

## ACUTE ABDOMINAL PAIN CAUSES IN PATIENTS REFERRED TO HOSPITAL TREATMENT

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## UZROCI AKUTNOG ABDOMINALNOG BOLA KOD PACIJENATA UPUĆENIH NA BOLNIČKO LEČENJE

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### ABSTRACT

*Objective.* Acute abdominal pain is the most common complaint to visit the emergency room. It can be caused by a wide range of underlying surgical and non-surgical conditions. These patients need a quick assessment because of the probability of conducting surgery. The aim of this study was to evaluate the frequency distribution of acute abdominal pain reason and its relation to age, underlying disease and sex.

*Methods.* This descriptive cross-sectional study was conducted on 352 patients with acute abdominal pain in Shahid Sadoughi hospital. Data were extracted from medical records. Diagnosis of disease was performed by a physician.

*Results.* The most common underlying disease in patients with acute abdominal pain was hypertension (14.8%) and diabetes mellitus (10.8%). The most common cause of disease was related to abdominal pain without any cause (32.2%), intestinal obstruction (14.8%), appendicitis (13.1%), cholecystitis (11.1%) and lead poisoning (4%). The most frequent symptoms in these patients were nausea (49.7%), vomiting (48.6%), persistent pain (61.6%) and reduced appetite (49.7%). There was a significant difference between the frequency distribution of acute abdominal pain causes in terms of age, sex, job and marital status ( $p < 0.05$ ).

*Conclusion.* The most common cause of acute abdominal pain was related to intestinal obstruction, appendicitis and cholecystitis. The prevalence of appendicitis and intestinal obstruction was higher in young and old patients, respectively. Moreover, cholecystitis and intestinal obstruction were more common in women and men, respectively. It seems that some parameters including age, sex, job and marital status may be key factors that affect acute abdominal pain.

**Key words:** acute pain; abdominal pain; hospitals.

### INTRODUCTION

Acute abdominal pain is the most common complaint to visit the emergency room comprising approximately 5% of total visits (1-13). A small percentage of patients with acute abdominal pain were not diagnosed during the first evaluation because of the early stage of the disease or subtle and atypical signs (13). On the other hand, acute

### SAŽETAK

*Cilj.* Akutni bol u trbuhu je najčešći uzrok posete službi hitne medicinske pomoći. Može biti uzrokovan mnogobrojnim hirurgskim i nehirurškim stanjima. Ovim pacijentima je potrebna brza procena stanja zbog mogućeg operativnog lečenja. Cilj ove studije bio je proceniti učestalost i uzroke akutnog bola u trbuhu i odnos prema starosnoj dobi, osnovnoj bolesti i polu.

*Metode.* Ova studija preseka je sprovedena je na 352 pacijenta sa akutnim bolovima u trbuhu u bolnici Shahid Sadoughi. Podaci su dobijeni iz medicinske dokumentacije. Dijagnozu bolesti je postavljao lekar.

*Rezultati.* Najčešća osnovna bolest kod pacijenata sa akutnim bolom u trbuhu bila je hipertenzija (14,8%) i dijabetes melitus (10,8%). Najčešći uzroci bola u trbuhu su bili: bez ikakvog uzroka (32,2%), crevna opstrukcija (14,8%), upala slepog creva (13,1%), holecistitis (11,1%) i trovanje olovom (4%). Najčešći simptomi kod ovih bolesnika bili su mučnina (49,7%), povraćanje (48,6%), uporni bol (61,6%) i smanjen apetit (49,7%). Postojala je značajna razlika između raspodele uzroka akutnih bolova u trbuhu u pogledu starosti, pola, posla i bračnog statusa ( $p < 0,05$ ).

*Zaključak.* Najčešći uzrok akutnog bola u trbuhu bio je povezan sa crevnom opstrukcijom, upala slijepog crijeva i holecistitisom. Prevalencija upala slepog creva i crevne opstrukcije bila je veća kod mladih pacijenata. Štaviše, holecistitis i crevna opstrukcija češći su kod žena i muškaraca. Čini se da neki parametri, uključujući starost, pol, posao i bračni status mogu biti ključni faktori koji utiču na akutni bol u trbuhu.

**Ključne reči:** akutni bol; abdominalni bol; bolnice.

abdominal pain is associated with many challenges for a clinician due to owing to the variety of underlying causes, although it is not typically serious (14). Moreover, accurate and early diagnosis of acute abdominal pain prevents mortality and morbidity due to life-threatening conditions (15) that require urgent management such as appendicitis, intussusception, or bowel obstruction (13).

Pregnant women and elderly individuals are the most challenging patients to evaluate (14). The elderly patients with acute abdominal pain consume more time and resources than any other patient. The length of stay of elderly individuals was 20% longer than younger patients who had the same complaint (16). The most common reason of abdominal pain is gastroenteritis, constipation, viral illness, infection outside of the gastrointestinal tract, mesenteric lymphadenitis, and infantile colic (978). Also, the most common surgical condition is appendicitis (13). Extra-abdominal causes of abdominal pain including diabetic ketoacidosis, hemolytic uremic syndrome, and myocarditis also have other distinguishing clinical features (17). Life-threatening cause of abdominal pain (18) is due to hemorrhage, obstruction, or perforation of the gastrointestinal tract or intra-abdominal organs. Treatment of patients with an acute abdomen is dependent to underlying cause of abdominal pain.

Since patients with acute abdominal pain need a quick assessment because of the probability of conducting surgery and frequency distribution of acute abdominal pain reason is not known in our country especially in Yazd province, the aim of this study was to evaluate frequency distribution of acute abdominal pain reason in patients referred to Shahid Sadoughi hospital during 2016-2017.

## MATERIALS AND METHODS

This descriptive cross-sectional study was conducted on 352 patients with acute abdominal pain in Shahid Sadoughi hospital during 2016-2017. After taking written informed consent, this study was approved by ethics committee of Shahid Sadoughi University of Medical Sciences. Data were extracted from medical records by HIS software. Demographic data including age and sex, underlying disease and others was also extracted from medical records. Unwillingness to participate in the study caused patients exclusion from the study. Moreover, incomplete files was another factor for excluding the patients. Primary and secondary diagnosis of disease was performed according to the opinion of a physician. Independent t test and Chi Square test was used for analyzing data. P<0.05 was considered statistically significant.

## RESULTS

Among 352 patients who were referred to Shahid Sadoughi hospital, 180 (51.1%) were male and 172 (48.9%) female. Among them, 254 patients were married. Most visits were in summer season (29.4%). Moreover, 13 patients were pregnant (3.69%). Smoking and addiction

Table 1. Frequency of patients in terms of age range

Age range	Frequency	Percent
1-12 years	12	3.4
13-19 years	51	14.5
20-30 years	74	21
31-50 years	116	33
51-70 ears	78	22.2
>75 years	21	6
Total	352	100

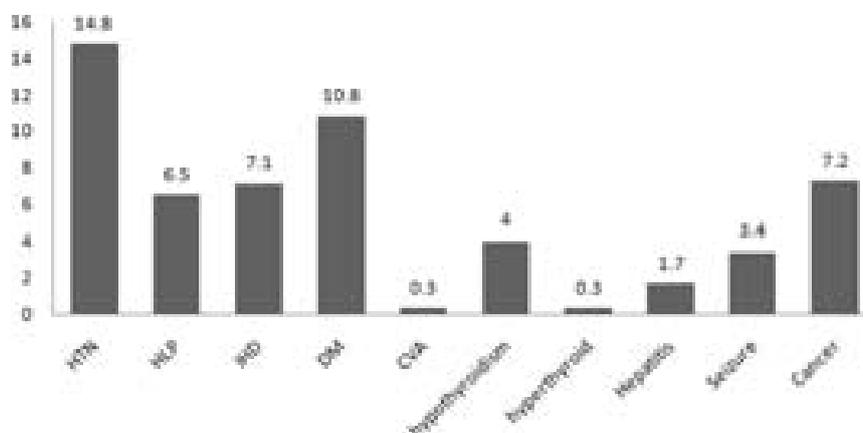


Figure 1. Frequency of underlying disease in patients with acute abdominal pain

HTN: Hypertension, HLP: High lipoprotein, IHD: Ischemic heart disease, DM: Diabetes mellitus, CVA: Cerebrovascular accident

were seen in 28 (8%) and 49 (14%) patients, respectively.

The frequency of patients with acute abdominal pain in terms of age range is shown in Table 1.

As shown in table 1, the most of patients are in the age range of 51-70 years old.

Moreover, in age range of 1-12 years old, 41.2% of patients were diagnosed by appendicitis, 33.3% abdominal pain without any reason, 16.7% abdominal pain following hit and 8.3 % intestinal obstruction. Therefore, a significant difference was observed between the frequency of acute abdominal pain in terms of age ( $p=0.04$ ).

Moreover, the prevalence of appendicitis was decreased with increasing age, so that 41.2% of children and 4.8% of old people had appendicitis. Cholecystitis

was not observed in children and the most frequency was observed in patients with age range of 51-75 years old (24.4%). Intestinal obstruction increased with increasing age, so that the highest frequency of intestinal obstruction was seen in old people (23.1%). Moreover, the prevalence of acute abdominal pain in old people was 28.6%.

The frequency of the underlying disease in patients with acute abdominal pain is shown in Figure 1.

As shown in figure 1, the most underlying disease in patients with acute abdominal pain was hypertension (14.8%) and diabetes mellitus (10.8%). Moreover, the lowest underlying disease was hyperthyroid (0.3%).

The frequency distribution of symptom in patients with acute abdominal pain is shown in Table 2.

Table 2. Frequency distribution of symptom in patients with acute abdominal pain

Symptom of disease	Number	Percent
Vomiting	171	48.6
Nausea	175	49.7
Fever	36	10.2
Diarrhea	26	7.4
Constipation	59	16.8
Urinary symptom	20	5.7
Reduced appetite	175	49.7
Pain		
Persistent	217	61.6
Gradual	134	38.1
Abdominal pain	170	48.3

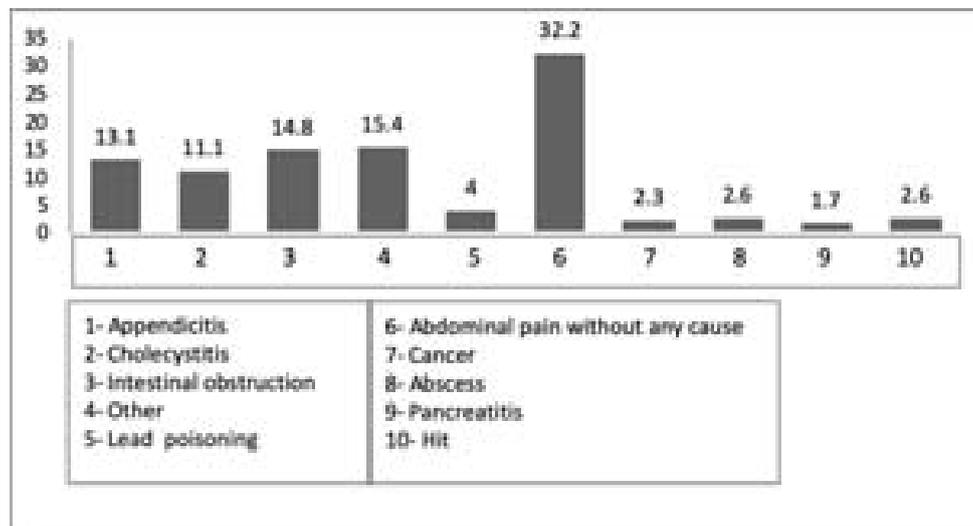


Figure 2. Frequency of acute abdominal pain causes in patients

As it is clear from table 2 the most frequent symptoms in patients with acute abdominal pain were nausea (49.7%, vomiting (48.6%), persistent pain (61.6%) and reduced appetite (49.7%).

Figure 2 shows the cause of acute abdominal pain in patients with acute abdominal pain.

As it is clear in figure 2, abdominal pain without any cause (32.2%), intestinal obstruction (14.8%), appendicitis (13.1% ), cholecystitis (11.1% ) and lead poisoning (4%) were the most common causes of pain in patients with acute abdominal pain.

Furthermore, 3.7% of patients were pregnant. The frequency of acute abdominal pain causes in pregnant patients is shown in figure 3.

As shown in figure 3, abdominal pain without any cause (38.4%) and appendicitis (30.8%) were the most common causes of pain in pregnant women.

**Frequency of acute abdominal pain causes in terms of marital status**

There was a significant difference between acute abdominal pain in terms of marital status (p=0.03). It is important to notice that the marital status is dependent of age. The comparison of appendicitis in patients with acute abdominal pain in terms of marital status showed that appendicitis is more common in single patients than in married (twofold). Cholecystitis in married people (13.6%) is 5 times more frequent than in single patients. Intestinal obstruction in married individuals (15.8%) was more frequent than in single (11.9%). Lead poisoning was not observed in single patients, but it was seen in 5.3% of married patients.

Table 3. The causes of acute abdominal pain in terms of season

Season	The reason of acute abdominal pain
Spring	Abdominal pain without any reason appendicitis, lead poisoning
Summer	Hit
Autumn	Abdominal pain without any reason intestinal obstruction Pancreatitis
Winter	Abdominal pain without any reason

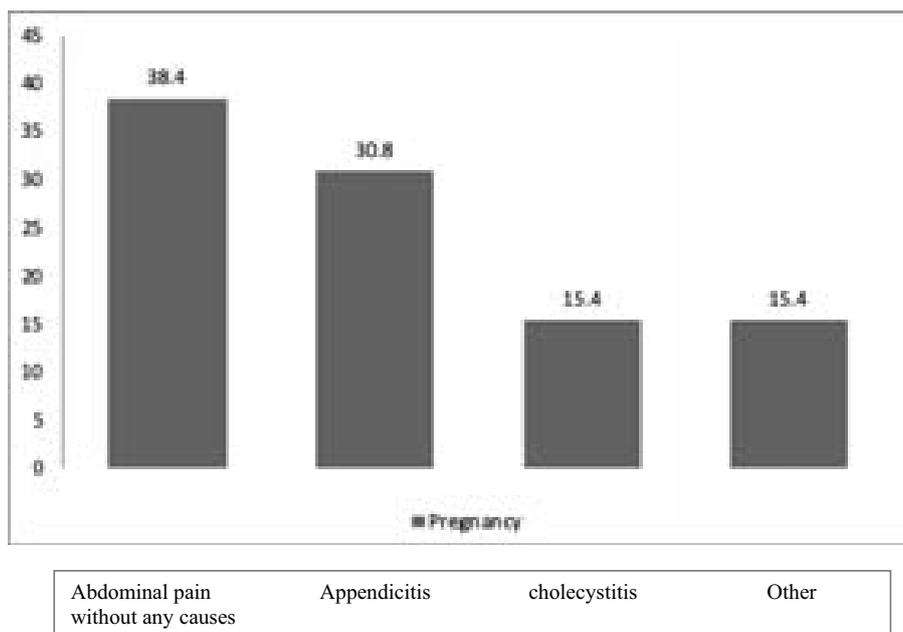


Figure 3. The causes of acute abdominal pain during pregnancy

### ***Frequency of acute abdominal pain causes in terms of sex***

Intestinal obstruction in men was two times more frequent than in women, but cholecystitis was seen in 25 women and in 14 men. Lead poisoning was more frequent in men than women (3.40% vs 0.56 %). The diagnosis of abdominal carcinoma associated with abdominal pain was more frequent in men than in women (2.8% of men vs 1.8% of women). Abscess in women is 2 times more frequent than in men. Moreover, no significant difference was seen between the two groups in terms of appendicitis ( $p=0.07$ ). Furthermore, no significant difference was seen between men and women in terms of pancreatitis and abdominal pain following a hit ( $p=0.06$ ).

### ***Frequency of acute abdominal pain causes in terms of job***

There was a significant difference between acute abdominal pain in terms of job ( $p=0.045$ ). Moreover, job is affected by sex and age. The most common abdominal pain in house wives is acute abdominal pain without any cause (35.7%), cholecystitis (17.9%) and appendicitis (14.3%). The most common abdominal pain in employees was abdominal pain without any cause, intestinal obstruction (20.5%), appendicitis (9.1%) and cholecystitis (9.1%). The most common abdominal pain in free job group was intestinal obstruction (22.4% and pain without any cause (19.7%).

Table 3 shows the causes of acute abdominal pain in terms of season.

As shown in table 3, abdominal pain without any reason was observed in all seasons except summer. The most hospitalization was in summer (29.54%) and the lowest hospitalization in autumn (21.59). Moreover, 21.8%, 13.5%, 7.9% and 8.3% of patients had appendicitis in spring, summer, autumn and winter, respectively. The frequency of appendicitis is higher in spring (19 out of 46). Moreover, there was no significant difference between acute abdominal pain in terms of season ( $p>0.05$ ).

## **DISCUSSION**

Abdominal pain is one of the most serious complaints in emergency physicians. The diagnosis of patients with acute abdomen is sometimes challenging for patients that are immuno-compromised, such as cancer requiring chemotherapy, transplantation, HIV/AIDS, renal failure and diabetes.

In our study, the most common cause of acute abdominal pain was abdominal pain without any cause, appendicitis and intestinal obstruction. A large percent of

patients with acute abdominal pain in developing countries are affected by parasitic infections. In another study in West Africa, 4% of acute abdominal cases were due to parasites. Hardy et al. in a study in 2001 reported that intestinal obstruction and then appendicitis are common reasons of acute abdominal pain (17).

The results of our study showed that age, sex, job and marital status can affect acute abdominal pain. Hardy et al. in 2013 reported that the outcome of patients with acute abdomen is affected by the underlying etiology of their symptoms, age, the time of diagnosis and treatment (17). In our study, 33% of patients were in the age range of 31-50 years old. One study reported that acute abdominal pain is common in female with age range of 10-29 years old. Another study was conducted on children with acute abdominal pain. The result of this study showed that acute appendicitis, abdominal trauma and gastroenteritis are common reasons of the acute abdomen in children and young and parameters including biliary disease, intestinal obstruction and diverticulitis, and appendicitis disease are common among elderly and middle-aged adults (19). Kamin et al., reported that pelvic mass constitutes almost 12% of acute abdominal pain in women. Therefore, it should be considered for evaluation of female patients (14).

Mattu et al., reported that 12% of population are older than the age of 65 years old. It is expected that this proportion increase to 20% in 2030. The difference of our research with current study was due to an increase in the number of elderly patients, since the majority of patients had the age over 85 years in Mattu study (16). Sherman et al. reported that half of all deaths from appendicitis is observed in elderly patients (20). Martinez et al., reported that appendicitis is considered as the most common cause for abdominal surgery in the elderly individuals. Therefore, vascular catastrophes should be considered in elderly patients with abdominal pain (16). Corey et al in 2006 reported that a common cause of abdominal pain was Diverticulitis. Also, the presentation of acute abdominal pain in older patients is high (21). It seems that it was related to factors including a coexistence disease, delays in presentation and physical and social barriers. However, another study reported that appendicitis is more common in younger patients (16). Kim et al., achieved same result and reported that abdominal pain is associated with symptoms and pain location varies with age. It seems that age and sex of the patient are key parameters in acute abdominal pain evaluation (13).

In the current study, abdominal cancer was more frequent in employees than in others. It seems that one reason may be due to less mobility than in other jobs. Brown in 2014 reported that physical inactivity may play the main role in developing a number of cancers. They also demonstrated that physical activity or exercise may

play a basic role on the cancer survivorship pathway. On the other hand, active participation in physical activity decreased the probability of developing cancer (22). Moreover, a protective role of physical activity in prevention in particular cancer sites was observed in Kurk study (23).

In our study, 13% of patients were pregnant. Moreover, the most common abdominal pain in pregnant women was appendicitis and abdominal pain without any reason. The acute abdominal pain is considered as a risk factor for both mother and fetus during pregnancy. The inability of distinguishing acute abdominal symptom from those occurring normally during pregnancy leads to delays and increased susceptibility for preterm labor and fetal loss (17).

### CONCLUSION

According to the results of this study, the most common cause of acute abdominal pain was related to intestinal obstruction, appendicitis and cholecystitis. The prevalence of appendicitis and intestinal obstruction is higher in younger and older patients, respectively. Moreover, cholecystitis and intestinal obstruction are more common in women and men, respectively. It seems that some parameters including age, sex, marital status and job are the key factors that affect acute abdominal pain.

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