knee arthroplasty, which is commonly recommended for the treatment of osteoarthritis in patients older than 60 years.

The majority of patients in our study underwent unilateral knee arthroplasty procedures. Many unilateral knee arthroplasty patients informed us of the need for contralateral TKA, even though arthroplasty was not necessary according to guidelines. Unnecessary surgical procedures performed on the contralateral side can result in a decrease in the range of motion of the sagittal plane knee joint, increased adduction range of motion, and a decreased push-off vertical ground reaction force, compared with those in patients who underwent unilateral knee arthroplasty procedures. Patients who underwent bilateral knee arthroplasty were found to have stiff knee joint range of motion in the sagittal plane, enhanced frontal plane joint slackness, and a quadriceps prevention gait, similar to the findings of previous studies¹⁴⁻¹⁶.

The majority of patients who underwent knee arthroplasty in the present study were women, and with twice as many women receiving the procedure as men during the study period. This result was similar to those reported by previous studies, indicating a higher rate of osteoarthritis occurrence in the knee joint of women than of men^{17,18}, which coincides with the increased diagnosis of osteoarthritis among women than among men¹⁹. Various other factors that may contribute to this difference also showed gender-predominant trends, which should be investigated in future studies.

This study has some limitations. First, not all arthroplasty procedures were analyzed in this study. Second, we only analyzed primary knee arthroplasty procedures, whereas patients who underwent revision arthroplasty were not included in this study. Third, the patient dissatisfaction rates after the procedure were not evaluated in this study. Last, the data we analyzed belong only to one hospital in this region and may not be representative of the entire region.

Conclusion

We found that TKA procedures increased from 2018 to 2019 and decreased from 2019 to 2020. Patients older than 65 years were the most common cohort to undergo TKA surgery, and women underwent

this procedure more often than men. In addition, international differences in patient demographics were observed when comparing our results with those of other countries, and differences in the national healthcare system of the Kingdom of Saudi Arabia compared with other countries could also contribute to differences in TKA incidence.

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Original Article :

Evaluation of Bronchial Asthma Control Status Among Patients with Asthma in Jazan: A Cross Sectional Study

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Abstract

Background & Aims:

Asthma is a common heterogeneous chronic respiratory disease that affects wide specific design patient's quality of life. The lack of knowledge and awareness of the importance of disease control are common among asthma patients in Saudi Arabia. Asthma control status using Saudi Initiative for Asthma control test (SINA ACT), in participants who have had been diagnosed previously with asthma was investigated in Jazan region.

Methods:

A study among previously diagnosed patients with asthma was conducted from 1st of August 2019 to 30th August 2019, in Jazan shopping malls, Saudi Arabia.

Results:

one hundred and sixteen asthmatics patients above age of 12 years were interviewed in this study. Sixty-six (56%) were males and Fifty (44%) were females. The median age was 23 years (interquartile range (IQR) 20 to 35). Based on SINA ACT cut off, 51 (44%) of the asthmatics had uncontrolled asthma. Only 7 (6%) patients had visited pulmonary clinics, but that was out of the Jazan region. None of the participants had undergone pulmonary function test previously, neither had a peak expiratory flowmeter at home.

Conclusion:

The findings highlights the need of educational, practical and resources for asthmatic patients in Jazan region. In addition, it showed disappointing lack of pulmonary function testing within Jazan health institutions. And finally, it is strongly recommended that asthmatic should have educational opportunities on the asthma management and control action plan.

Keywords:

Bronchial Asthma, Asthma control test, pulmonary function test, asthma education clinic.

Background

The main objective set out in the current

guidelines for asthma management [Global Initiative for Asthma (GINA)] is to achieve good disease control¹. However,

despite this objective and the existence of effective therapies, asthma remains an under-treated disease²⁻⁴. Several multicenter studies have revealed a low percentage of patients with adequate levels of disease control as well as a lack of correlation between greater health coverage and a better level of asthma control⁵⁻⁸.

The lack of recognition, by doctors and patients, of the level of asthma control, has been pointed out as one of the reasons for this disease's inadequate treatment^{9,10}. The Asthma Control Test (ACT) questionnaire was designed in 2004 as a tool to learn about asthma control^{11,12}. It is a simple self-administered questionnaire composed of five items: four objective parameters (day and night symptoms, use of rescue medication, and degree of interference of the disease with daily activities) and a measure of the patient's perception of the level of control of his/her sickness. The score is calculated as the sum of the responses for each item on a scale of 1 (worst) to 5 (best), with scores ≥ 20 having been validated as the cut-off point for a good level of control¹¹. The ACT questionnaire has been validated in different populations, including patients in Saudi Arabia¹³.

Many of the spirometric parameters used for the evaluation of asthma, such as forced expiration, forced vital capacity,

or the measurement of maximum expiratory flow are not always available in primary care (PA), where many asthmatic patients are treated. In this area, therefore, the ACT questionnaire is very useful as a simple and easily interpreted tool for the supervision of asthmatic control. However, little is known about the asthma control among patients in the Jazan Region and I hypothesize that most of asthmatics patients in Jazan region are experiencing uncontrolled asthma. This study aimed to determine the asthma control status among patients with asthma in Jazan Region using the Saudi Initiative for Asthma Control Test (SINA-ACT).

Method

Study design

An epidemiological study was designed to compare the indicative score of the degree of asthma control, obtained after the administration of the ACT questionnaire by respiratory therapist among diagnosed asthma patients in the selected Jazan shopping centers. The selection of the study population was shoppers that previously diagnosed with asthma whom voluntary participated at the study booth in the shopping centers after pre-assessment of different aspects such as: history, family history, smoking history, and bronchodilators usage. All study contributors who took this

part in the study received prior training on the study procedures, protocol, and data collection.

Patients

The inclusion criteria were as follows: asthma diagnosed at least six months in advance, age over 12 years, voluntary participation, signed of informed consent, and ability to understand the study and meet its requirements. The exclusion criteria were: respiratory disease other than asthma that could interfere with the objectives of the study and inclusion in another study at the time of selection. The institutional review board approval was obtained prior undertaken the study.

Procedures

The patients who volunteered were interviewed on a one-on-one basis. Demographics and clinical data were collected, including age, gender, weight, height, level of education, smoking status, family history of asthma, parents' smoking status, regular primary care or pulmonary clinic visit, asthma control test, previous pulmonary function test (PFT) (yes/no), and usage of a home Handheld Peak Expiratory Flowmeter (PEF) (yes/no).

Statistical analysis and study assessment variables

The primary assessment variable of the study was the ACT score (Arabic translated) as a measure of asthma control in pa-

tient over 12 years old. "ACT is a validated questionnaire that consists of 5 items, where each of them is scored from 1 (worst) to 5 (best), including limitation of activity, shortness of breath, frequency of night symptoms, use of rescue medication, and rating of overall control of the disease over the past month"^{14,15}. The sum of the five items represents the asthma control status as: "fully controlled" (ACT score of 25), "controlled" (ACT score of 20-24), "partially controlled" (ACT score of 16-19), and "uncontrolled" (ACT score less than 16). The analysis was carried out by comparing the percentage of patients in regard of the asthma control categories using the chi-square test. In addition, this percentage was compared to physician visit by means of a logistic regression analysis. All statistical analyses were performed using the STATA version 13 software (StataCorp LP, College Station, TX, USA).

Results

A total of 116 patients, over the age of 12 years from the three biggest shopping centers (Alrashed, Kadi, Region) were included and interviewed in the study from the period August 1 to 30, 2019. Of this number, 66 (56%) were males and 50 (44%) were females. The median age was 23 years (IQR 20 to 35); minimum age was 16 and maximum was 58 years old.

The demographic characteristics of the patients are presented in (Table 1). Based on the SINA ACT cut off, 44% (51) of the subjects had uncontrolled asthma (Figure 1). Only 6% (7) of the patients had visited pulmonary clinics, but they were situated beyond the Jazan Region. None of the participants underwent PFTs previously nor do they have PEFs at home.

Table 1. Demographic and clinical characteristics of patients with asthma in Jazan region

Age		
Median (IQR)	23 years	20 – 35 Years
Sex (n %)		
Male	66	56%
Female	50	44%
Pulmonary physician (n %)		
Yes	7	6%
No	109	94%
Previous PFT (n %)		
Yes	5	4%
No	111	96%
Handheld PEF (n %)		
Yes	5	4%
No	111	96%
Family history of asthma (n %)		
Yes	62	53%
No	54	47%
Smoking status		
Yes	24	20%
No	92	80%
Parent Smoking status		
Yes	42	36%
No	74	64%

(Abbreviations: IQR (interquartile range), n(number), PFT (pulmonary function test), PEF (peak expiratory flow*)

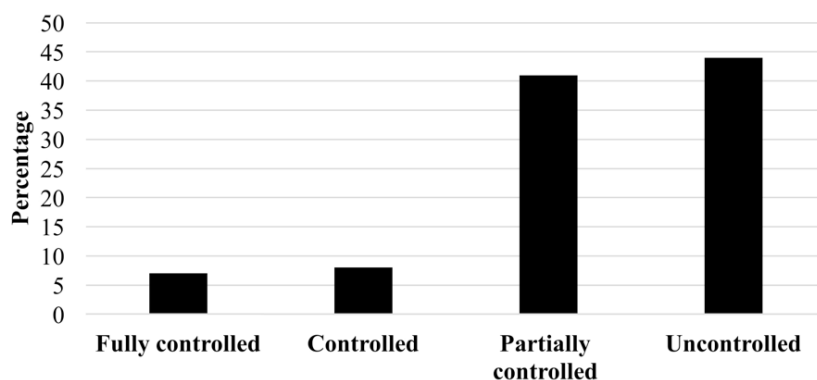


Figure 1. Asthma control test among patients with asthma in Jazan Region

Discussion

The aim of this study was to test the hypothesis that the majority of asthmatic patients in Jazan region are having uncontrolled asthma. The findings did support the hypothesis. For all the primary and secondary outcome measures; ACT score and pulmonary functions testing results; showed that asthma is a public health problem in Jazan Region. Possible explanations for the results of this study include issues related the lack of asthma education clinics in Jazan Region. The recommendations for its management continue to multiply to ensure control of this disease. Yet, despite these time-consuming, energy-intensive, and resource-intensive initiatives, a significant proportion of asthmatics continue to experience frequent symptoms that significantly impact their lives.

Majority of the patients who participated were only on short-acting bronchodilator agents with other control medications. Several studies have focused on the level of asthma control, such as a European multicenter study¹¹ that included 1,241 patients afflicted with asthma of different severities. Findings showed that the percentage of the patients with controlled asthma was 15% among users of inhaled corticosteroids (ICs) compared with 45% among non-users, for a total of 32% asthmatics. Similarly, in another study¹⁶, the

results showed that 72% of the patients had non-controlled asthma. In a US national study comprising 1,812 moderates to severe asthmatic patients, the majority of whom were under optimal IC therapy and long-acting bronchodilators, 45% had well-controlled while 55% had uncontrolled asthma¹⁷. Another study in 44 countries showed that 44% of asthma patients treated with a combination of long-acting IC and Beta-2 for one year had their condition fully controlled¹⁸.

In this study, total control was reached in 6% of patients who were on ICs. The high percentages of controlled patients observed in previous studies (45%) and (44%)^{17,18} are likely due to the high percentages of patients using IC in combination with Beta-2 mimetics in their long-term treatments. Numerous potential factors were identified in determining the level of asthma control, such as age, sex, and treatment strategies. It has been reported in a number of multivariate analyses that being aged less than 50 years is a factor associated with good asthma control^{1,19-20}; whereas, on contrary, some studies show that age has no influence on the level of control of asthma¹⁷. In this study, younger patients' asthma conditions were more controlled than that of older patients. Regarding the sex of the controlled patients, different studies reported different results: a male predomi-

nance in one study¹⁹ and a female predominance in two other studies [(56% vs. 43%) and (63% vs. 36%, $p = 0.04$)]^{17,20}. In this study, the patients with totally or partially controlled asthma conditions comprised 41% women against 52% men. With regard to the basic treatment of asthma, the fixed combination of IC and Beta-2 mimetics has been shown to be an asthma control factor¹⁹ and is the recommended treatment for patients with asthma not controlled by low doses of CI alone²¹. In this study, majority of the patients have not undertaken pulmonary clinic visits, primary care, or previous PFT testing, which could have allowed them access to better care such as asthma education and various asthma control medications. The foregoing could account for the low percentage of control in this study. Another factor that improves the control of asthma is not smoking^{10-12,19}. In this study, the majority of the patients were non-smokers. Proper handling of inhaled devices also influences the level of control. In a study²², the conditions of 41% of patients with persistent asthma were not controlled, including more than 20% who misused their IC sprays. Despite the dusty weather in Jazan Region, until today, there are no asthma education clinics in the region, which could play a major role in the care of asthma patients.

The main strength of this study is that to

the best of my knowledge it is the first epidemiological study investigating asthma control in Jazan Region. The study was conducted in the middle of summer, which is usually the hottest and dustiest month, a period when patients and physicians should be focused on the control of asthma symptoms. The limitations of this study were the small sample size, lack of spirometry testing to assess asthma severity, and patient adherence, which is a major factor in asthma control.

Clinical implication and Conclusion

Despite all of the efforts exerted, whether through GINA or SINA recommendations or by medical practitioners, and despite the existence of effective therapies against asthma, a significant number of asthma patients whose conditions remain insufficiently controlled or not controlled in Jazan Region. The hope of overcoming this disease lies in the education of the asthmatic, the establishment of asthma clinics that conduct pulmonary function testing and provide personal action plans for the self-management of this illness, and the improvement of doctor-patient dialogue for the purpose of a more precise evaluation of the level of asthma control. Further large scale studies might validate the findings of this study and increase the understanding the status of asthma control in Jazan region.

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AH was involved in the study design, performed the majority of data processing and analysis and drafted the article. AH devised the original idea and contributed to the design of the study and analysis of the data. Naif A Alhazmi, Esmail M Alhazmi, Meshal N Debsh, Alwaleed A Yahya, and Ahmed Y Siddiq contributed to the initial stages of data organization. AH were involved in drafting and revising the article and approved the article before submission. AH is the guarantor.

Declaration of Conflicting Interests

The authors declares that there is no financial conflict of interest.

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Original Article :

Knowledge of Gastric Cancer Risk Factors, Warning Symptoms, and Screening Among the General Population in Makkah, Saudi Arabia

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Abstract

Background & Aims:

Gastric Cancer (GC) is considered the fifth most prevalent cancer worldwide. The awareness of GC symptoms may lead to early diagnosis. Thus, this study aimed to assess the level of knowledge regarding risk factors, warning symptoms, and the screening attitude of GC.

Methods:

Data for this descriptive cross-sectional study were collected from the general population in Makkah via an electronic self-administered questionnaire. The collected data were analyzed by using SPSS software.

Results:

A total of 400 participants were enrolled in the study. Wherein 296 (74%) were females, and 104 (26%) were males. Of the 400 participants, 78 (19.5%), 263 (65.8%), and 59 (14.7%) had respectively low, moderate, and high levels of knowledge about the risk factors and warning symptoms of GC. The most highly recognized risk factors were family history of gastric cancer (83.8%), followed by alcohol drinking (81.8%), and smoking (80%). The most highly recognized warning symptoms were gastrointestinal bleeding (77%), followed by recurrent nausea and vomiting (74%) and abdominal lump (73.5%). Regarding their perception of the screening of GC, most of the participants thought that GC could be prevented (94.8%). Interestingly, only 11 participants underwent screening of GC (2.8%) among all participants.

Conclusion:

Good levels of knowledge about the risk factors and warning symptoms of GC were recorded to be moderate in most of the population in Makkah. However, the awareness about the importance of early screening of GC to prevent the possibility of disease occurrence is still a challenge for public health awareness.

Keywords:

gastric cancer, awareness, public knowledge, general population, Saudi Arabia.

Introduction

As stated by the last Global Cancer Statistics (GLOBOCAN 2018), incidence and mortality of cancer are highly increasing worldwide, in which there were 18.1 million new cancer cases and 9.6 million cancer deaths in 2018¹. Gastric Cancer (GC) is one of the most dangerous cancers worldwide that is responsible for over 1,000,000 new cases in 2018 and approximately 783,000 deaths, making it the third leading cause of cancer death, and the fifth most prevalent cancer, after lung, breast, prostate, and colorectal cancers¹. These numbers showed a significant difference compared to the first estimates in 1975². There is a variation in the Incidence of GC from one country to another. The last estimates on GLOBOCAN 2018 released by the International Agency for Research on Cancer (IARC) published in 2019 reported 477 new cases and 392 deaths of GC in the Kingdom of Saudi Arabia (KSA) in 2018, ranked the 16th most prevalent cancer for both sexes³, which reflects an increase in the incidence over the last decade.

It is well established that a high intake of a salty diet, lack of fresh fruits and vegetable intake, alcohol consumptions, and active use of tobacco are associated with increasing the chance of gastric cancer^{4,5}. The main risk factor is *Helicobacter pylori*

(*H. pylori*) infection^{4,7}. This bacterium is responsible for about nearly 90% of new cases of non-cardia gastric cancer^{6,7}. Moreover, genetic, and epigenetic factors are contributing to the progression of GC⁸.

A study found that those aware of the association between *H. Pylori* infection and gastric cancer tend to undergo screening and receive treatment for *H. Pylori* infection more often than those who are unaware⁹. The most common symptoms of GC include upper abdominal pain, recent onset of indigestion, and weight loss. These symptoms may indicate other medical conditions; wherefore, People with these symptoms need to seek medical attention as soon as possible¹⁰. Awareness of these symptoms may lead to early diagnosis¹¹; additionally, early stages of GC have a significantly better prognosis than advanced GC^{12,13}. Hitherto, there is insufficient evidence to recommend endoscopic screening¹⁴; currently, the treatment of GC involves a combination of surgery, chemotherapy, and radiotherapy¹⁵.

In two previous studies done in KSA, the knowledge and awareness of cancer among the participators were low and less than required^{16,17}. No further studies have been done on the population of Makkah city, KSA. Hence, updated studies that assess GC awareness are necessary as a basis for future practices. Accordingly, this study

aims to assess the level of knowledge of risk factors, warning symptoms, and the screening attitude regarding GC among the general population in Makkah, KSA. Besides, to explore socio-demographic factors associated with the knowledge of GC.

Methods

Research design, Samples, and Population

This is a descriptive cross-sectional study that was conducted among the general population in Makkah, KSA. The minimum sample size required for this study was calculated by OpenEpi version 3.0118, in consideration of the following: the population size of the Makkah region is about 8.8 million inhabitants¹⁹, keeping the confidence interval (CI) level at 95% and considering 50% prevalence of knowledge about GC. The sample size was calculated to be 385 participants. In case of any possible data loss, the total sample size came out to be 400 participants. We have included all members of the society who were eligible to answer our questionnaire. However, we have excluded any member with a previous history of cancers.

Questionnaire structure

The questionnaire was designed by Google forms²⁰ and distributed electronically via different platforms of social media. The language of the questionnaire was

translated to Arabic (the native language of the participants), and then it was translated back to English for analysis and publication. The questionnaire was inspired by a previous study done in China²¹ with some modifications related to the demographic data, and its reliability was evaluated. It was divided into four main sections. First section: the socio-demographic data, including¹⁴ questions about gender, age, nationality, residence, marital status, educational level, occupation, income, working/studying in a medical field, family history of cancer or GC, health status, and any diseases of the upper gastrointestinal tract. Second section: identification of risk factors of GC, which included multiple-choice grid table with¹⁶ risk factors, each risk factor consisted of three optional answers (“Yes,” “No,” and “Not sure/Do not know”), the risk factors were: old age, male gender, H. pylori infection, stomach ulcer, previous stomach surgery, atrophic gastritis, Family history of gastric cancer, salty diet, consumption of pickled foods, consumption of smoked foods, Irregular diet, frequent eating of leftovers, smoking, drinking, stress and frequent midnight snacking. Third section: identification of the warning symptoms of GC, including multiple-choice grid table with six warning symptoms and the same optional answers of the previous part, warning symptoms

were: gastrointestinal bleeding, abdominal lump, abdominal pain, upper abdominal fullness, weight loss, and recurrent nausea and vomiting.

Fourth section: perceptions on the screening for GC, consists of 6 multiple of choice questions, the first four of them were “yes, no” questions, included: do you think gastric cancer can be prevented? Do you think early gastric cancer can be cured? Do you think screening can help detect early gastric cancer? have you ever undergone gastric cancer screening? While the last two questions of this part were: why do you not undergo screening for gastric cancer? (Answers were: “do not know the benefits of screening,” “fear of undergoing gastroscopy,” “worried about screening results,” “no symptoms,” “no time,” and “financial limitations”), and which screening method for gastric cancer would you prefer? (Answers were: “gastroscopy,” “blood test,” and “none of them”). To assess the population’s knowledge about risk factors and warning symptoms of GC, 22 risk factors and warning symptoms were listed in a multiple-choice grid table. One point was given for each of the factors or symptoms that the participant agreed to. For each participant, a maximum score of 22 was calculated. The participants’ knowledge was then categorized into three groups: Low level (0-7 points), Moderate level (8-14

points), and High level (15-22 points).

Statistical methods

Data were collected via an Excel sheet and then analyzed using Statistical Package for social studies (IBM SPSS) version-23, Armonk, New York, IBM Corporation, USA. Variables were presented in numbers and percentages. A Chi-square test was used to examine the association between gastric cancer knowledge and different socio-demographic data. A statistical significance was determined at $p < 0.05$.

Ethical Approval and Informed Consent

This research is exempted from research and ethical committee or an institutional review board (IRB) approval. <https://www.hhs.gov/ohrp/regulations-and-policy/decision-charts-2018/index.html>

An electronic informed consent was obtained from each participant prior to answering the questionnaire. Confidentiality was assured. Names or phone numbers were not requested from any participant.

Results

Socio-demographic characteristics of the participants

A total of 400 participants were enrolled in the study. Table 1 represents the socio-demographic characteristics of all participants.

The participants’ age ranged from 14 to 65 years, and most of them were between

Table 1: Socio-demographic characteristics of the participants (n=400)

Characteristic	Number (%)	
Age	< 18	4 (1)
	18-25	291 (72.8)
	26-35	30 (7.5)
	36-45	40 (10)
	> 45	35 (8.7)
Gender	Male	104 (26)
	Female	296 (74)
Nationality	Saudis	377 (94.3)
	Non-Saudis	23 (5.8)
Residence	City	370 (92.5)
	rural areas	30 (7.5)
Marital status	Single	295 (73.8)
	Married	92 (23)
	divorced /widow	13 (3.2)
Educational level	intermediate school or below	13 (3.2)
	High school	96 (24)
	College or above	291 (72.8)
Occupation	Non-working	6 (1.5)
	Retired	11 (2.7)
	Housewife	16 (4)
	Student	281 (70.3)
	Fieldwork	36 (9)
	Health care provider	14 (3.5)
	Private job	11 (2.7)
	Office work	25 (6.3)
Income	< 5000 SAR	185 (46.3)
	5000 - 10,000 SAR	55 (13.8)
	> 10,000 SAR	56 (14)
	No Income	104 (26)
Work/study in a medical field	Yes	266 (66.5)
	No	134 (33.5)
Family history of cancer	Yes	135 (33.8)
	No	243 (60.8)
	I do not know/ not sure	22 (5.5)
Family history of GC	Yes	28 (7)
	No	317 (79.3)
	I do not know/ not sure	55 (13.7)
Health status	Unhealthy	8 (2)
	Suboptimal	117 (29.3)
	Healthy	275 (68.8)
Diseases of the upper gastrointestinal tract	Yes	68 (17)
	No	332 (83)

18-25 years (291, 72.8%). There were 296 (74%) female participants, while 104 (26%) were male. Most of the participants were Saudis (377, 94.3%), and 370 (92.5%) were residents in a city not in rural areas, as well as 295 (73.8%) were single. The educational level of 291 participants was a college or above (72.8%), and 281 participants were students (70.3%). The total income of 185 participants (46.3%) was less than 5000 SAR, 266 (66.5%) participants worked/studied in the medical field. The

exact 135 (33.8%) participants have had a family history of cancer, while 28 (7%) had a family history of GC. Most of the individuals were healthy (275, 68.8%), and 53 participants (13.3%) have complained of upper gastrointestinal tract diseases.

Knowledge about risk factors and warning symptoms of GC

Table 2 represents the participants' knowledge about risk factors and warning symptoms of GC.

Table 2: participants' knowledge about risk factors and warning symptoms of GC (n=400)

Category	Number (%)
Risk Factors of GC	
Family history of gastric cancer	335 (83.8)
Alcohol Drinking	327 (81.8)
Smoking	320 (80)
<i>H. pylori</i> infection	262 (65.5)
Stomach ulcer	256 (64)
Atrophic gastritis	194 (48.5)
Stress	192 (48)
Older age	190 (47.5)
Consumption of smoked foods	138 (34.5)
Previous stomach surgery	126 (31.5)
Irregular diet	87 (21.8)
Frequent eating of leftovers	87 (21.8)
Consumption of pickled foods	76 (19)
Male sex	69 (17.3)
Salty diet	55 (13.8)
Frequent midnight snacking	54 (13.5)
Warning Symptoms of GC	
Gastrointestinal bleeding	308 (77)
Recurrent nausea and vomiting	296 (74)
Abdominal lump	294 (73.5)
Weight loss	265 (66.3)
Abdominal pain	234 (58.5)
Upper abdominal fullness	177 (44.3)

From the total of 400 participants, 78 (19.5%), 263 (65.8%), and 59 (14.7%) had respectively low, moderate, and high levels of knowledge about the risk factors and warning symptoms of GC (Fig. 1.). Only 3

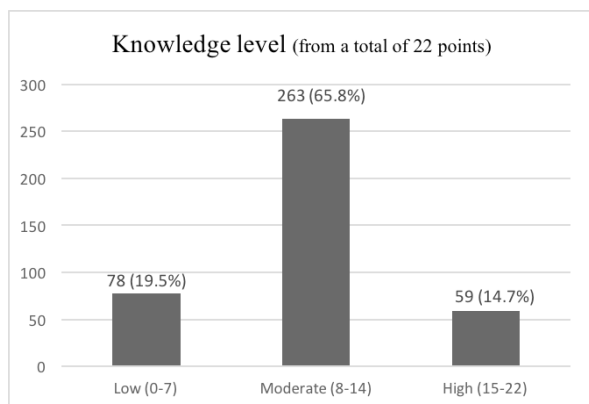


Fig. 1: Represents the participants' levels of knowledge

participants had the full score (22 points). While 6 participants had zero in their score. The most highly recognized risk

factors were family history of gastric cancer (83.8%), followed by alcohol drinking (81.8%), smoking (80%), H. pylori infection (65.5%), and stomach ulcer (64%). Less well-recognized risk factors included frequent midnight snacking (13.5%), salty diet (13.8%), and male sex (17.3%). The most highly recognized warning symptoms were gastrointestinal bleeding (77%), followed by recurrent nausea and vomiting (74%) and abdominal lump (73.5%). On the other side, less well-recognized warning symptoms include upper abdominal fullness (44.3%) and abdominal pain (58.5%).

Participants perceptions on the screening of GC

Table 3: participants' perception about GC screening (n=400)

Question	Number (%)
Is there a way to prevent GC?	
Yes	379 (94.8)
No	21 (5.2)
Can we detect GC early by screening?	
Yes	389 (97.3)
No	11 (2.7)
Can early stage of GC be cured?	
Yes	388 (97)
No	12 (3)
Have you ever participated in GC screening?	
Yes	11 (2.8)
No	389 (97.3)
Why did you not undergo gastric cancer screening? (This question is only for the 389 participants who did not undergo screening)	
No symptoms	254 (65.3)
No time	51 (13.1)
Fear of undergoing gastroscopy	34 (8.8)
Do not know the benefits of screening	25 (6.4)
Financial limitations	18 (4.6)

Question	Number (%)
Worried about screening results	7 (1.8)
Which screening test for GC would you prefer?	
Blood test	209 (52.3)
Gastroscopy	160 (40)
None of them	31 (7.8)

As represented in Table 3, most of the participants (94.8%) thought that GC could be prevented, 389 (97.3%) thought GC could be detected early, and only 12 (3%) thought early GC could not be cured. Furthermore, only 11 (2.8%) participants underwent GC screening, all of whom were older than forty years, which is the recommended age range for GC screening. Of the 389 participants who did not undergo screening, they were asked about the reason, and the commonest answers were: no symptoms (65.3%), no time (13.1%), and

fear of undergoing gastroscopy (8.8%). All the participants were asked about the most preferred screening test for GC, 209 (52.3%) preferred blood test, 160 (40%) preferred gastroscopy as a first option, while 31 (7.8%) chose 'none of them.'

Association between GC knowledge and socio-demographic data of the participants

The outcome analysis for factors associated with knowledge of risk factors and warning symptoms of GC is represented in Table 4.

Table 4: Outcome analysis for factors associated with GC knowledge

Variable	Low, n (%)	Moderate, n (%)	High, n (%)	P value
Gender				
Male	39 (37.5)	58 (55.8)	7 (6.7)	p= 1.369
Female	39 (13.2)	205 (69.3)	52 (17.6)	
Age				
< 18	0 (0.0)	4 (100)	0 (0.0)	* p= 0.034
18-25	55 (18.9)	198 (68.0)	38 (13.1)	
26-35	5 (16.7)	22 (73.3)	3 (10.0)	
36-45	10 (25.0)	24 (60.0)	6 (15.0)	
> 45	8 (22.9)	15 (42.9)	12 (34.3)	
Residence				
City	70 (18.9)	244 (65.9)	56 (15.1)	p= 0.502
Rural areas	8 (26.7)	19 (63.3)	3 (10.0)	
Educational level				
intermediate school or below	1 (33.3)	2 (66.7)	0 (0.0)	p= 0.567
High school	16 (16.7)	69 (71.9)	11 (11.5)	
College or above	61 (20.3)	192 (63.8)	48 (15.9)	

Variable	Low, n (%)	Moderate, n (%)	High, n (%)	P value
Occupation				
Non-working	1 (16.7)	4 (66.7)	1 (16.7)	* p= 0.019
Retired	1 (9.1)	4 (36.4)	6 (54.5)	
Housewife	0 (0.0)	14 (87.5)	2 (12.5)	
Student	54 (19.2)	191 (68.0)	36 (12.8)	
Field work	10 (27.8)	18 (50.0)	8 (22.2)	
Health care provider	3 (21.4)	8 (57.1)	3 (21.4)	
Private job	2 (18.2)	9 (81.8)	0 (0.0)	
Office work	7 (28.0)	15 (60.0)	3 (12.0)	
Income				
< 5000 SAR	39 (21.1)	125 (67.6)	21 (11.4)	* p= 0.003
5000 - 10,000 SAR	18 (32.7)	31 (56.4)	6 (10.9)	
> 10,000 SAR	8 (14.3)	32 (57.1)	16 (28.6)	
No Income	13 (12.5)	75 (72.1)	16 (15.4)	
Work/study in a medical field				
Yes	56 (21.1)	174 (65.4)	36 (13.5)	p= 0.408
No	22 (16.4)	89 (66.4)	23 (17.2)	
Family history of GC				
Yes	6 (21.4)	13 (46.4)	9 (32.1)	* p= 0.024
No	61 (19.2)	209 (65.9)	47 (14.8)	
Don't know/not sure	11 (20.0)	41 (74.5)	3 (5.5)	

Asterisk symbol (*) indicate the statistically significant findings ($p < 0.05$).

More than half of the participants aged between 18-25 years had recorded moderate levels of knowledge (68%), with a statistically significant p-value of 0.034. Regarding participants' occupation, most students had moderate levels of knowledge (191, 68%), with a recorded statical p-value of 0.019. Participants who reported to have an income of less than 5000 SAR were also recorded the most levels of moderate levels of knowledge (125, 67.6%) compared to 39 participants (21.1%) who had low levels of knowledge, with a statistical significance p-value of 0.003. Other associations between knowledge of risk

factors and warning symptoms of GC and socio-demographic data of the participants are shown in Table 4.

Discussion

GC is still spreading worldwide, and the newly discovered cases annually increase the importance of public awareness towards the symptoms, screening, and available medical treatment. The early detection of GC to prevent, diagnose, and provide medical treatment is important. Therefore, during this study, it is clear there is a good level of knowledge towards the disease itself, but the awareness of the risk factors to prevent the possibility of disease occur-

rence is still a challenge for public health awareness programs. A high intake of salty diet, lack of fresh fruits and vegetable intake, alcohol consumption, and active use of tobacco are associated with increasing the chance of gastric cancer; a healthy diet and lifestyle are a must. Nevertheless, public understanding of the need for early GC screening, especially for high-risk individuals, remains a challenge for public health awareness.

As previously stated, our findings revealed that the mean score for GC knowledge was 10.7. And a total of 14.7% of the participants were recorded to have a low level of knowledge. This result is considered a good level of knowledge, and it is substantially higher than a previous study performed among China's general population²¹. They reported a mean score of 8.85/22 (SD 6.48), with a low level of knowledge within 47% of their participants. This might be because of the large number of educated people who participated in our study, as 72.8% of our participants were studied in a college or above. On the contrary to the Chinese study, our findings were consistent with other studies conducted among Korean and Iranian populations^{22,23}.

Regarding GC screening, our findings revealed only 2.8% of the participants had undergone gastric cancer screening, while 15.2% had undergone the screening of gas-

tric cancer among China's general population²¹. These results indicated the public need for awareness regarding the importance of early screening to avoid possible disease complications. Our results showed that the knowledge of GC was differed according to the socio-demographic characteristics of the participants, which were also reported in some previous studies^{21,24}. In particular, our findings revealed that younger individuals were more knowledgeable about GC than middle-aged and older individuals; this finding is concerning as GC is much more prevalent in individuals over the age of 40 years²⁵. Accordingly, we recommend awareness programs to educate the public and focus more on the age group of 40 years and above. Moreover, participants' occupation, level of income, and having a previous family history of GC were reported in our findings to be significantly associated with the knowledge of GC. An additional association was reported in a previous study between the level of knowledge and gender²¹, where females were found to have better levels of knowledge than males.

To the best of the authors' knowledge, the following study is the first study conducted among the general population in Makkah city, KSA, to assess their level of knowledge about GC. Nevertheless, we announce certain limitations in our study.

First, the majority of responders were highly educated. Therefore, our results may not apply to all different structures of the population. Secondly, the small sample size of our study may increase the chance of errors. Therefore, we recommend conducting similar studies extended to the community with a larger sample size to confirm our results.

Conclusion

Good levels of knowledge about the risk factors and warning symptoms of GC were recorded to be moderate in most of the population in Makkah. However, the awareness of some risk factors and the importance of early screening for GC, especially for high-risk individuals, is still a challenge for public health awareness. We recommend conducting similar studies extended to the community with a larger sample size to confirm our results.

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Original Article :

Orthopedics Surgeons' Out-Patient Practice in Saudi Arabia: Supplementation and Osteoporosis Management

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Abstract

Background & Aims:

Orthopedics surgery is an increasingly specialized discipline. The orthopedic surgeon is required to advocate for and occasionally manage patients with osteoporosis and other medical conditions. This practice is not consistent, yet some surgeons liberally provide certain supplements that have not been proven to provide any clinically relevant effect.

Methods:

An electronic survey was designed to elaborate on the current trend in managing osteoporosis and the provision of supplements. It was distributed to the members of the Saudi Orthopedics association. The data were analyzed for association with practice setting and years of experience.

Results:

Fifty-one members completed the survey. Most (60%) were from the public sector and in their second decade of experience. Most participants would screen patients using bone density measurements (88%), but most would stop there and refer to a specialist (55%). Most would provide their patients with calcium (80%) and vitamin D (86%). When it comes to other supplements -multivitamins, Vitamin B complex, chondroitin, and glucosamine- most either rarely provide it or do not provide it at all.

Conclusion:

Orthopedic surgeons in Saudi Arabia are just as likely to screen patients for osteoporosis and start management as their counterparts in developed countries. The provision of some nutritional and other supplements remains prevalent even if its incidence is low..

Keywords:

Orthopedics, Nutritional supplements, Osteoporosis

Introduction:

With the increased specialization in the medical field, the specialist might lose sight of a significant issue facing his patient while focusing on his specialty's details¹. The orthopedics surgeon's out-patient clinic is a busy environment, and thousands of patients pass through it annually². Nevertheless, the orthopedic surgeon is perfectly positioned to screen patients for relevant medical conditions, notably osteoporosis. As part of a multi-disciplinary team, the orthopedic surgeon plays a vital role in this regard³. This role is not limited to osteoporosis screening, however. The orthopedic surgeon can suggest or prescribe a variety of nutritional and "health" supplements according to the patients' condition. Vitamins, calcium supplements, chondroitin & glucosamine are often prescribed. The evidence supporting these practices, however, is weak⁴⁻⁶. Calcium supplementation may cause harm, and multivitamin supplementation is no longer recommended for healthy adults^{7, 8}. Our goal in this study was to investigate the current trends in osteoporosis management and the use of nutritional and other supplements by orthopedic surgeons in our country.

Materials and Methods:

A structured electronic survey was designed to answer the questions posed by

the author. It was distributed to members of the Saudi Orthopedic Association (SOA) by email and social media. The participants were completely anonymous as no personal identifying data was collected. The participants consented to their anonymous information being used for research purposes electronically. The first section was concerned with the participant and his practice environment. This included the number of years in practice and whether the participant's practice institution was public or private. The second section inquired about the pattern of prescribing specific supplements by the participant. This included multivitamins, vitamin B complex, vitamin D3, calcium, and chondroitin/glucosamine. The third section inquired about the participant's current practice concerning osteoporosis management. The data was then coded and tabulated. Statistical analysis included descriptive statistics and the chi-square test using SPSS version 27(IBM, Armonk, NY, USA).

Results:

Fifty-one SOA members completed the survey. About their practice type, thirty-one participants (60.8%) practiced in a public institution, while only 20 participants (39.2%) worked in a private institution. Most participants were in practice for 11-20 years (21 participants, 41.2%), some

were in their first decade of practice (18 participants, 35.3%), and a few had more than 20 years of experience (12 participants, 23.5%).

When it comes to the provision of supplements, the variation in practice is shown in Figure 1. Apart from calcium and vitamin D, most participants did not prescribe

supplements routinely. Multivitamins are rarely prescribed by most, but B complex vitamins showed wide variation in their prescription by the participants. Chondroitin and glucosamine had the largest percentage of participants who would not consider prescribing it under any circumstances (19 participants, 37.3%). There was

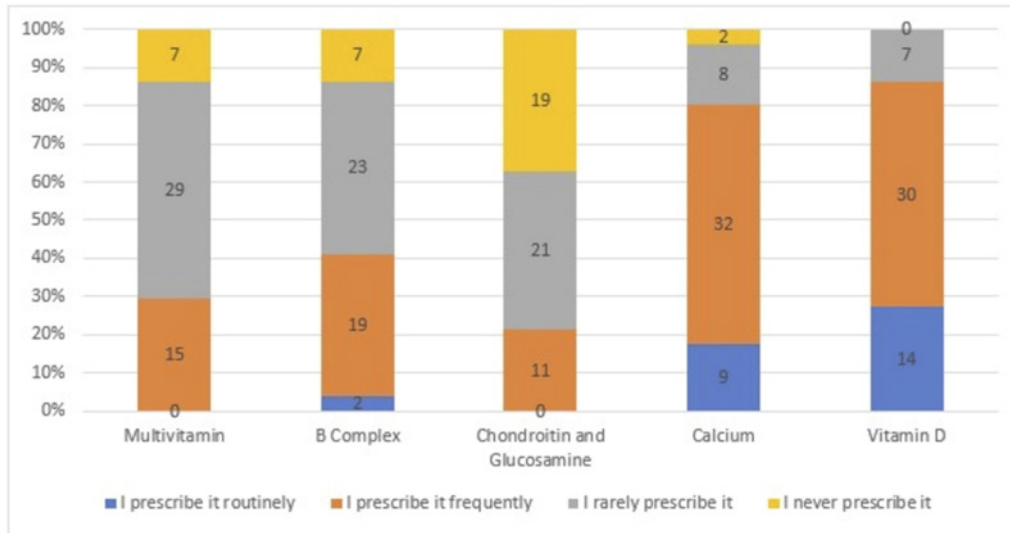


Figure 1: Prevalence of supplement provision by study participants.

no significant association between the type of practice and any supplements except for chondroitin and glucosamine. Chondroitin and glucosamine prescriptions were more prevalent in the private sector: Forty-five percent of participants from that sector would prescribe it frequently, and only 7% of public sector surgeons would do so (P=0.005). No significant association was found between supplement provision and experience (P=0.94).

When asked whether they would handle osteoporosis alone or involve others, most

(28 participants, 54.9%) replied they would be happy screening only. They would then refer the positive cases to specialists (figure 2). Some would add initiation of treatment (14 participants, 27.5%), while a minority would manage the cases themselves and not involve others (7 participants, 13.7%). A significant association was found between the practice setting and osteoporosis screening preference: Public sector participants are more likely to screen and refer to experts (68%) than private-sector participants (35%). In comparison, 25% of pri-

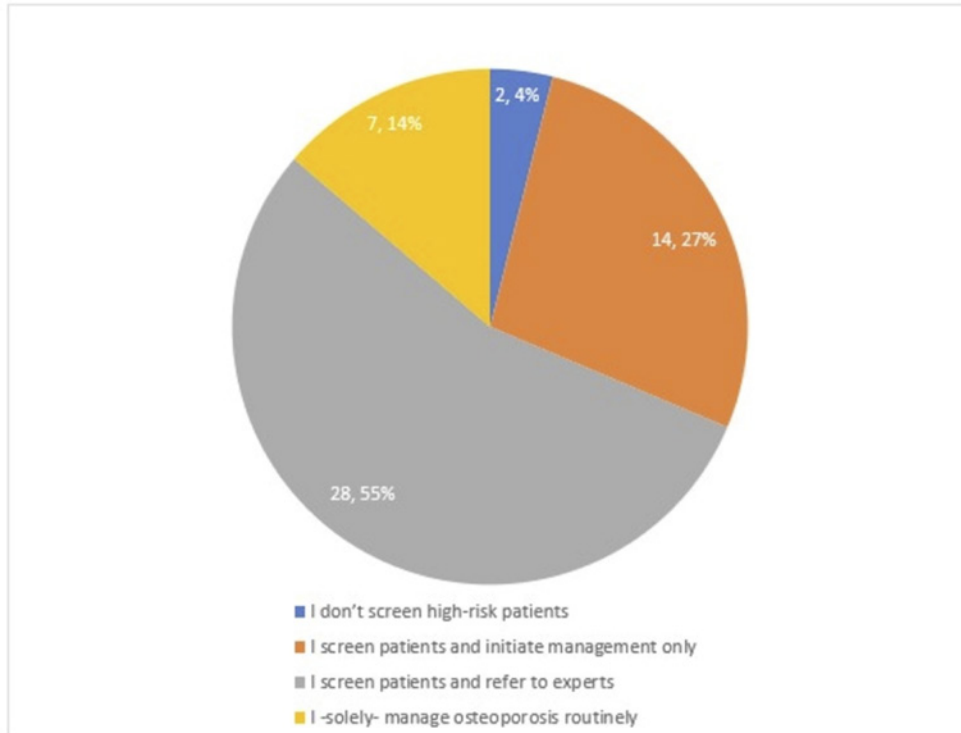


Figure 2: Preferred osteoporosis screening and referral by study participants.

vate-sector surgeons would solely manage osteoporosis, and only 7% of public sector surgeons would do so (P=0.035). No significant association was found between osteoporosis management and experience (P=0.34).

When asked about their current investigation(s) of choice when screening for osteoporosis, most replied that they would

request dual-energy X-ray absorptiometry (DEXA) and follow established guidelines (figure 3). Some would request laboratory workup-such as a bone profile and screening for vitamin D deficiency (29 participants, 56.9%). A minority felt comfortable investigating for causes of secondary osteoporosis (9 participants, 17.6%).

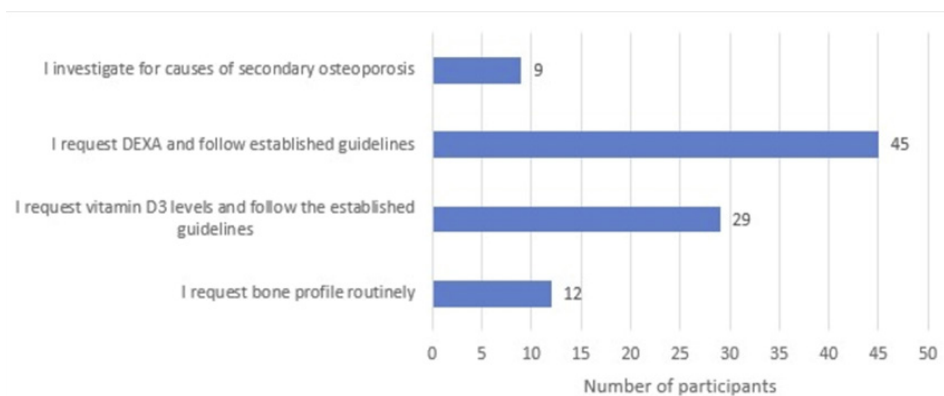


Figure 3: Osteoporosis screening investigation by study participants (any that applies).

When asked what their standard treatment for osteoporosis would be, the majority (21 participants, 41.2%) denied they would treat it (figure 4). The second-largest majority (15 participants, 29.4%) would prescribe supplements and other medications, while around one-fifth of the participants (11 participants, 21.6%) would add bisphosphonates. A small minority (four participants, 7.8%) would prescribe supplements only. No significant association was found between osteoporosis treatment and practice location or experience ($P=0.277$ & $P=0.428$).

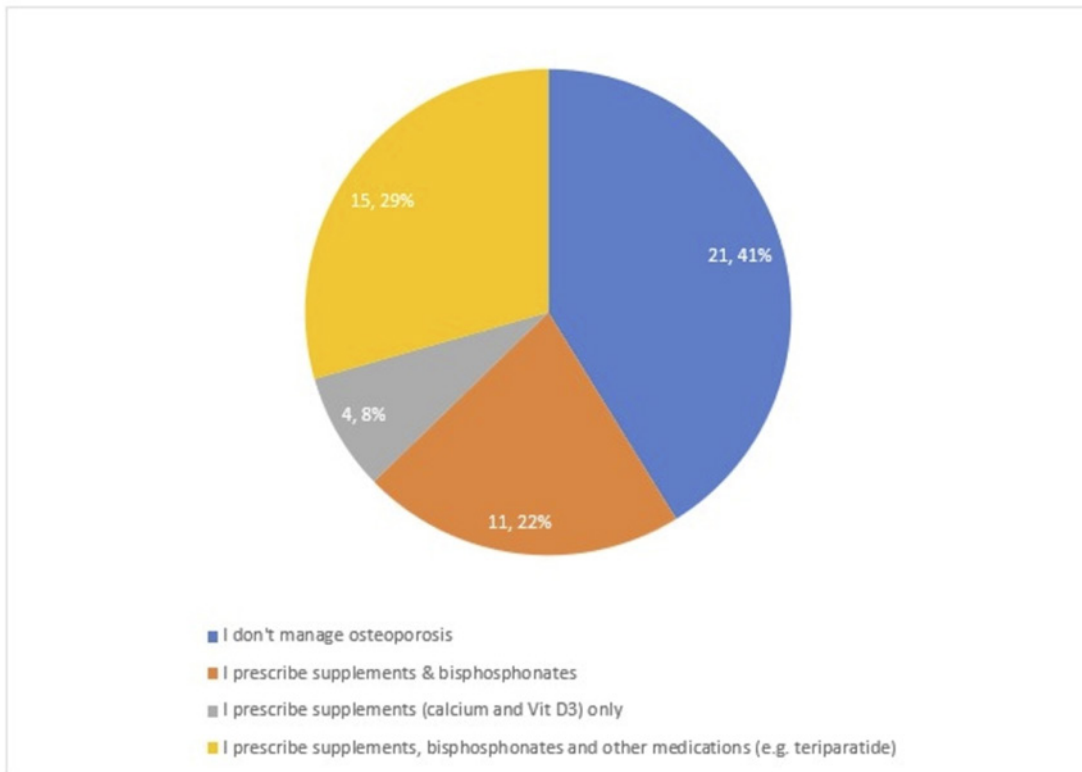


Figure 4: Preferred osteoporosis treatment plan by study participants

Discussion

The global burden of osteoporosis is significant and expanding with the aging of the population⁹. Increased morbidity and mortality following an osteoporotic fracture is well established^{10, 11}. Treatment of osteoporosis effectively reduces fracture incidence¹²⁻¹⁴. Fragility fractures

have been on the decline for years, but no longer¹⁵. Screening by the orthopedic surgeon-as part of a broader management plan, has been shown to provide better outcomes^{3,16,17}. A recent publication demonstrated that only 51% of eligible patients visiting the orthopedic clinic in a local tertiary care hospital had been screened for

osteoporosis¹⁸. A National Plan for Osteoporosis Prevention and Management in Saudi Arabia was published in 2018 by the ministry of health. Yet, the national care gap continues, and the cost of fragility fracture management is over 2 billion Saudi Riyals annually¹⁹. In our study, 98% of participants would screen eligible patients, yet 88% reported that they would order bone density measurements for eligible patients. This percentage is similar to reports from Canada, Germany, and Italy²⁰,²¹. Reports from other countries paint a different picture, where orthopedic surgeons from the USA, France, and other countries are not willing as much to screen patients for osteoporosis^{20, 22, 23}. The orthopedic surgeon's role in our community seems to vary by practice setting, as most public sector surgeons in our study screened and referred. In contrast, a sizable portion of private sector surgeons would manage osteoporosis solely. Discrepancies between the two sectors are not well established in the literature, but the evidence is present²⁴. An essential part of osteoporosis management is the provision of calcium and vitamin D supplements²⁵. A recent meta-analysis found that daily calcium and vitamin D supplementation can help reduce hip fracture risk by 16%.²⁶ In this study, most surgeons stated that they would frequently provide their patients with these supple-

ments. A more controversial issue, however, would be the provision of multivitamins. Several reports have shown that no proven clinical benefit is associated with the daily multivitamin supplement²⁷⁻²⁹. Some have shown that self-reported health is better while no clinically measurable benefits exist³⁰. A very recent systematic review showed that multivitamin supplementation might reduce fracture risk³¹. In our study, only 14% of the participants would routinely provide their patients with multivitamins.

Vitamin B supplementation in the out-patient orthopedic setting is controversial and has weak evidence supporting it³². It is commonly provided without preceding bloodwork, proving deficiency. Widely prescribed for back pain and sciatica cases, yet most studies on the subject are on animals, except for one clinical trial³³⁻³⁷. In our study, slightly more participants would provide vitamin B complex supplementation than they would a multivitamin.

Supplementation with chondroitin and glucosamine has been studied. High-level evidence exists that shows that neither chondroitin nor glucosamine is effective in the management of osteoarthritis^{5, 38, 39}. Only 22% of the participants in our study, mostly from the private sector, would frequently provide these supplements, and none reported that they would offer it rou-

tinely to eligible patients.

Summary:

The participants in this study are orthopedic surgeons from all over the country. Although the study sample size is small, the results show that the Saudi orthopedic surgeon is aware of his patient's medical management. Although significant variability exists internationally, the Saudi surgeons' practice is similar to his colleagues from developed countries²⁰. As for the provision of supplementation, the percentage of participants who would provide supplements in our study is similar to other published reports^{40, 41}.

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The authors have nothing to disclose.

Conflict of interest statement:

The author has nothing to disclose

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Original Article :

Paternal weight gain during pregnancy

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Abstract

Background & Aims:

Pregnancy and childbirth are periods in which physiological and psychological changes are experienced together in terms of expectant mother and father. The study aimed to investigate the effect of pregnancy on instinctive eating habits in father candidates and the relationship between gestational diabetes and this habit.

Methods:

This is a prospective study. Patients who applied to our clinic in the pre-pregnancy period between March 2017 and May 2020 were included in the study. Patients with risk factors for gestational diabetes were followed up together with their spouses. Participants were divided into two groups as those with and without gestational diabetes. The groups were compared in terms of socio-demographic characteristics, the number of pregnancies, and birth weights.

Results:

Among 299 pregnant women aged 26-36 in this study, 199 (66.5%) were diagnosed with gestational diabetes. The mean age was higher in the group diagnosed with gestational diabetes ($p < 0.001$). In 113 (56.8%) of the gestational diabetes patients, blood sugar regulation was achieved with diet, and insulin therapy was required in 86 (43.2%) patients. When the weights of the patients and their spouses were compared before and after pregnancy, a significant difference was found between the groups in terms of initial and final weights. It was determined that dietary compliance was higher in spouses of pregnant women with gestational diabetes ($p < 0.001$ vs. $p = 0.039$).

Conclusion:

Gestational diabetes is more common in elderly patients; it can fight the disease with diet compliance. Dietary compliance of pregnant women and spouses is parallel, and this situation emerges due to lifestyle changes.

Keywords:

Gestational Diabetes, Weight Gain, Paternal

Introduction

The decision to become a parent is the first step in a lifelong process. Pregnancy and childbirth are periods in which physiological and psychological changes are experienced together in expectant mothers and fathers. While women used to bear this period alone, today's father candidates are more involved in this process. Thus, the bond established with the baby after birth becomes stronger¹⁻³.

Eating habits vary depending on genetic and socio-demographic characteristics of individuals and environmental factors. It is known that changes in daily life affect eating behaviors. Having a baby, experiencing the feeling of fatherhood is a significant change for men. The mental turbulence experienced during this period may cause uncontrolled food consumption. People prone to emotional eating feel the need to eat more often to feel good about disturbing thoughts. This need is usually met with foods rich in carbohydrates⁴⁻⁷. Weight gain during pregnancy varies between populations. According to the guideline published by the Institute of Medicine (IOM) in 2009, the frequency of pregnant women with appropriate weight varies between 25-40%. Excessive weight gain during pregnancy is a serious obstetric problem. Macrosomia, Gestational Diabe-

tes Mellitus (GDM), pregnancy-induced hypertension, and the need for cesarean delivery are the short-term negative effects of this problem⁸⁻¹⁰.

Gestational diabetes mellitus (GDM) is seen in 5–6% of all pregnancies. The most important factors that play a role in its occurrence are pre-pregnancy obesity and excessive weight gain during pregnancy. Other factors are diabetes in the family, diagnosis of GDM in a previous pregnancy, and macrosomic baby history. Women presenting in the pre-pregnancy period are followed closely if they are in the risk group for diabetes. However, changes that need to be made in living conditions are usually applied when pregnancy is diagnosed, or GDM is detected. Men participate more and more in pregnancy follow-up, and the experiences during pregnancy impact their lifestyle and habits¹¹⁻¹³.

This study aimed to investigate the effect of pregnancy on the instinctive eating habits of future fathers and examine the adaptation of spouses to the change in eating habits of pregnant women diagnosed with GDM.

Material & Method

Study design

Our study was designed prospectively. Our study sample consisted of 2980 patients who applied to Eskişehir Acibadem

Hospital Gynecology clinic for pregnancy follow-up in the pre-pregnancy period between March 2017 and May 2020. Of these, those with at least one risk factor for GDM were followed up in the endocrine clinic with their spouses. Diagnosis of diabetes in at least one of the first and second-degree relatives of the expectant mother, having a body mass index above 25, being diagnosed with GDM in a previous pregnancy, and history of macrosomic baby birth were determined as risk factors¹⁴.

A 75 g oral glucose tolerance test (OGTT) was performed at 24-26 weeks of gestation for the participants who were followed up with their spouses during pregnancy. According to the test results, the participants were divided into two groups as those with and without GDM. Hunger, first-hour, and second-hour blood glucose levels were examined in the 75 g OGTT test performed in the morning after eight hours of fasting. Normal values of 92 mg/dL, 180 mg/dL, and 153 mg/dL were accepted, respectively. GDM was diagnosed in the participant with at least one high value. Participants with GDM were given 2100 calories of pregnancy diet per day. In addition, blood glucose was monitored four times a day, including morning fasting blood glucose and three times postprandial blood glucose.

The group without GDM was advised to gain the right weight according to the 2009 IOM gestational weight gain guide, and routine pregnancy follow-ups were continued with their spouses.

At least one risk factor for GDM was identified in 299 pregnant women and included in the study. The total number of risk factors for GDM identified participants, including their spouses, is 598. The researchers obtained measurements of the participants. Socio-demographic data were collected with forms prepared by the researchers.

Socio-demographic data

Age of pregnant, age of spouse, duration of the marriage, educational status, family type, working hours, and income rate determined based on the participants' statements. Education level, family type, working hours, and income were questioned because of their effects on weight gain. Education level, family type, working hours, and income rate were asked because of their effects on weight gain. Educational status was questioned through school types as low, secondary, and high education levels. In this way, it is aimed to measure the effect of the consciousness level of the participants. Due to the impact of working hours on the psychological state of people, it was questioned as working daytime or night. The minimum

wage in Turkey is approximately 3000 TL. Income status was questioned as below or above the minimum wage.

Statistics

The participant's weight before and after pregnancy was recorded, and a comparison was made between the groups in terms of initial and final weight. Socio-demographic characteristics, GDM treatments, number of pregnancies, birth weights, and weight values of the groups were compared. According to the nature of the data, mean, median, standard deviation, number and percentage are given as descriptive data. Shapiro Wilk's test was used to investigate the suitability of the data for normal distribution. In comparing normally distributed groups, the independent sample t-test was used for cases with two groups. The Mann-Whitney U test was used for cases with groups that did not conform to the normal distribution. For repeated measurements, the two-way repeated-measures ANOVA (One Factor Repetitive) "Two-way repeated distances ANOVA (One Factor Repetition)" test was used. Pearson Chi-Square and Pearson Exact chi-square analyzes were used in the analysis of the created cross tables. IBM SPSS Statistics 21.0) program was used in the analysis. $P < 0.05$ was accepted for statistical significance.

Ethical Consideration

There was no compulsion to participate in the study. None of the pregnant women and their spouses refused to participate in the study. Informed consent was obtained from each patient included in the research, and the study protocol conforms to the ethical guidelines of the 1975 declaration of Helsinki as reflected in a priori approval by the institution's human research committee. The ethics committee decision regarding the research was taken from the institution where the research was conducted. The ethical approval number was ATADEK-2017-2.

Results

199 (66.5%) of the participants were diagnosed with GDM according to the 75-g OGTT results performed at 24 - 26 weeks of gestation. The remaining 100 (33.4%) participants were considered normal for GDM. The mean age of the participants with GDM was 33.6 ± 4.54 , and the mean age of the other group was 29.5 ± 4.82 . A statistically significant difference was found between the mean ages of the groups ($p < 0.001$). However, no significant difference was found in the analysis of other socio-demographic characteristics that may influence eating habits (Table 1).

Table 1: Comparison of socio-demographic characteristics. Mean \pm standard deviation, median, minimum, and maximum values for continuous variables, numbers, and percentages for discrete variables are given.

	Normal Pregnant (n=100)	GDM Pregnant (n=199)	P
Age of Pregnant	29.5 \pm 4.82 29.0 (26.0 - 32.3)	33.6 \pm 4.54 33.0 (30.0 - 36.0)	<0.001
Age of Spouse	33.0 \pm 6.00 32.0 (29.0 - 35.0)	36.8 \pm 7.10 35.0 (33.0 - 39.0)	<0.001
Duration of Marriage	4.65 \pm 3.85 3.00 (2.00 - 5.25)	4.62 \pm 3.11 4.00 (2.00 - 6.00)	0.256
Educational Status of the Pregnant			
Primary education	3 (3.00%)	9 (4.5%)	0.64
High School	38 (38.0%)	67 (33.7%)	
College / University and Above	59 (59.0%)	123 (61.8%)	
Spouse's Educational Status			
Primary Education	3 (3.00%)	10 (5.03%)	0.499
High School	19 (19.0%)	46 (23.1%)	
College / University and Above	78 (78.0%)	143 (71.8%)	
Family Type			The Number of Samples is Insufficient. No Analysis Has Been Made.
Nuclear Family	100 (100%)	198 (99.5%)	
Extended Family	0 (0%)	1 (0.503%)	
Working Hours of the Pregnant			
Daytime	76 (91.6%)	156 (91.8%)	0.413
Night or Shift	7 (8.43%)	14 (8.2%)	
Working Hours of the Spouse			
Daytime	79 (79.0%)	160 (80.4%)	0.865
Night or Shift	21 (21.0%)	39 (19.6%)	
Income Rate			
3000 TL and below	5 (5.00%)	2 (1.01%)	0.0801
3000 TL and above	95 (95.0%)	197 (99.0%)	

Of the participants diagnosed with GDM, 113 (56.8%) of them provided blood sugar regulation with diet, while insulin therapy was required in 86 (43.2%). 63.5% of the pregnant women included in the study were the first pregnancy. GDM was detected in 75.2% of those with multiparity. No significant difference between the groups in terms of the birth weight of babies was

detected ($p=0.407$) (Table 2).

The weights of the patients and their spouses were compared before and after pregnancy. A significant difference between the groups was found in terms of initial and final weights (Table 3).

Table 2: Comparison of GDM treatment, number of pregnancies, and birth weight characteristics of the groups.

	Normal Pregnant (n=100)	GDM Pregnant (n=199)	P
Diabetes Treatment			
None	100 (100%)	0 (0%)	<0.001
Diet	0 (0%)	113 (56.8%)	
Insulin	0 (0%)	86 (43.2%)	
Number of Pregnancy			
1st pregnancy	73 (73.0%)	117 (58.8%)	<0.001
2nd pregnancy	18 (18.0%)	76 (38.2%)	
3rd pregnancy and above	9 (9.00%)	6 (3.0%)	
Birth Weight			
Up to 3.0 kilos	17 (17.0%)	43 (21.6%)	0.407
3.0-3.5	39 (39.0%)	84 (42.2%)	
3.5-4.0	36 (36.0%)	63 (31.7%)	
4 kilos or more	8 (8.00%)	9 (4.5%)	

Table 3: Comparison of the weight values of the groups according to the measurement times. Mean \pm standard deviation, median, minimum, and maximum values were given as descriptive statistics.

	Normal Pregnant (n=100)	GDM Pregnant (n=199)	P
Starting Weight	64.3 \pm 9.96 64.0 (58.0 - 70.0)	73.7 \pm 11.6 73.0 (65.0 - 82.0)	<0.001
Final Weight	77.9 \pm 10.6 76.4 (70.0 - 86.0)	86.3 \pm 11.8 87.0 (77.0 - 95.0)	<0.001
p	<0.001	<0.001	
Starting Weight of the Spouse	74.5 \pm 7.22 74.0 (70.0 - 79.0)	84.9 \pm 9.36 84.0 (80.0 - 90.0)	<0.001
Final Weight of the Spouse	79.4 \pm 7.63 79.0 (74.0 - 83.0)	85.4 \pm 8.42 85.0 (80.0 - 90.0)	<0.001
p	<0.001	0.039	

Discussion

Research on the transition to fatherhood has increased in the last 20 years. The first articles on the subject were published in the mid-80s¹⁵. Although the perception of paternity differs between cultures, the contribution of prospective fathers to the pregnancy and birth process has increased significantly in recent years¹⁶. Yogman divided this process of change into three

phases: the prenatal period, the birth period, and the postnatal period until the baby is one-year old¹⁷. According to the meta-analysis results of Genesoni, the most stressful period for fathers among these three periods was the pregnancy period¹⁸. In this transition period, fathers decide on the father image they want to have and experience psychological reorganization. The greatest difficulties faced by fathers

in this period were that they could not realize the reality of the event because they could not experience a physical change. They felt powerless because they could not control the change. Diseases such as GDM that occur during pregnancy also increase their anxiety.

In addition to genetic factors, environmental conditions and living standards are also effective in developing obesity¹⁹. In the analyzes performed, the effect of socioeconomic factors on weight gain during pregnancy was found²⁰. It was determined that weight gain in pregnant women who did not receive high school education was higher according to IOM standards²¹. In the study of Huynh et al., it was found that pregnant women with college and higher education had less weight gain²². On the contrary, Abbasalizad Farhangi stated that highly educated Iranian women have more weight gain during pregnancy²³. Thus, it can be said that socioeconomic effects have different effects in different cultures. The fact that no significant difference was found between the groups in terms of educational status, working hours, monthly income, and marriage duration of the couples we examined in our study increases the strength of our research.

Although many studies have been conducted on weight gain during pregnancy and GDM and its consequences, no article

examining weight gain has been found to evaluate the physical adaptation of partners to this process. Therefore, we think that our study is the first in this field. The number of fathers participating in similar studies is below the number of fathers participating in our research. This increases the reliability of the results obtained from our study. When the weights of the participants and their spouses were compared before and after pregnancy, a significant difference was found between the groups in terms of initial and final weights. While the weight gain in the spouses of the GDM group with calorie restriction was approximately 1 kg, this increase was around 5 kg in the other group. Although both increases were statistically significant ($p < 0.001$ vs. $p = 0.039$), the difference between weight gains was distinct.

On the other hand, it was determined that dietary compliance was higher in the spouses of the GDM group with calorie restriction. The demand of the participants in the GDM group to change their living conditions was more accepted by the prospective fathers of the group.

In our study, GDM was found in 66.5% of the participants who were found to have risk factors for GDM in the pre-pregnancy period. This shows that genetics and obesity are determinants in the development of diabetes. In the study of Saldana et al.,

the insulin resistance of obese women was high, and it was evaluated that GDM occurs with weight gain during pregnancy²⁴. The statistically significantly higher mean age of GDM patients in our study is a possible indicator that predisposing factors increase with age. In the study of MacDonald et al., in parallel with our study, it was shown that the mean age of obese pregnant with GDM was higher²⁵.

All but one of the 299 families participating in the study was in the nuclear family structure. Both the fact that family members who can help live far away and the need for mothers to return to work early after giving birth increased fathers' physical and emotional involvement during pregnancy and the postpartum period. The analysis of Hyssala et al. determined that the relationships of couples living in urban areas were closer and more supportive. In rural areas, the father role is more traditional²⁶. The results of our analysis revealed that prospective fathers adopt the urban model.

As a result, obesity is a serious public health problem. Obesity is a chronic disease closely related to diabetes in both pregnancy and everyday life. Fighting this problem before and during pregnancy is very important for a healthy pregnancy and birth process. The role of father candidates in this process is undeniable. There is

a need for comprehensive and prospective randomized studies examining the effects of pregnancy on prospective fathers.

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Original Article :

Evaluation of Perception, Perspective and Practice toward Coronavirus disease - 2019 outbreak among the Eye Care Professionals in the Kingdom of Saudi Arabia

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Abstract

Background & Aims:

Knowledge, attitude, and practice towards precautionary measures are important in limiting the COVID-19 spread. This study aims to assess the Saudi ophthalmic healthcare workers' awareness, attitude, and practice towards the spread and prevention of COVID-19.

Methods:

This cross-sectional survey was conducted through a social media web based survey on 800 ophthalmic health-care workers between September 2020 and November 2020. A 38-item questionnaire comprised socio-demographic characteristics, knowledge, attitude and practice related questions were distributed to eye care professionals. The Kruskal Wallis test and Mann-Whitney tests were used to compare the awareness level scores among ophthalmic health workers groups.

Results:

Among 800 participants, 10.5% were ophthalmologists, 21.3% were optometrists and ophthalmic assistants and 68.3% were ophthalmic nurses. Nearly 90% showed adequate awareness, positive viewpoints, and better practices towards COVID-19 and its management. Ophthalmic nurses and ophthalmologists showed greater knowledge, a better attitude, and optimal practices when compared with optometrists and ophthalmic assistants' groups ($p < 0.05$). Seventy-five percent were aware that conjunctivitis and conjunctival congestion are seen in established COVID-19 patients. However, 57.8% of practitioners reported avoiding patients who seek eye care with the signs and symptoms of COVID-19, whereas 31.8% were willing to render eye care to these patients.

Conclusion:

Two-thirds of the eye care professionals were not willing to provide eye care services for the patients who presents with COVID-19 symptoms. Hence, a comprehensive health education and infection control practices

training programs for COVID-19 is needed to prevent its spread.

Keywords:

awareness, attitude, practice, coronavirus disease, ophthalmic professionals, Saudi Arabia.

Introduction

The initial known occurrence of novel coronavirus disease 2019 also termed "COVID-19" was identified in Wuhan, China due to a case series of viral pneumonia symptoms manifested in December 2019^{1,2}. The new strain of coronavirus was identified from the affected patients' respiratory tract on January 7, 2020, and the International Committee on Taxonomy of Viruses (ICTV) has found that this new strain of coronavirus is the same species as "Severe Acute Respiratory Syndrome Coronavirus" (SARS-CoV-2) with different strain. Hence, ICTV named this novel coronavirus as SARS-CoV-2¹⁻⁶. Due to the rapid spread, illness severity, and fatality caused by SARS-CoV-2 from Wuhan to several countries made World Health Organization (WHO) to declare "COVID-19" as public health emergency on January 20, 2020, and a global pandemic on March 11, 2020^{1,3,4}. From the Eastern region of the Kingdom of Saudi Arabia (KSA), the occurrence of SAR-Cov-2 case was first identified on 2nd March 2020^{7,8}. Till April 26, 2021 COVID-19 accounted for 147 million laboratory-confirmed cases and

3.11 mortalities due to this deadly virus, worldwide. In the KSA, there are currently 412,953 confirmed cases and the death toll rose to 6,913⁹. SARS-CoV-2 is reported to be a highly infective which spreads through saliva or mucus secretions derived from the respiratory tract, air borne transmission from very small droplets that stay suspended in the air for longer period, direct contact with contaminated surfaces, and fecal-oral transmission^{10,11}.

The extensively reported manifestations of COVID-19 are pyrexia, cough, muscle aches, expectoration, headache, hemoptysis, diarrhea, dyspnea, poor appetite, stuffy and runny nose, anorexia, and pain in the pharynx¹²⁻¹⁶. The widely documented complications are acute respiratory distress syndrome (ARDS), acute cardiac injury, acute renal injury, septic shock, ventilator-associated pneumonia, and arrhythmia¹²⁻¹⁶. Several studies and researches showed that COVID-19 affects multiple parts of the body beyond the lungs¹⁷⁻²².

In the KSA, the authorities have imposed precautionary measures such as lockdown, curfews quarantine, isolation social distancing to the community, and financial penalties for the public who violate the

rules on 2nd March 2020 to reduce the incidence of SARS-CoV 2 infection²³. Ministry of Health (MOH) approved an app called “Tawakkalna (COVID-19 KSA)” developed by National Information Center, is the official "contact tracing app" to suppress the COVID-19 spread effectively by identifying, isolating and monitoring the "close contacts". Also, the MOH's 937 call center provides specific information about the COVID-19^{7,8,24,25}.

Health care workers (HCWs) possess a vital role in reducing COVID-19 induced complications and deaths, whereas HCWs are directly exposed to patients and 2019-nCoV. Two thousand and fifty cases of HCWs were affected in China with COVID-19 as of February 2020 due to poor awareness and knowledge about how to handle the disease²⁶. The Chinese ophthalmologist Dr. Li Wenliang from Wuhan was among the first to recognize the possible epidemic of a new virus outbreak, who was later succumbed to COVID-19 on February 7, 2020,²⁷. Studies have suggested that COVID-19 can cause conjunctivitis in 30% of cases and 2019-nCoV was isolated from conjunctival secretions²⁸⁻³⁰. Kumar et al (2020) reported: “detectable viral RNA in ocular swabs several days after it was undetectable in nasal swabs”³⁰. Studies have shown that tears carry a ‘lower risk’ whereas coughing, sneezing, talk-

ing and intubation possess ‘higher risk’ for SARS-CoV-2 transmission, however it can be mitigated with personal protective equipment (PPE) usage^{31,32}. Regular ophthalmic procedures that emit aerosols would pose risk to patients as well as to the eye care professionals. Alenazi MT (2020)³³ showed that the occupational hazard due to COVID-19 for ophthalmologists, ophthalmic medical technologists and ophthalmic medical technicians were to be 88.4%, 68.5%, and 62%, respectively³³. Therefore, the current study aimed to assess the current proportion of awareness, attitude, and practices of COVID-19 amongst ophthalmic HCWs in the KSA.

Materials and Methods

Study design and participants:

A questionnaire was designed and developed in August 2020 based on the previously published studies which contained preliminary knowledge items about COVID-19 by Zhong et al. (2020)³⁴, Taghrir et al. (2020)³⁵ and Khan et al. (2020)³⁶ was used to examine the perception, perspective and practice towards COVID-19 on ophthalmic HCWs at private and public healthcare facilities in the KSA. A convenience sampling technique was used, and this study was conducted according to the Declaration of Helsinki, with the consent form that had to be completed before com-

mencing the survey.

Ethical approval for this study was waived because the participation was intentional, and the participants were informed that the study was on eye care healthcare practitioners without any intervention. Even though, ethical approval for this study was waived, confidentiality and voluntary consent forms were attached along with the questionnaire. However, this study was performed as per the guidelines given by the National Committee of Bioethics (NCBE), KSA. The participants were asked to complete an online survey questionnaire that was developed by the researchers. A cover letter explaining the purpose of the study was attached to the survey and also ensured that no computer internet protocol addresses were collected hence the investigator had no way of identifying the participating ophthalmic HCWs while collecting, analyzing, and reporting data.

Any ophthalmic personnel who were unable to comprehend English and those with no access to the internet were excluded from the study. A total of 800 ophthalmic HCWs from private and public health care facilities of different cadres (ophthalmologists, ophthalmic nurses, optometrists, and ophthalmic assistants) from Saudi Arabia participated from September 2020 to November 2020. A questionnaire was

designed on google-form and an electronic survey link generated was shared on WhatsApp, emails, and Twitter to reach eye-care professionals working in all the provinces of Saudi Arabia.

Multiple-choice and true-false questions were created and put together to obtain information about respondents' awareness about the disease nature, causative organism, attitude, and common practice of protective measures for the COVID-19 disease during the pandemic outbreak. The study questionnaire consisted of 38 questions (see supplementary file). The study questionnaire took nearly 4-5 minutes to fill out the survey. The first section included the basic information from all the participants regarding their age, gender, nationality, qualification, level of education, region, practice setting, region, and sources of information about COVID-19. The second section contained 14 questions about basic knowledge of COVID-19 with three options namely, "true", "false", and "don't know". The knowledge was assessed by providing 1 to a correct answer and 0 to the wrong answer and a "don't know" response. The scale measured knowledge score from a maximum of 14 to a minimum of 0. Scores < 4 were taken as poor,⁴⁻⁹ as average, and >9 as adequate knowledge of COVID-19. The third section constituted 8 questions on the attitude

of ophthalmic professionals and was rated using a 5-point Likert scale from “strongly disagree” to “strongly agree”. The attitude was scored by giving 1 to “strongly disagree” and 5 to the “strongly agree” from 8 to 40. Scores ≤ 24 were taken as negative while > 24 were taken as a positive attitude towards COVID-19. The fourth section had six questions on COVID-19 related practices rated on a 5-point Likert Scale: “always”, “mostly”, “sometimes”, “rarely”, and “never”.³⁴⁻³⁶ The practice scale measured from a maximum score of 30 to a minimum score of 6. Scores ≤ 18 were taken as poor practice while >18 were taken as good practice towards COVID-19.

Statistical analysis

The data was collected from google form was imported to Microsoft Excel and then imported to SPSS (SPSS Inc., Chicago, IL, USA, Version 24) for analysis. Descriptive statistics were performed by calculating frequencies and proportions. The knowledge, attitude, and practice scores were calculated from a total of 14, 40, and 30 points, respectively. To identify the significant differences among ophthalmologists, ophthalmic nurses, and optometrists & ophthalmic assistants and their scores on knowledge, attitude, and practice, the Kruskal-Wallis test, and a post hoc test was used.

Results

Demographics of participants

Table (1) showed the socio-demographic parameters of 800 eye care professionals participated in this study, most of them were non-Saudis (84.3%), 52.5% were females, 42% were 20 to 25 years old, 26.4% were in 30 to 35 years, 26.3% in 25 to 30 years range and 5.4% were more than 40 years of age. Region-wise, 36.8% were from Qassim, followed by Eastern (15.9%), Northern (15.8%), Riyadh (15.8%), Al Jouf (5.4%), Najran (5.3%), and Tabuk (5.3%). More than half of the participants were single (78.8%), holding bachelor’s degrees (68.3%), diplomas (15.9%) and master’s degrees (15.9%).

Table: 1: Demographic classification of the respondents

Characteristics	n(%)
Nationality	
• Saudi	126 (15.8)
• Non-Saudi	674 (84.3)
Gender	
• Male	337 (42.1)
• Female	420 (52.5)
• Prefer not to say	43 (5.4)
Age (years)	
• 20-25	336 (42.0)
• 25-30	210 (26.3)
• 30-35	211 (26.4)
• More than 40	43 (5.4)
Region	
• Eastern	127 (15.9)
• Jouf	43 (5.4)
• Najran	42 (5.3)
• Northern	126 (15.8)
• Qassim	294 (36.8)
• Riyadh	126 (15.8)
• Tabuk	42 (5.3)

Characteristics	n(%)
Marital status	
• Single	630 (78.8)
• Married	170 (21.3)
Qualification	
• Ophthalmologist	84 (10.5)
• Ophthalmic assistant	43 (5.4)
• Ophthalmic Nurse	546 (68.3)
• Optometrist	127 (15.9)
Level of education	
• Diploma	127 (15.9)
• Bachelors	546 (68.3)
• Masters	127 (15.9)
Sector	
• Government	380 (47.5)
• Private	420 (52.5)
Source of information on COVID-19	
• World Health Organization	337 (42.1)
• Government sites and media	253 (31.6)
• Social media	126 (15.8)
• News, TV, radio, newspaper	84 (10.5)

n- number of respondents; %- percentage of respondents

Nearly 53% were working in the private sector, 68.3% of participants were ophthalmic nurses, 5.4% were ophthalmologists and 26.4% were optometrists and ophthalmic assistants. Meanwhile, 42.1% of ophthalmic professionals received COVID-19 information from WHO, 31.6% from Saudi government sites and media, 15.8% from social media, and 10.5% from news, television, radio, and newspaper.

Knowledge of ophthalmic HCWs

Eighty nine point five percent and 10.5% scored more than nine and lesser than nine as a score which indicates “adequate” and “average” knowledge, respectively. The knowledge score of these participants was found to be 11.4 ± 2.6 . Eighty-nine-point five percent of ophthalmic HCWS were

well informed of the manifestations of COVID-19 infection, its spread, precautionary measures to prevent the spread by ‘avoiding overcrowded places’, ‘isolating and treating infected people as an effective means of reducing the further spread’, ‘hand hygiene reduces the chances of getting COVID-19 infection, and asymptomatic COVID-19 persons can infect others’.

All of our participants were aware of absence of established therapy available to treat this viral infection during the moment of data collection for our study. Around 95% of respondents revealed that ‘patients with comorbidities are the victims of severe disease course and progression’, 84.1% believed that ‘wearing a face mask is effective in preventing the spread’, 78.9% responded that they were aware of ‘14 days of self-quarantine or quarantine for anyone who is a contact of the person infected with the SARs-CoV-2’, 75% of eye care professionals were aware that ‘conjunctival congestion and conjunctivitis are seen in patients with established COVID-19 infection’, 73.6% were aware that ‘even healthy individuals have to adapt appropriate steps to limit the spread coronavirus’, 68.5% reported that ‘consuming meat or keeping touch with wild animals would not increase the risk of nCoV-19 infection’, 63.1% were aware of gastrointes-

tinal symptoms are seen with COVID-19 infection, and 57.9% were aware that the common symptoms of upper respiratory tract infection are not always seen in coronavirus infected persons'. Table (2) shows the frequency distribution for each knowledge item's responses.

Table 2: Responses to COVID-19 knowledge items

QUESTIONS	True n (%)	False n (%)	Don't know n(%)
The main clinical symptoms of COVID-19 are fever, fatigue, dry cough, shortness of breath and myalgia...	716 (89.5)	84 (10.5)	
Unlike the common cold, stuffy nose, runny nose and sneezing are less commoner symptoms in persons infected with COVID-19 virus	463 (57.9)	337 (42.1)	
Gastrointestinal symptoms such as nausea, vomiting, diarrhea and abdominal pain are part of COVID-19 symptoms?	505 (63.1)	295 (36.9)	
Conjunctivitis and conjunctival congestion are seen in patients with established SARS-COV infection	600 (75)	80 (10)	120 (15)
Currently there is no effective cure for COVID-19, but early symptomatic and supportive treatment can help most patients recover from the infection	800 (100)		
Not all persons with COVID-19 will develop to severe cases. Only those who are elderly, immunocompromised, pregnant people, have chronic illnesses like diabetes, hypertension, etc. and are obese are more likely to be severe cases.	758 (94.8)	42 (5.3)	
Eating or contacting wild animals would results in the COVID-19 infection	210 (26.3)	548 (68.5)	42 (5.3)
Persons with COVID-19 cannot infect the virus to others when he is asymptomatic (i.e., when fever, dry cough or myalgia are not present)	42 (5.3)	716 (89.5)	42 (5.3)
The COVID-19 virus spreads via direct contact of respiratory droplets of infected individuals or indirect contact with contaminated surfaces	716 (89.5)	84 (10.5)	
Ordinary residents can wear general medical masks to prevent the infection by the COVID-19 virus	673 (84.1)	43 (5.4)	84 (10.5)
It is not necessary for children and young adults to take measures to prevent the infection by COVID-19 virus	127 (15.9)	589 (73.6)	84 (10.5)
To prevent the infection by COVID-19, individuals should avoid going to crowded places such as malls, restaurants, train stations and taking public transportations	716 (89.5)		84 (10.5)
Isolation and treatment of COVID-19 infected people are effective ways to reduce the spread of the virus	716 (89.5)		84 (10.5)
People who have contact with someone infected with COVID-19 virus should be immediately isolated in a proper place. In general, the observation period is 14 days?	631 (78.9)	85 (10.6)	83 (10.4)
Washing hands with water and soap or rubbing hands with alcohol-based hand sanitizer regularly can reduce the chances of getting infected with COVID-19?	716 (89.5)		84 (10.5)

n- number of respondents; %- percentage of respondents

Table 5: Comparison between level of qualification of the ophthalmic HCWs and their knowledge, attitude and practice

Characteristics	Study group	p-value
Total score on knowledge	Ophthalmals- Optoms /Ophthalm.assistants	0.03
	Nurses - Optoms/ophthal. assistants	0.000
	Ophthalmals - Nurses	0.312
Total score on attitude	Ophthalmals- Optoms /Ophthalm.assistants	0.001
	Nurses - Optoms/ophthal. assistants	0.000
	Ophthalmals - Nurses	0.137
Total score on practice	Ophthalmals- Optoms /Ophthalm.assistants	0.04
	Nurses - Optoms/ophthal. assistants	0.000
	Ophthalmals - Nurses	0.156

Ophthalmals-Ophthalmologists; optoms-Optometrists, Ophthalm. Assistants-Ophthalmic assistants.

All the participated ophthalmologists (5.5%) were shown to have “adequate” knowledge about COVID-19 i.e., >9 with an average score of 11.9 ± 0.2 , and all ophthalmic nurses (68.3%) also reported to have adequate knowledge with an average score of 12.5 ± 0.7 ; whereas optometrists and ophthalmic assistant group (26.4%) showed mean knowledge score of 8.4 ± 3.6 ; 39.8% showed average knowledge score from 4 to 9 and 60.2% showed adequate knowledge score of >9. (Figure 2)

3.3 The attitude of ophthalmic HCWs towards COVID-19: Overall, 89.7% of participants scored >24, showing a good attitude, with a mean score of 36.3 ± 6.8 . The majority of the eye care professionals (>89%) believed that KSA could mitigate the impact of COVID-19 successfully, the eye care specialty clinics have provided precautionary measures to safeguard their HCWs and patients from the risk of SARS-CoV-2 infection, its HCW’s duty to abide

MOH’s infection control practices, using a face mask is mandatory to prevent COVID-19 spread. Nearly 79% agreed that it is necessary to reveal recent travel history before reporting back to work even though he/she doesn’t have any symptoms (Table 3). All the participated ophthalmologists (5.5%) were shown to have a positive attitude about COVID-19 i.e., >24 with an average score of 39.9 ± 0.2 , and all ophthalmic nurses (68.3%) also reported to have a positive attitude with an average score of 38.6 ± 2.4 ; whereas optometrists and ophthalmic assistant group (26.4%) showed a positive attitude with a mean score of 29.6 ± 9.3 . (Figure 2)

Practice and risk assessment among ophthalmic HCWs:

Nearly 90% of ophthalmic healthcare professionals (HCPs) scored >18 and showed better practices towards disease management with the mean score of 25.6 ± 4.3 ; staying home and away from others as

Table 3: Responses to COVID-19 related attitude Questions

Attitude	Agree n (%)	Disagree n (%)	Neutral n (%)
Do you agree that COVID-19 will finally be successfully controlled?	632 (79)	42 (5.3)	126(15.8)
Do you have confidence that Saudi Arabia can win the battle against the COVID-19 virus?	716(89.5)	84 (10.5)	
Are you aware about measures taken by your hospital to address COVID-19 pandemic?	674 (84.3)	126 (15.8)	
You believe that your hospital has taken all the necessary protective measures to protect healthcare providers and patients from getting infected with COVID-19	716 (89.5)	84 (10.5)	
You feel that you have social responsibility to protect the public health by following Ministry of health's recommendations to decrease the spread of COVID-19	716(89.5)		84 (10.5)
Do you feel there is no need to declare recent travel history before reporting back to work if you don't have any symptoms?	84 (10.5)	632 (79)	84 (10.5)
Do you think that you can't be a virus carrier if I don't have symptoms of fever or cough?	84 (10.5)	632 (79)	84 (10.5)
Do you think wearing a well-fitting face mask is effective in preventing COVID-19?	716(89.5)		84 (10.5)

n- number of respondents; %- percentage of respondents

much as possible and washing their hands before and after handling each patient. More than 84% of participants reported that they always worn a mask while going out and during their working hours in the clinics, and aware of visual triage score from MOH for COVID-19; 63.3% practicing of not going to any crowded places, whereas 26.3% have shown the practice of going to crowded places and 10.5% reported they rarely go to crowded places. Five-point three percent participants were not practicing mask wear and 10.4% reported rarely uses masks while at work and out of home, 10.5% were rarely practicing social distancing, rarely washing/disinfecting hands before and after handling each patient, and rarely avoid seeing any

symptomatic patients. More than 55% of participants showed a practice of avoiding patients with COVID-19 signs and symptoms whereas 31.8% reported that they never avoid treating patients who present with COVID-19 (Figure 1).

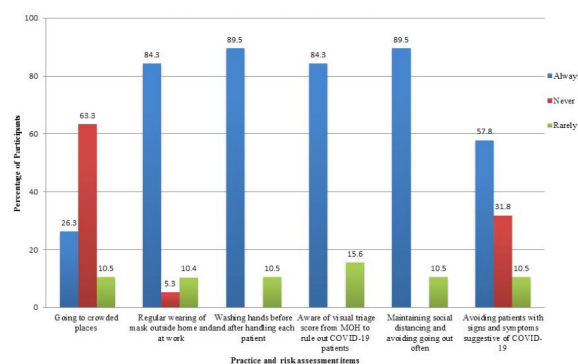


Figure 1: Practice of respondents towards COVID-19

All the participated ophthalmologists (5.5%) were showed better practices towards disease management i.e., > 18 with a mean score of 25.9 ± 0.1 -19 and all oph-

thalmic nurses (68.3%) also reported to have better practice score with an average score of 26.9 ± 1.7 ; whereas optometrists and ophthalmic assistant group (26.4%) showed better practicing patterns against COVID-19 with a mean score of 22.0 ± 6.7 (Figure 2).

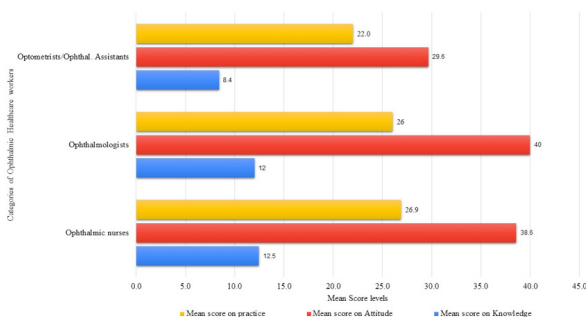


Figure 2: Mean scores on knowledge, attitude and practices of ophthalmologists, ophthalmic nurses and optometrists and ophthalmic assistants

The intergroup analysis was done using the Kruskal-Wallis test which showed significant difference in knowledge, attitude, and practice scores among ophthalmologists, ophthalmic nurses, optometrists, and ophthalmic assistants as shown in Table 4. Overall, the ophthalmic nurses and ophthalmologists groups achieved significantly greater average scores on awareness compared to the optometrists and ophthalmic assistants as shown in figure (2), whereas no difference in average awareness scores was noted between ophthalmologists and ophthalmic nurses (Table 4).

Table 4: Responses to COVID-19 related practices

Practice	Always n (%)	Never n (%)	Rarely n(%)
In the recent days, have you gone to any crowded place?	210 (26.3)	506 (63.3)	84 (10.5)
In the recent days, have you worn a mask when leaving home and when in contact with patients?	674 (84.3)	42 (5.3)	83 (10.4)
In the recent days, have you washed your hands before and after handling each patient?	716 (89.5)		84 (10.5)
Are you aware about visual triage score from Ministry of Health MOH to triage patients of COVID-19?	674 (84.3)		125 (15.6)
Are you practicing social distancing and avoiding going out unnecessarily?	716 (89.5)		84 (10.5)
In the recent days, have you avoided patients with signs and symptoms suggestive of COVID-19?	462(57.8)	254 (31.8)	84 (10.5)

n- number of respondents; %- percentage of respondents

Discussion

Our study has shown that the majority (90%) of ophthalmic HCPs in Saudi Arabia possessed better awareness about COVID-19, optimistic attitude and good practice of preventive measures during this pandemic. These findings are as per

the previous studies conducted on other HCPs regarding their awareness about COVID-19³⁷⁻⁴². Current study found that there is better awareness (with the knowledge score >9) about COVID-19 causes and prevention among all ophthalmolo-

gists (average score of 11.9 ± 0.2) and all ophthalmic nurses (average score of 12.5 ± 0.7) when compared with optometrists and ophthalmic assistants (60.2% showed an adequate knowledge score of > 9). Similarly, Ekpenyong et al. (2020)⁴³ showed that “eye care professionals who work under healthcare setup were more knowledgeable compared to opticians” in Nigeria⁴³. Nearly 58% of eye care practitioners expressed a lack of confidence in providing eye care services to the patients with manifestations suggestive of COVID-19 hence they mentioned that they will always avoid seeing patients with COVID-19 suspicion. Similarly, a study from Nigeria reported that “more than half of the ophthalmic practitioners showed lack of confidence in caring for patients at risk of COVID-19”⁴³. COVID-19 related awareness was identified to be higher among HCPs in Nigeria and China as well as the public^{42,43}. In contrast, a study conducted on 100 eye care practitioners in the UK during the time of WHO’s announcement of coronavirus outbreak as a pandemic showed “lack of knowledge and understanding of Public Health guidelines related to COVID-19 which might be due to the time of the study conducted in the UK”⁴⁴. When compared with the UK study, our study found higher (55% Vs 89.5% with the difference of 34.5%) knowledge scores among ophthal-

mic HCPs, and this could be due to time of study conduction and the time gap has allowed respondents to increase their experience and extent of awareness about COVID-19 which in turn demonstrated greater awareness scores as found in Nigeria⁴³.

SARs-CoV-2 can spread through the ocular mucous membrane via indirect contact with droplets. Ophthalmic HCPs are vulnerable to SARS-CoV-2 infection because of unprotected eye contact during slit-lamp examination, direct ophthalmoscopy which is usually done with close doctor-patient contact⁴⁵. It was postulated that “different types of novel coronavirus are found in the tears and conjunctival secretions of COVID-19 pneumonia patients with conjunctivitis and these secretions may pose a significant risk of virus transmission”²⁸⁻³¹. Seventy-five percent of our participants were aware that conjunctivitis and congestion are seen in patients with established SARS-CoV-2 infection, whereas a study conducted among eye care professionals in Nepal reported that 94% of participants were aware that conjunctivitis is the commonly outlined ocular manifestation of SARS-CoV-2 infection⁴⁶.

Ophthalmic HCPs should keep SARS-CoV-2 in mind and be cautious while examining conjunctivitis patients as there may be a risk of infection spread. Therefore, knowledge about conjunctivitis and

conjunctival congestion is important hence they are at risk of being exposed to the virus is high if they don't take adequate precautionary measures ⁴⁵. There are several guidelines on how to adjust practice to prevent the virus spread in a clinical setup, but still, the evidence is limited. However, ophthalmic HCWs will have to adapt and make use of the best for their clinical practice. Nearly 90% of participants had an adequate awareness level regarding the COVID-19 pandemic. This level of higher awareness could be attributed to the participants' educational status i.e., 68.3% of eye care professionals have bachelor's degree, 15.9% were having master's degree and also due to the comprehensive health awareness promotions launched by the Saudi MOH. In Saudi Arabia, 84.3% of eye care professionals were wearing face masks during work and when they go outside, washing and disinfecting hands were reported by 89.5% of study participants. A survey conducted in Germany, Austria and Switzerland among optometrists and opticians showed that 75% are planned to wear masks, 62% were expected their patients to wear masks and in addition to hand washing, 90% would like to disinfect their hands ⁴⁷.

Our participants reported that they strictly follow the recommendation of at least 20 seconds of hand wash practice suggested

by the CDC and WHO ⁹. The COVID-19 precautionary guidelines issued by MOH, Saudi Arabia were followed by all who worked in private and public sectors. Our study showed that WHO and Saudi MOH websites are reliable source of COVID-19 information for the eye care professionals. Al Nasser et al. (2021) reported that "well-versed knowledge related to COVID-19 indicated that Saudi governmental health websites are an important source of health information for the public as well as HCWs" ⁴⁸. Study conducted in Egypt, North-Central Nigeria, India and Ethiopia, showed that internet/social media and television/radio are the most common sources of information about this pandemic ^{48, 49}. This good knowledge and positive attitude of most of our study participants could be attributable to the intensive health awareness promotions launched by the MOH, KSA ⁵⁰. Limitation of this study was the low number responses from optometrists and ophthalmic assistants were lower than estimated from the MOH registry, and this could affect the responses and scores obtained from this group. The strength of this study is that it obtained the responses from all the cadres of ophthalmic HCWs who were involved in the eye care services delivery during the lockdown and curfews in Saudi Arabia. If the general awareness of ophthalmic HCWs is not addressed, it may

cause these cadre professionals and their patients at risk of contracting the novel coronavirus infection during consultation.

Conclusion:

Acceptable levels of awareness about COVID-19 were seen from ophthalmic HCPs, particularly ophthalmic nurses of Saudi Arabia. The results also demonstrated that eye care professionals seek information from WHO and MOH, Saudi Arabia. Compliance with precautions for infection control needs to be emphasized which can be achieved through comprehensive educational programs. This study provides an insight into the COVID-19 pandemic awareness among eye care professionals even though they are not front-line essential HCPs during the early stages of lockdown and curfew, in Saudi Arabia.

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Conflicts of interest:

The author has no conflicts of interest to declare.

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Case Report :

A Case Report of Idiopathic Mesenteric panniculitis in the Youngest Saudi Male

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Abstract

Mesenteric panniculitis is a chronic disorder that belongs to a spectrum of rare diseases or tumor-like lesions that thickens and shortens the mesentery. There is no direct cause for mesenteric panniculitis, but it may be precipitated by some conditions such as malignancy, previous ab-dominal surgery, and infections. It has a male predominance with a 0.6% prevalence and a positive correlation with an increase in age. Mesenteric panniculitis has various stages depending on the pathological change present. The stage of mesenteric panniculitis governs the manifestations presented on the patient. However, it is often silent with no symptoms. 30-50% of patients will remain asymptomatic throughout the course of the disease and require no treatment, as the indication of treatment is developing symptoms. A computed tomography scan is the most sensitive method for the diagnosis of mesenteric panniculitis. On the other hand, histopathology is the most specific.

Out of all the reported cases, this is the youngest Saudi male that presented with idiopathic mesenteric panniculitis. A 25 year-old male presented to the emergency department with abdominal pain for two days. At presentation, he was on severe abdominal pain, afebrile, hemodynamically stable apart from mild tachycardia. Abdominal examination revealed significant tenderness at the epigastric and left upper abdomen. The patient was admitted and treated accordingly. We hope this case could demonstrate the importance of careful assessment by the treating physician. Further studies about the most suitable treating regimen in such conditions of mesenteric panniculitis are needed, as it carries a risk for neoplastic changes.

Keywords:

Mesenteric panniculitis, Abdominal pain, Saudi Arabia.

Background:

Mesenteric panniculitis (MP) is a persistent long-standing disorder among a range of uncommon maladies or tumor-like le-

sions that provoke compression and thickening of the mesentery. It is characterized by the involvement of the inflammation, necrosis, or fibrosis process affecting the

adipose tissue of the bowel mesentery¹.

Case Report:

A 25-year-old Saudi male presented to the emergency department with severe abdominal pain for two days. At presentation, he was in a significant amount of abdominal pain, afebrile, hemodynamically stable apart from mild tachycardia. Abdominal examination showed significant tenderness with superficial palpation mainly at epigastric and left upper abdomen.

Initial laboratory investigations revealed a mild leukocytosis with predominant neutrophils. Normal lipase, liver, and kidney functions. Abdominal ultrasounds showed no significant pathology. Computed tomography (CT) abdomen/pelvis with contrast showed a focal area of mesenteric panniculitis seen at the left upper abdomen [Fig. 1].

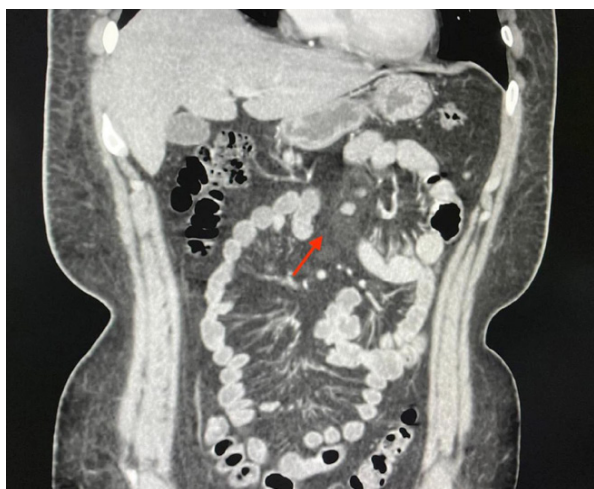


Fig. 1 CT abdomen/pelvis with contrast showed a focal area of mesenteric panniculitis seen at the left upper abdomen (red arrow).

The patient was then admitted and started intravenous fluids, morphine, in addition to oral prednisone 40 mg daily with a taper schedule every week by 5 mg. His pain has improved over 48 hours and was discharged home on day 3. Complete work-up including gastroscopy and colonoscopy with biopsies were normal.

The main diagnostic mark in MP is the increased density of the mesenteric fat tissues compared with retroperitoneal and subcutaneous fat. Other signs in a CT scan that can support the diagnosis include fat ring sign, tumoural pseudo-capsule, and small soft-tissue nodules. In this patient, the diagnosis was made based on clinical symptoms and the presence of classic CT findings that include¹ the increased density of the mesenteric fat tissues compared with retroperitoneal and subcutaneous fat and² the small soft tissue nodules.

Follow-up in the clinic in 1 and 2 months showed completed resolution of his symptoms apart from a relapse of symptoms that happened in two weeks following discharge and lasted 24 hours.

Discussion:

There is a variety of rare diseases or tumor like lesions that condense and shorten the mesentery, one of them is mesenteric panniculitis. It affects the small-bowel mesentery in more than 80% of the cases, yet sometimes it affects the sigmoid mes-

entry. However, in some cases, it influences the sigmoid mesentery. Besides, on uncommon occasions, it may implicate the mesocolon, omentum, retroperitoneum, peripancreatic locale, or the pelvis¹⁻².

The disease, as demonstrated by numerous studies, is predominant in men, with a male/female proportion of 2-3:1, and numerous reports indicated that Caucasian men to be more commonly affected. Its prevalence is around 0.6%. Its incidence rises with the increase of age, most likely due to the few mesenteric contents of fats that children have compared to adults¹⁻³. In Saudi Arabia, Meshikhes AW has reported a case of secondary MP in a 26-year-old Saudi male who presented with abdominal pain from the east region⁴, which makes this is the first reported case of the youngest Saudi male with idiopathic MP in the central region.

The stage of the disease will determine the clinical presentations of the patient, but it is often asymptomatic and remains asymptomatic in 30 to 50% of cases¹.

When the patients are symptomatic, they may present with anorexia, nausea, vomiting, diarrhea, constipation, or weight loss, and most individuals commonly present with abdominal pain^{5,6}. On some occasions, indistinct single or multiple palpable abdominal masses can be revealed during physical examination⁷.

Further presentations include features of Crohn's disease, fever of unknown origin, chylous ascites, Schonlein-Henoch disease, and multiple mesenteric lymphatic cysts⁷.

Among a broad diversity of manifestations, differential diagnosis comprises a great number of diseases; hence, careful and prompt assessment is strongly advised by the treating practitioner⁸.

The cause of MP is unknown and may be due to some other conditions such as malignancy, previous abdominal surgery, autoimmune diseases, infections, and gall stones³.

The best modality for the diagnosis of MP is abdominal CT, as it is the most sensitive. However, the specificity of CT is limited due to the extensive differential diagnosis of the lesion³. Sonography is not specific but may aid in diagnosing MP³.

The diagnosis of MP is always established by histopathology¹.

The main pathological change will determine the phase, as there are three subsequent phases; 1st phase fat necrosis (mesenteric lipodystrophy type), 2nd phase dense inflammatory infiltrate with necrosis (MP type), last phase fibrosis (sclerosing mesenteritis type)⁹.

The most observed and documented cases on MP showed regression of the disease without medical treatment; nevertheless,

there are a rational number of MP patients who developed neoplastic change. However, if the patient diagnosed with MP presented with symptoms, medical management here is indicated whether if they developed fibrosis or not^{3,5,8}. Examples of treatment agents that are documented to be effective in case reports in symptomatic patients are steroids, colchicine, nonsteroidal anti-inflammatory drugs (NSAID), antibiotics, cyclophosphamide, tamoxifen, azathioprine, and radiotherapy. Yet, there are lack of unity on treatment regimen and significant clinical trial to identify the efficacy of frequent agents that are used^{1,6,10}.

Conclusion:

Even though MP presents with various different manifestations, which mimic a great number of diseases it has a fortunate and benign sequel, nevertheless, there are a rational number of MP patients who developed neoplastic change. This demonstrates the importance of careful assessment by the treating physician in patients suffering from MP. However, there is a lack of both unities on treatment regimen and significant clinical trial to identify the efficacy of frequent agents that are used. Further studies about the most suitable treatment regimen in such conditions are needed.

Conflict of Interest

The authors declare that there is no conflict

of interest.

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Case Report :

Alopecia areata incognito misdiagnosed as androgenetic alopecia– A Case Report

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Abstract

Alopecia areata is non-scarring alopecia that is characterized classically by rapid onset hair loss. It is a hair-specific autoimmune disease characterized by dense lymphocytic infiltrate around the hair follicle. The average lifetime risk of developing this disease is approximately 1.7%. The causative and triggering factors for alopecia areata are not clear yet. Notable variations in the clinical presentation of alopecia areata have been observed, ranging from well-demarcated hair loss patches to a complete absence of scalp hair or even total body hair. Alopecia areata incognito is an uncommon variant of alopecia areata. It is characterized by acute diffuse shedding of telogen hairs in the absence of typical alopecic patches. The prevalence of alopecia areata incognito is unknown, but the disease is more prevalent in females. Clinically it can resemble telogen effluvium or androgenetic alopecia, The presence of numerous yellow dots and short regrowing hairs are the main dermoscopic features of alopecia areata incognito. It requires high clinical suspicion and histopathological correlation is essential. The present case is a fifty-four years old Saudi female that has been diagnosed and treated as female pattern androgenetic alopecia for the past eight years with no improvement. Attended our clinic, a comprehensive medical history and physical examination were done, followed by scalp biopsy to diagnose her condition and exclude other causes of diffuse alopecia. The histopathological report revealed alopecia areata histopathology. A clinical correlation of alopecia areata incognito was made and treated accordingly.

Keywords:

Alopecia areata incognito, Saudi female with hair loss, Diffuse alopecia, Trichoscopy.

Introduction:

Alopecia areata (AA) is non-cicatricial alopecia characterized by hair loss with no clinical inflammation of the scalp. It is one of the most common forms of hair loss, and it accounts for 25% of all cases of alopecia¹. The prevalence of AA among the general population was estimated to be 0.1-0.2%, and the average lifetime risk of developing this disease is approximately 1.7%². The diagnosis of alopecia is performed clinically by examination and dermoscopy, also known as trichoscopy, which is useful in diagnosing of doubtful cases. It is recommended to do a scalp biopsy if the diagnosis was not clear³.

Other conditions can mimic AA, such as Telogen effluvium, Androgenetic alopecia, Congenital triangular alopecia, Pressure alopecia, and Traction alopecia³. Alopecia areata incognita/ incognito (AAI) is an uncommon variant of alopecia areata, which was firstly described by Rebora, and is characterized by a diffuse shedding of telogen hair across the scalp leading to thinning of the whole scalp with no bald patches⁴.

Review of literature

Alopecia areata incognita/ incognito (AAI), also known as diffuse alopecia areata, is a distinctive form of alopecia areata described mainly in young females,

especially those between 20-40 years old, with a prevalence of 86%⁵. AAI is characterized by widespread thinning of the scalp and lacks the typical patches of AA⁶⁻⁷; however, few AAI patients might develop typical patches of AA concomitantly or subsequently. The pathophysiology of AAI is unknown⁷.

Trichoscopy is an increasingly used bedside test to facilitate the diagnosis; nonetheless, histological examination is the gold standard test to confirm it and differentiate between AAI and other mimicker conditions⁷. Yellow dots and short regrowing hairs are constant signs in dermoscopy of AAI, which support the diagnosis; the yellow dots in AAI affect 70% of follicles, and it has been characterized by its uniform distribution⁵. There are several histopathological features of AAI, 91.3% of cases show dilated infundibular openings plugged with keratin and sebum, 50% has follicular inflammatory infiltrate, a non-cicatricial pattern with a preserved number of follicular units, a decreased number of terminal follicles, increased number of telogen follicles and vellus follicles^{5,8}.

The treatment of AAI involves using systemic and/ or topical steroids, which showed good response in most cases^{5,8}.

Case presentation

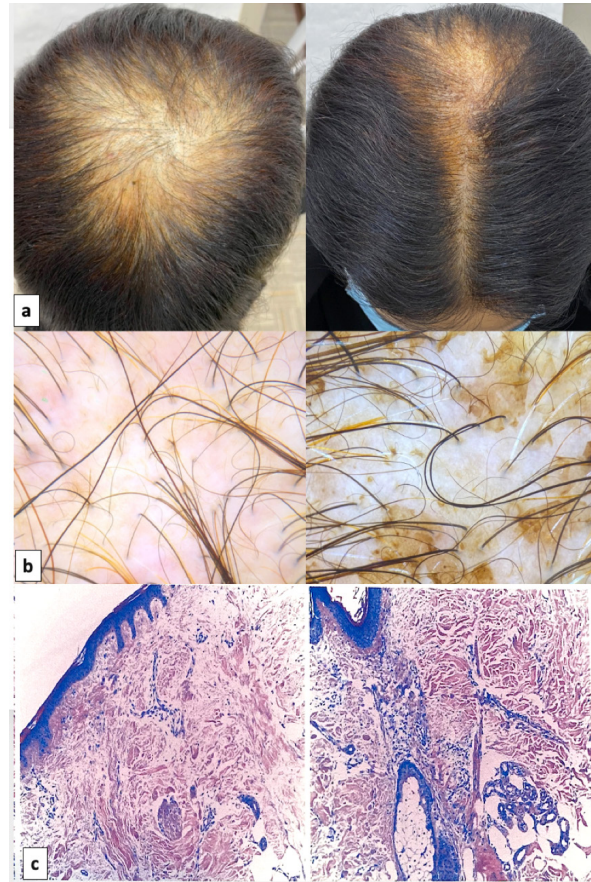
A 54-years old Saudi housewife presented

to our dermatology clinic suffering progressive thinning of the vertex area over eight years. She has been seen by many physicians and was treated as female patterned hair loss with inconsistent use of topical minoxidil. The patient did not notice any significant improvement, and she tried herbal treatments such as Henna, hoping to get thicker hair and dye the bursting gray hair. The patient is medically free, taking no medication, and having an unremarkable surgical history. She reported no scalp symptoms such as itching, scales, or pain. She had normal nails and mucous membranes.

Examination and diagnosis

Upon examination, a diffuse thin area over the vertex with variable hair length mainly, vellus and short, numerous visible follicular openings over a background of orange stain on the scalp, which was from the Henna dye (figure 1a). On trichoscopy, variable hair thickness, numerous short vellus hairs, tapering hair (exclamation signs), and yellow dots was seen (figure 1b). A 4-mm scalp biopsy for Hematoxylin and Eosin (H&E) was taken from the vertex to confirm the diagnosis and rule out other diffuse alopecia causes. The results came back consistent with alopecia areata showing peritubular lymphoid cell infiltrate, all hair follicles were in telogen phase and

some anagen-like nanogen hair follicles with no central hair shaft (figure 1c).



Treatment

A signed procedural and photography consent was obtained prior to the treatment. Intralesional triamcinolone acetonide 5mg/cc with minoxidil 5% were initiated as the first step in the management. After two months, mild improvement occurred; a 10mg/cc of intralesional triamcinolone acetonide and topical bimatoprost 0.03% nightly solution was added to the regimen. After six months patient showed apparent improvement on both clinical and trichoscopic scales.

Discussion

Alopecia Areata (AA) is non-cicatricial form of acute hair loss, it is not associated with clinical inflammation³. Alopecia areata incognito (AAI) is a rare variant of alopecia areata; it is more common among females⁴.

In the present case, a 54-years old female was suffering chronic diffuse hair thinning of the crown area over eight years treated as female pattern hair loss showed poor response to topical minoxidil; she did not develop any inflammatory signs in the scalp. These findings raise suspicion of AA. However, AA may involve nail changes in 29% of adults³ and commonly affects young individuals, whereas our patient had neither nail nor mucosal membrane changes. AAI is more commonly affects the older age group the contrary to AA⁹. Her inadequate response to the treatment, diffuse distribution, and dermoscopic features raised the suspicion to challenge the diagnosis.

Currently, it has been shown how Trichoscopy could improve diagnostic skills in hair disorders. Features for AA involve black and yellow dots, dystrophic hair, short vellus hairs, and tapering hair. The combination of these features helps detect challenging cases such as AAI³. In AAI cases, the dystrophic broken hair, a typical feature of acute AA, is usually absent⁸.

Our patients lack any features of dystrophic broken hairs, which implying more toward AAI. However, a biopsy was taken to confirm the diagnosis.

The treatment of AA is a multistep approach. Numerous therapeutic options are available, and several can be utilized in combination. It depends on the type, severity of AA, age of the patient, and current medical condition; corticosteroids are the mainstay therapy for AA³. Intralesional corticosteroids have been used since 1958 to treat AA, and it is the first choice for the patchy AA in adults with a response rate above 65%¹⁰. Minoxidil is a medication used for stimulating the proliferation and enhances hair regrowth; it is used in combination with corticosteroids, has a synergistic effect, and improves the results¹¹. Therefore, our patient was initiated on the first line of treatment ladder for alopecia areata, with a 4–6 week follow-up to evaluate and modify her response as there is no clear treatment guideline for alopecia Areata incognito^{3,12}.

Conclusion

Alopecia Areata incognito is an uncommon variation of Alopecia areata, and physicians need to consider it in their differential diagnosis of unresponsive diffuse form of scalp alopecia.

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GUIDELINES FOR MANUSCRIPT PREPARATION

A. TYPES OF MANUSCRIPTS

I. ORIGINAL MANUSCRIPTS

Manuscripts submitted in this category are expected to be concise, well organized, and clearly written. The maximum length is 5000 words, including the abstract, references, tables, and figure legends. The maximum length is 5000 words, including the abstract, references, tables, and figure legends.

- The structured abstract must not exceed 250 words.
- The title must not exceed 130 characters.
- A maximum of 4 tables and 4 figures is allowed.
- References should not exceed a maximum of 100.
- The abstract must be organized as follows:
- Background & Aims
- Methods
- Results
- Conclusions
- Do not use abbreviations, footnotes or references in the abstract.
- An electronic word count of the abstract must be included.
- Three to ten key words at the end of the abstract must be provided.

The manuscript must be arranged as follows:

- Title page
- Abstract
- Introduction
- Materials and methods (or Patients and methods)
- Results
- Discussion
- Acknowledgements
- References
- Tables
- Figure legends
- Figures

Acceptance of original manuscripts will be based upon originality and importance of the investigation. These manuscripts are reviewed by the Editors and, in the majority of cases, by two experts in the field. Manuscripts requiring extensive revision will be at a disadvantage for publication and will be rejected. Authors shall be responsible for the quality of language and style and are strongly advised against submitting a manuscript which is not written in grammatically correct English. The Editors reserve the right to reject poorly written manuscripts even if their scientific content is qualitatively suitable for publication. Manuscripts are submitted with the understanding that they are original contributions and do not contain data that have been published elsewhere or are under consideration by another journal.

II. REVIEW ARTICLES

Review articles on selected clinical and basic topics of interest for the readers of the Majmaah Journal of Health Science will be solicited by the Editors. Review articles are expected to be clear, concise and updated.

- The maximum length is 5000 words, excluding the summary, references, tables, and figures.
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- The inclusion of a maximum of 4 high-quality tables and 4 colored figures to summarize critical points is highly desirable.
- Review articles must be accompanied by a title page and a summary.

- Reviews should include at least one Key Point Box, with a maximum of 5 bullet points, that briefly summarizes the content of the review.

Review articles are reviewed by the Editors and may be sent to outside expert reviewers before a final decision for publication is made. Revisions may be required.

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This section consists of invited brief editorial comments on articles published in the Majmaah Journal of Health Science

The length of an editorial should not exceed 1500 words, excluding references.

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Case reports would be only accepted if they represent an outstanding contribution to the Etiology, pathogenesis or treatment of a specific condition.

- The maximum length is 3000 words, including the summary and references.
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V. LETTERS TO THE EDITOR

Letters to the Editor will be considered for publication if they are related to articles published in recent issues of Majmaah Journal of Health Science. Occasionally, Letters to the Editor that refer to articles not published in Majmaah Journal of Health Science will be considered.

The length of a Letter to the Editor should not exceed 800 words.

- A maximum of 1 table or 1 figure is allowed.
- References should not exceed a maximum of 10.
- No more than 4 Authors may appear in the author list.

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International commentaries will be solicited by the Editors only.

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- A maximum of 1 table or 1 figure is allowed.
- References should not exceed a maximum of 10.
- A title page must be provided.

B. MANUSCRIPT SUBMISSION

ORGANIZATION OF THE MANUSCRIPT

- The submitted manuscript must be typed double-spaced throughout and numbered (including references, tables and figure legends). Preferably using a "standard" font (we prefer Times/Arial 12).
- For mathematical symbols, Greek letters, and other special characters, use normal text. The references must be in accordance with the Vancouver reference style (see References).
- Approved nomenclature for gene and protein names and symbols should be used, including appropriate use of italics (all gene symbols and loci, should be in italics) and capitalization as it applies for each organism's standard nomenclature format, in text, tables, and figures.
- Full gene names are generally not in italics and Greek symbols are not used. Proteins should not be italicized.
- Improperly prepared manuscripts will not be entered into the peer review process and will be sent back to the author for correction.

TITLE PAGE MUST CONTAIN:

- A title of no more than 130 characters.

- Running title (not to exceed 60 characters)
- Names of the Authors as it should be published (first name, middle initial, last name)
- Affiliations of all authors and their institutions, departments, or organizations (use the following symbols in this order to designate authors' affiliations: *, †, ‡, §, ¶, ||, #, **, ††, ‡‡, §§, ¶¶, || ||, ##).
- Name, address, telephone and fax numbers, and electronic mail address of the corresponding Author.
- Electronic word count.
- Number of figures and tables.
- List of abbreviations in the order of appearance.
- Conflict of interest.
- Financial support.

Animal trials: Manuscripts reporting experiments using animals must include a statement giving assurance that all animals received human care and that study protocols comply with the institution's guidelines. Statistical methods used should be outlined.

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1. Informed consent was obtained from each patient included in the study and
2. The study protocol conforms to the ethical guidelines of the 1975 declaration of helsinki as reflected in a priori approval by the institution's human research committee.

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References must be in accordance with the Journal of Hepatology reference style. References are ordered as they appear in the text and citation numbers for references are placed between "brackets" (" []") in the text as well as in the reference list.

Authors should be listed surname first, followed by the initials of given names (e.g. Bolognesi M). If there are more than six authors, the names of the first six authors followed by et al. should appear.

Titles of all cited articles are required. Titles of articles cited in reference list should be in upright, not italic text; the first word of the title is capitalized, the title written exactly as it appears in the work cited, ending with a full stop. Journal titles are abbreviated according to common usage, followed by Journal years, semicolon (;) before volume and colon (:) before full page range (see examples below).

All articles in the list of references should be cited in the text and, conversely, all references cited in the text must be included in the list.

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An example of how references should look within the text:

"HVPG was measured by hepatic vein catheterization using a balloon catheter according to a procedure described elsewhere [14, 15] and used as an index of portal hypertension [16]."

An example of how the reference list should look:

[14] Merkel C, Bolognesi M, Bellon S, Zuin R, Noventa F, Finucci G, et al. Prognostic usefulness of hepatic vein catheterization in patients with cirrhosis and esophageal varices. *Gastroenterology* 1992;102:973-979.

[15] Groszmann RJ, Wongcharatrawee S. The hepatic venous pressure gradient: anything worth doing should be done right. *Hepatology* 2004;39:280-282.

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A maximum of 4 figures is allowed

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- Include tables in the submitted manuscript as a separate section.

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- Figure legends should be listed one after the other, as part of the text document, separate from the figure files.
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(i.e. "Fig. 1."). Every figure legend should have a Title written in bold.

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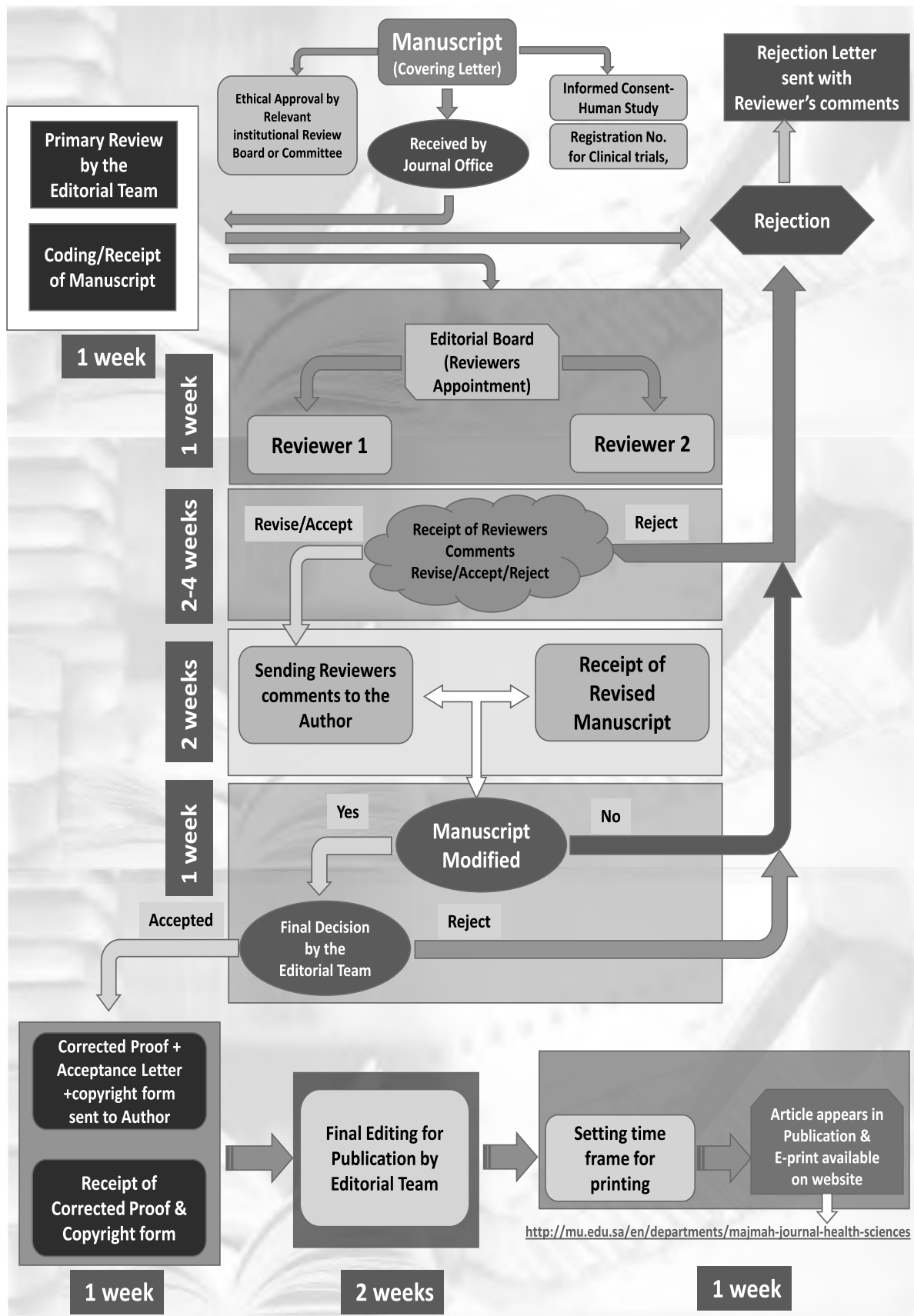
The manuscripts should include a complete and detailed description of what was done. This includes a description of the design, measurement and collection of data, the study objective and major hypotheses, type and source of subjects, inclusion and exclusion criteria and measures of outcome, number of subjects studied and why this number was chosen. Any deviation from the study protocol should be stated. The baseline characteristics of any compared groups should be described in detail and -if necessary -adjusted for in the analysis of the outcome.

For randomized clinical trials the following should also be clearly documented: treatments, sample size estimation, method of random allocation and measures taken for maintaining its concealment including blinding, numbers treated, followed-up, being withdrawn, dropping out, and having side effects (numbers and type). The statistical methods used should be relevant and clearly stated. Special or complex statistical methods should be explained and referenced.

Complex analyses should be performed with the assistance of a qualified statistician. Unqualified use of such analyses is strongly discouraged. The underlying assumptions of the statistical methods used should be tested to ensure that the assumptions are fulfilled.

For small data sets and if variable distributions are non-normal, distribution free (non-parametric) statistical methods should be used. The actual p values - whether significant or not - should always be presented (not NS). Confidence intervals convey more information than p values and should be presented whenever possible. Continuous variables can always be summarized using the median and range which are therefore preferred. Only in the infrequent case of a Normal distribution are the mean and standard deviation (SD) useful. Complex analyses (including Cox and logistic regression analysis) should be presented in sufficient detail: i.e. variable scoring, regression coefficients, standard errors and any constants. Odds-ratios or relative risks are not sufficient documentation of such analyses. The handling of any missing values in the data should be clearly specified. The number of statistical tests performed should be kept at a minimum to reduce spurious positive results. Explorative (hypothesis generating) analyses without confirmation using independent data are discouraged. Figures showing individual observations e.g. scatter plots are encouraged. Histograms may also be useful. Tables should indicate the number of observations on which each result is being based





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