



RESEARCH ARTICLE

CELIAC DISEASE AWARENESS AMONG PHYSICIANS IN SAUDI ARABIA: AN EPIDEMIOLOGICAL STUDY.

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Abstract

Background: Although Celiac disease (CD) prevalence has progressively increased in the last 20 years worldwide, affecting as high as 2.5% of population in Saudi Arabia, the level of physician's knowledge of this disease has not been reported.

Objective: The aim of this study is to assess the knowledge of CD among Saudi physicians who face this common health problem in their clinics.

Methodology: We conducted this cross-sectional survey of 286 consultant physicians within 6 medical subspecialties and were based in 6 different medical centers in Riyadh, Saudi Arabia in the period from October 2013 to February 2014. A special questionnaire to test physician's knowledge of celiac disease was designed based on the relevant literature, and it was validated through a pilot study prior to data collection.

Results: In the physician survey only 131 (46%) physicians returned the questionnaires. The majority of our respondents had more than 10 years of practice (49.62%). There were several significant findings from the participants' response to the questionnaire. For example, Celiac disease is common in the west as in Saudi Arabia but only 23 (17.56%) out of 131 were not aware of this fact. Furthermore, 29 (22.14%) out of the 131 physicians did not know that intestinal biopsy is a mandatory test to confirm celiac disease.

Conclusion: There is a significant percentage of physicians who did not have enough knowledge about CD. This might affect the early detection of the disease and the patients' quality of life negatively.

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Introduction:-

Celiac disease (CD) is a chronic systemic immune-mediated disease induced by dietary gluten proteins present in wheat, rye and barley. CD is an inflammatory disorder of the upper small intestine, most probably caused by an abnormal immune reaction to wheat gliadin⁽¹⁾. The Celiac disease (CD) prevalence has progressively increased in the last 20 years and, recently, it was proposed that it might affect 0.6 to 1.0% of population worldwide, and as high as

2.5% in Saudi Arabia⁽²⁻⁷⁾. However, the lack of physician's awareness of celiac disease clinical features, associations, diagnosis treatment and complications may negatively affects their care. The high prevalence of celiac disease makes the early diagnosis of the disease of high importance. The association between the knowledge of the physicians about certain information in celiac disease and the delay of diagnosis and treatment is becoming more evident. The aim of this study is to detect the awareness of the CD disease among primary care physicians, internists, hematologists, endocrinologists, pediatricians and gastroenterologists at Riyadh, which might give us an idea about the delay in diagnosis and treatment plans of celiac disease in Saudi Arabia.

The rationale of this study was that the lack of knowledge of this common disease might delay the diagnosis and cause many serious complications, which could easily be prevented. We believe the information obtained would help to design and conduct educational and training program for involved physician about the celiac disease in the future.

Materials and Methods:-

This is a cross-sectional survey of 286 physicians which was conducted Riyadh, Saudi Arabia from October 2013 to February 2014 among 6 medical subspecialties who face this CD commonly on their outpatient clinics. This group of physicians included: primary care physicians, gastroenterologists, internists, endocrinologists, hematologists and pediatricians who were based in 6 different medical centers in Riyadh. A special questionnaire to test physician's knowledge of celiac disease was designed based on previous studies and it was validated among 10 physicians prior to starting the study. Hard copies of this questionnaire were handed to a total of 286 physicians, where only 131 physicians have responded. This questionnaire composed of 16 self-administered English questions. The questionnaires asked physicians to choose the correct answer in each of the following topics: etiology, age at onset of symptoms, clinical features, associated diseases, complications of celiac disease, and the diagnosis and management of the celiac disease. There were 3 to 7 options in each of these categories, including some incorrect options and the choice of "I don't know".

We estimate the expected frequency will be 11% that we took from a previous research done in 2005 in USA under the title (physician awareness of celiac disease). Our confidence limits will be 5% with a worst expected percent about 6%, Our confidence level will be 99%. We added 10% non-responsive estimation to our sample size. The Data was entered on Microsoft Excel and checked by two members of the team. Then the data was sent to a statistician, for analyses using The Statistics and Data Analysis Program (Stata) 12.1 version. The Data collected from the questionnaires was divided according to the variables associated to the physicians' awareness about celiac disease (Gender, age, specialty, hospital were the physician works, years of practice).

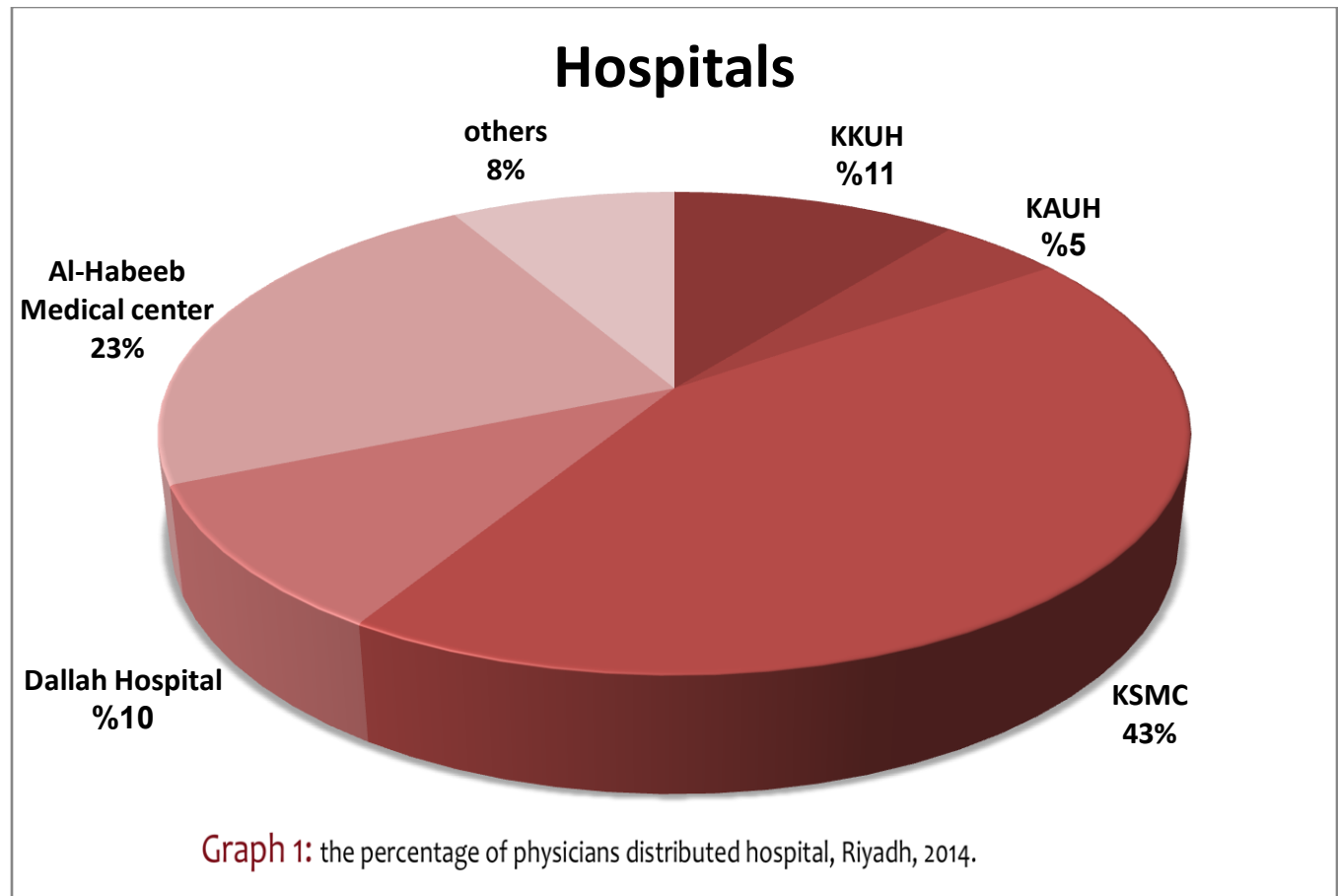
Results:-

In the physician survey only 131 (46%) physicians (110 (83.97%) male and 21 females (16.03%)) returned the questionnaires. 46 (35.11%) of our target physicians were between the age group of 30-40 years old. From the years of practice, the majority of our respondents had more than 10 years of practice 65 (49.62%), followed by 35 (26.72%) who had 1-5 years of practice ^[Table 1]. but only 66 (50.38%) had ever diagnosed a patient with celiac disease.

Table 1:-years of practice of the physicians that were included in the study, Riyadh, 2014.

Years Of practice:	Number	Percentage
<1 year	5	3.82
1-5	35	26.72
6-10	26	19.85
>10 years	65	49.62
Total	131	100%

The 16 questions which assessed the awareness of physicians attending at: King Khalid University Hospital (KKUH), King Saud Medical City (KSMC), King Abdulaziz University Hospital (KAUH), Dallah hospital, Al-Habeeb medical centers and some other medical centers. The highest respondents we got was 57 (43.51%) from King Saud Medical City (KSMC), followed by 30 (22.90%) from Al-Habeeb Medical Centers ^[graph 1].



The specialties of our target physicians were: Primary Care Physician Gastroenterologist, Hematologist, Internal Medicine, Endocrinologist and Pediatrician. The highest respondents we got were 43 (32.82%) pediatricians, followed by 31 (23.66%) physicians from internal medicine ^[table 2].

Table 2:- the number and percentage of physicians' specialties that were included in the study, Riyadh, 2014.

Specialty	Number	Percentage
Pediatrician	43	32.82%
Internal Medicine	31	23.66%
Primary Care Physician	24	18.32%
Gastroenterologist	19	14.50%
Endocrinologist	13	9.92%
Hematologist	1	0.76%
Total	131	100%

The results of physician questionnaires are summarized in ^[Table 3].

Table 3:- the questions and correct answers of the questionnaire with the number and percentage of the physicians who answered them correctly, Riyadh, 2014.

Survey questions	Physician Awareness (%)
Wheat products Celiac disease is an intolerance to	118 (90.08%)
Celiac disease is affecting patients at any age	84 (64.12%)
Celiac disease is not common in the west compared to Saudi Arabia	23 (17.56%)
Bleeding of rectum is not one of the most common symptoms of Celiac disease	117 (89.31%)
Cough is not related to Celiac disease	60 (45.80%)
Asthma is not related to celiac disease	43 (32.82%)

Celiac disease is highly associated with diabetes type1 more than type2	94 (71.76%)
Colon cancer is not a complication of Celiac disease	24 (18.32%)
Intestinal biopsy is a mandatory test to confirm celiac disease	102 (77.86%)
Anti-tissue transglutaminase antibody (anti-tTG) is the most specific celiac antibody test	69 (52.67%)
blood tests for gluten autoantibodies are accurate only while on a gluten containing diet	60 (45.80%)
There is no need to do a genetic testing for the family members of a person diagnosed with celiac disease	53 (40.46%)
Gluten-free diet is a first step in the management of the celiac disease patient	128 (97.91%)
The damage of small intestine will be repaired again after the diet	111 (84.73%)
The gluten-free diet should be a lifelong diet	122 (93.13%)

Discussion:-

In this study we investigated the awareness of Celiac disease among physicians, and the study showed that there is inadequate knowledge of Celiac disease among physicians.

Celiac disease (CD) is a chronic systemic immune-mediated disease induced by dietary gluten proteins present in wheat products. CD is an inflammatory disorder of the upper small intestine, most probably caused by an abnormal immune reaction to wheat gliadin.⁽¹⁾ In the survey 13 physicians (9.92%) out of the 131 physicians didn't know that Celiac disease is intolerance to wheat products.

The diagnosis of celiac disease requires a intestinal biopsy that shows the characteristic findings of intraepithelial lymphocytosis, intestinal villous atrophy and crypt hyperplasia affecting the lining of the upper small intestine.^(8,9) In our survey 29(22.14%) physician out of the 131 physicians didn't know that intestinal biopsy is a mandatory test to confirm celiac disease.

The Identification of celiac disease is facilitated by widely available serologic tests, the most sensitive antibody tests for the diagnosis of celiac disease are of the IgA class particularly anti-endomysial antibodies, antigliadin antibodies and anti-tissue transglutaminase antibodies^(9,10).

The antigliadin antibodies are only sensitive in children younger than 18 months of age, Anti-tissue transglutaminase antibody (anti- tTG) is the most specific celiac antibody test.^(10,11) In the survey 62 (47.33%) physician out of the 131 physicians didn't know that Anti-tissue transglutaminase antibody (anti- tTG) is the most specific celiac antibody test.

A range of symptoms, signs and complications may be associated with CD, depending on the degree of intestinal involvement. In the survey we tried to ask our physicians in different ways to test the knowledge of Celiac disease symptoms and signs. The physicians generally knew that bleeding per rectum is not one of the most common symptoms of Celiac disease. Approximately most of our physicians didn't know that cough, asthma and colon cancer are no related to celiac disease.

Although the prevalence of CD has been considered very low in Saudi Arabia, a recent study has shown a serology prevalence rate of 2.2% (1 in 45) among healthy students, which might be one of the highest rates of celiac disease in the world.⁽⁷⁾ The prevalence of celiac disease among risk groups in Saudi Arabia is 9.5% in short stature children⁽¹³⁾ and 10%⁽¹⁴⁾ or 8.1%⁽¹⁵⁾ in Type 1 diabetes children. In our survey more than 80% of our physicians didn't know that Celiac disease is very common in Saudi Arabia compared to the west. Although most of our physicians knew that Celiac disease is highly associated with diabetes type1 more than type2.

Treatment and follow up of Celiac disease involves a gluten-free diet, which means the elimination of all types of food containing gluten which means the elimination of wheat, barley and rye from their diet⁽¹⁶⁾ Most of patients respond very well to the gluten-free diet and their clinical features decline in days or weeks, though the histology of intestine needs months to recover.⁽¹⁷⁾ Generally 85% and above of our physicians knew that Gluten-free diet is a first step in the management of the celiac disease patient and should be a lifelong diet and the damage of small intestine will be repaired again after the diet.

The high prevalence of celiac disease makes the early diagnosis of the disease of high importance. The association between the knowledge of the physicians about certain information in celiac disease and the delay of diagnosis and treatment is becoming more evident. From the previous studies and our study we noticed a lack of physician's awareness of celiac disease clinical features, associations, diagnosis treatment and complications that may negatively affects patients care. These new studies have shown the importance of CD for our health care system. Although, this disease is widely spread, its yet often undiagnosed, mainly because of the lacks of awareness among physicians.^(18,19) Most of the recent studies are showing a huge need for increasing awareness of the clinical manifestations of CD, as well as increasing awareness of dietary management plans.^(20,21,22)

Study Limitations:-

Short time to conduct the research.

Recommendation:-

We need to increase the sample size, so it can more representation of Riyadh region physicians in addition once we have more data, we need to compare the awareness of the gastroenterologist to the awareness of the other physician groups.

Conclusion:-

We found that there is significant percentage of physicians did not have enough knowledge about Celiac disease that may affect the early detection of the disease and the patients' quality of life negatively and may lead to complications and delay their treatment.

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Appendices:-
Questionnaire:-

The purpose of this survey is to determine the knowledge and the awareness of the physician about celiac disease. The questionnaire is voluntary and the data collected is strictly confidential.

Name (optional): _____

Gender: ☐ Male. ☐ Female.

Age: ☐ 25-30 ☐ 30-40 ☐ 40-50 ☐ >50

Specialty:

☐ Primary Care Physician ☐ Internal Medicine

☐ Gastroenterologist ☐ Endocrinologist

☐ Hematologist. ☐ Pediatrician

Which of the following is the hospital that you work in?

☐ King Khalid University Hospital (KKUH).

☐ King Abdulaziz university Hospital (KAUH).

☐ King Saud Medical City (al-shemaisi).

☐ Dallah Hospital.

☐ Al-Habeeb Medical centers.

☐ Other: _____

Years of practice: ☐ <1 year ☐ 1-5 ☐ 6-10 ☐ > 10 years

All the questions have one answer, so please pick the one you think is the correct.

1. How many celiac disease patients did you diagnosed in the past 1 year?

☐ <1 ☐ 1-5 ☐ 5-10 ☐ 10-15 ☐ >15

2. Celiac disease is an intolerance to

☐ milk products ☐ wheat products ☐ milk, wheat and oats products ☐ cow milk
☐ I don't know.

3. Celiac disease affect patients at this age

☐ Children ☐ Adults ☐ Elderly ☐ at any age ☐ I don't know.

RB approval:-

4. Celiac disease is common in the west compared to Saudi Arabia?
☐Yes. ☐No. ☐I don't know.
5. Bleeding per rectum is one of the most common symptoms of celiac disease
☐Yes. ☐No. ☐I don't know.
6. Which one of the symptoms is not related to celiac disease?
☐Shortness of breath ☐Depression ☐palpitations ☐weight loss ☐fatigue ☐cough
☐I don't know.
7. Which one of the following is not related to celiac disease
☐ulcerative colitis ☐liver disease ☐asthma ☐Downs syndrome ☐diabetes mellitus
☐hypothyroidism ☐I don't know.
8. Celiac disease is believed to be highly associated with diabetes type2 more than type1.
☐Yes. ☐No. ☐I don't know.
9. Which of the following is not a complication of celiac disease?
☐seizure ☐osteoporosis ☐intestinal lymphoma ☐infertility ☐small bowel cancer
☐colon cancer ☐I don't know.
10. Intestinal biopsy is a mandatory test to confirm celiac disease.
☐Yes. ☐No. ☐I don't know.
11. The most specific celiac antibody test is:
☐Anti-gliadin Antibody (AGA) ☐Anti-endomysial Antibody (EMA) ☐Anti-tissue
transglutaminase Antibody (anti-tTG)
12. The blood tests for gluten autoantibodies are accurate only while on a gluten containing diet.
☐Yes. ☐No. ☐I don't know.
13. There is no need to do a genetic testing for the family members of a person diagnosed with celiac disease.
☐Yes. ☐No. ☐I don't know.
14. The first step in the management of the celiac disease patient is
☐gluten free diet ☐immunosuppression ☐antibiotics ☐lactose free diet ☐I don't know
15. The damage of small intestine will not be repaired again after the diet
☐Yes. ☐No. ☐I don't know.
16. The gluten-free diet should be a lifelong diet.
☐Yes. ☐No. ☐I don't know.