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Prevalence of Appendicitis and Complaints about Acute Abdominal Pain in Patients Visiting Shahid Mohammadi Hospital in Bandar Abbas from March 2013 to December 2013.

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ABSTRACT

Considering the high prevalence of appendicitis as well as the fact that the most common surgery is abdominal, wrong diagnosis might have irreparable consequences including patient's mortality. The goal of the present research was to examine patients who had appendectomy surgery after a medical diagnosis of appendicitis. This study was a retrospective descriptive-analytic research. The target population included all the medical files of patients who had visited Shahid Mohammadi hospital of Bandar Abbas once they felt an acute abdominal pain which was later diagnosed as appendicitis. Therefore, they had an appendectomy surgery. Their age ranged between 2 to 82 years. The data were analyzed using SPSS 15. Moreover, Chi-squared test as well as Pearson correlation coefficient was used to analyze the correlation of qualitative variables. In this study, the medical files of 250 patients suffering from appendicitis were analyzed. 164 of them were male (65.6%) and 86 were female (34.4%). The most prevalent decade of acute appendicitis in this study was found to be firstly the 3rd decade (39.2%), and also the 2nd decade (32.4%) of one's life. A statistically significant correlation was found in this study between fever and leukocytosis (p=.937). According to the results obtained in this study, a clinical examination and obtaining a precise and detailed description of patient's background and current condition along with lab test findings play a key role in diagnosing acute appendicitis. Therefore, it is recommended that these determining factors of this disease and their hazardous side effects be prevented.

Keywords: acute appendicitis, clinical Alvarado criteria, acute abdominal pain, leukocytosis, fever.

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INTRODUCTION

Acute abdominal pain is one of the most prevalent reasons why people visit the emergency wards of hospitals. Although occasionally such a pain is removed without any treatment, in the majority of cases it is a sign of a serious problem within the abdomen(1).

The most common reason why people visit the emergency wards of hospitals is acute appendicitis. It is also one of the most prevalent types of surgeries(2).

Up to 7% of people get afflicted with appendicitis in their lifetime. Its highest prevalence rate is at the age of 10 to 30 years(3). At this age range, acute appendicitis is 59% higher among men than women(4).

The first pathogenic event in acute appendicitis is appendix lumen obstruction(5).

In more than 50% of patients suffering from appendicitis, there exists a history of nausea, loss of appetite, vague abdominal pain usually starting from navel surroundings shifting towards the right lower body lobe. However, there are also a number of uncommon manifestations such as backache, pain in sides and there are also some cases of pain in the left side(6).

The intensity of pain differs in accordance with the anatomic condition of appendix and the development of the disease. For instance, retrocecal appendicitis shows symptoms of peritoneum stimulation later than the pelvic type(7). Occasionally there have been reports of patients' vomiting, dysuria, diarrhea and restlessness(8).

A timely and correct diagnosis of appendicitis is essential so as to reduce the side effects of appendix perforation. However, negative appendectomy has the surgical and anesthetic side effects such as positive appendectomy. They include: postsurgical infections, intestine obstruction due to adhesion and even the probability of infertility in young women(3).

Today the most important diagnostic method for this disease is clinical. Lab tests such as a count of white globules and the percentage of left-shifts help this diagnostic process(9).

Alvarado scoring method which is of a proper precision relies on patients' symptoms and helps to diagnose acute abdominal pain(10).

This scoring method relies on clinical findings including: migration of pain, anorexia, nausea and vomiting, right lower quadrant tenderness, rebound tenderness, elevated temperature, leukocytosis with a left shift. In this system, the right lower quadrant tenderness and leukocytosis receive a score of 2 and the rest receive 1. Finally, an overall score of 10 is obtained(11).

METHODOLOGY

The present study is a retrospective descriptive-analytic research. The first step was to refer to the hospital archive and access the medical files of all patients who were coded as being afflicted with appendicitis. Then the medical files of these patients who had visited Shahid Mohammadi hospital in Bandar Abbas between March and December 2013 were analyzed. These patients had all had an appendectomy surgery.

The age range of the patients in this study was 2 to 82 years. The sampling method was a census.

The variables in this study included demographic data such as age, sex, place of residence and Alvarado criteria including abdominal pain, abdominal tenderness, tenderness rebound, age, sex, leukocytosis, fever as well as two other variables including the month of visit and the duration of hospitalization (no. of days).

Inclusion criteria in this study were: all patients who had visited Shahid Mohammadi hospital due to an acute abdominal pain; they had had a clinical examination; their description had also signs of appendicitis;

their sonography proved a diagnosis of appendicitis; they had an appendectomy surgery and seemed to be improving after the surgery.

Exclusion criteria were the existence of missing data in patients' medical files.

This study made use of patients' demographic data about their age, sex, residential area as well as a number of Alvarado criteria such as abdominal pain, leukocytosis and fever which helped to diagnose appendicitis. Patients' descriptive information which was obtained and recorded by the medical staff was also used.

The present study was approved by the Committee of Research Ethics in Bandar Abbas University of Medical Sciences on the second of Mehr, 1392 (solar calendar). All throughout the research conduction procedures, the regulations set by the Committee were followed.

The data were analyzed statistically using SPSS version 15 as well as such tests as Chi-squared test to compare quantitative data as well as Pearson correlation coefficient which was used for qualitative variables.

RESULTS

250 medical files were analyzed in this research. 164 male participants (65.6%) as well as 86 female subjects (34.4%) participated. The most common decades of affliction with acute appendicitis were firstly the 3rd decade (39.2%) and secondly the 2nd decade of one's life (32.4%). A full description of the prevalence of appendicitis in terms of decade is indicated in figure 1.

In this study, the age ranges of participants were 2 to 77 years. Their average age was 23.44±11.30 years. The average age of the male participants was 23.78±11.32 and for the female was 22.79±11.25. No significant correlation was observed with regard to this variable ($p>.05$).

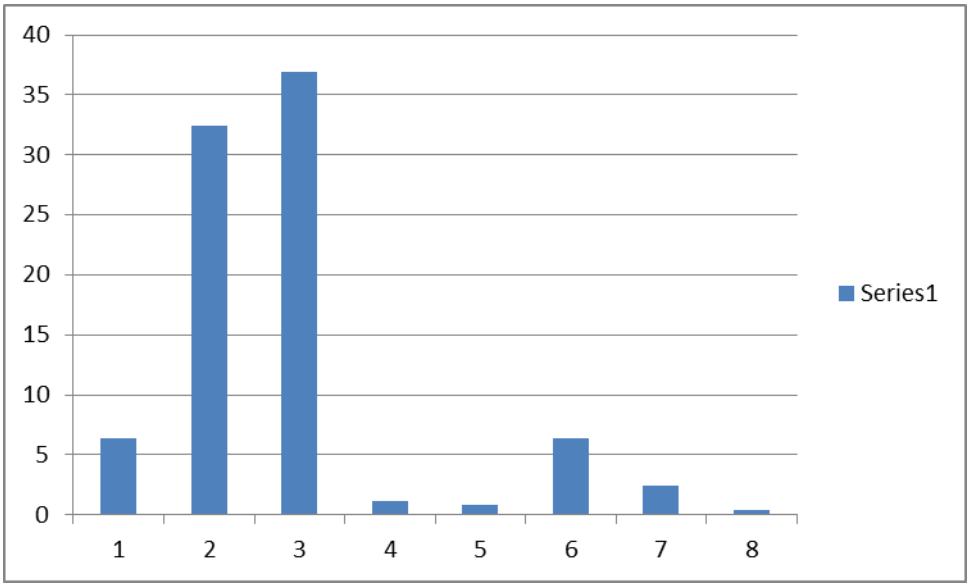

Figure 1: Prevalence of appendicitis in terms of percentage in each decade of patients' lifetime
[The vertical axis is in years; the horizontal axis is in percentage in each decade]

The relative frequency of symptoms which include pain shift, anorexia, nausea and vomiting along with fever and leukocytosis which are among Alvarado criteria are indicated in table 1:

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Table 1

percentage	Number of patients out of 250	Alvarado criteria
75.6	189	Pain migration
74.4	186	anorexia
67.6	169	Nausea and vomiting
48.8	122	fever
79.6	199	leukocytosis

In this study, 134 patients (81.1%) of males as well as 65 patients (75.58%) of females had a leukocytosis. Moreover, in this study the minimum and maximum length of hospitalization were respectively 1 and 13 days. April and July witnessed the highest rate of visits made by patients with appendicitis. This highest rate was 32 patients (12.8%), whereas September and December had only 7 visits (2.8%).

94 patients were married while 156 subjects [62.4%] were single. Moreover, 167 patients [66.8%] resided in Bandar Abbas and 83 subjects (33.2%) lived in other regions. 53 participants (21.2%) were employed and 197 patients (78.8%) were unemployed.

A significant correlation was found in this study between fever and leukocytosis ($p=.037$). However, the correlation of leukocytosis and the duration of hospitalization was not significant ($p>.05$). Similarly, no significant correlation was found between fever and the length of hospitalization ($p>.05$).

DISCUSSION AND CONCLUSION

Since the most common reason why patients with an acute abdominal pain visit the emergency ward of hospitals is appendicitis, the present research intended to focus on this issue.

In this study, 100% of patients had an acute abdominal pain which was approved in a variety of previous studies such as Moballeghi et al.'s(12).

Using the symptoms as well as lab-based test results has made the diagnosis of this disease possible. In an investigation conducted in Greece on 717 patients, it was concluded that a precise use of clinical symptoms without the use of other lab test results can be reliable and adequate in diagnosing appendicitis. It is recommended that other lab tests be given only in doubtful cases or as interventional (13).

However, in some previous research, doctor's clinical diagnosis has been considered as a key factor in diagnosing appendicitis(14). In the present research, the diagnosis of appendicitis was based on Alvarado criteria as an aid for the main diagnosis which was made by the surgeon.

In this study, appendicitis was found to be more common among the male. In some other research such as Fallahi's, the same result was obtained(15).

Several studies found appendicitis to be mostly prevalent in one's second and third decades of lifetime [3]. The present research found the third and second decades of one's lifetime respectively as the most prevalent time of affliction with appendicitis. In some other research, the third decade of life has been recognized as the peak of affliction with this disease(16).

In the present research, nausea, vomiting and anorexia were found to be the key symptoms of this disease which was similar to the findings of other body of research(17).

In addition, leukocytosis [79.6%] and pain shift [75.6%] which had the highest scores [score 2] among Alvarado criteria were found to be the most common criteria in these patients (11).

According to the findings of this study it can be maintained that for a precise diagnosis of acute appendicitis, clinical examination and a detailed description of patient as well as lab tests play a key role in the case of patients who visit the emergency wards of hospitals with an acute abdominal pain.

Hospital's medical staff is recommended to obtain a full and detailed description of patient's background and symptoms; they should have a precise clinical examination; they should make a careful use of lab test results so that they can prevent the hazardous side effects of this disease.

Among the intervening factors in this study is the fact that the pathology result was not taken into account. In prospective studies, this should be avoided and the pathology result needs to be included.

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