ORIGINAL RESEARCH

THE EFFECTS OF INTRAVENOUS OPIOID ON ABDOMINAL PAIN AND PERITONEAL IRRITATION IN PATIENTS PRESENTING TO AN EMERGENCY DEPARTMENT

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ABSTRACT

Objective: Concerns about possible negative actions of opioids on important diagnostic signs and symptoms have limited the use of this efficient analgesic in patients with abdominal pain. In this study, we have addressed the old challenge with a statistical approach to determine whether this medication can be administered for patients presenting to an emergency department (ED) with signs of non-traumatic acute abdominal condition.

Methods and Materials: A randomized clinical trial was arranged with 118 patients who were five years or older who had been prepared for transfer to the operating room in the Hazrat Rasul-e-Akram hospital. In a double blind randomized trial, pain, tenderness and the rebound tenderness ratio were recorded before and after receiving morphine and placebo.

Result: Tenderness and the rebound tenderness Numeric Scale Mean dropped after administration of 0.1mg/kg morphine although this was not statistically significant. In contrast to the rebound tenderness (Pv=0.07) the tenderness and pain Numeric Scale Mean fell sharply, showing a statistically significant difference (Pv=0.00, Pv=0.00). However, tenderness and rebound tenderness did not show a significant difference (Pv=1.00, Pv=0.06).

Conclusion: Using morphine does not suppress the main signs of peritoneal irritation, although it provides a suitable control of pain. Therefore, using moprhine as an analgesic in ED cases with a primary impression of a non-traumatic acute abdomen remains advisable with an initial dosage of 0.1mg/kg.

Keywords: Morphine, Acute abdomen, Pain scale, Tenderness, Rebound tenderness

ACİL SERVİSE BAŞVURAN HASTALARDA İNTRAVENÖZ OPİOİD UYGULAMASININ AKUT KARIN VE PERİTONEAL İRRİTASYON ÜZERİNDEKİ ETKİLERİ

ÖZET

Amaç: Önemli tanısal bulgu ve semptomlarda opioidlerin muhtemel negatif etkileri olacağı hakkındaki endişeler bu etkili analjeziğin karın ağrısı olan hastalarda kullanımını sınırlandırmıştır. Bu çalışmada, istatistiksel bir yaklaşım ile acil servise non- travmatik akut karın ağrısı ile başvuran hastalarda bu tedavinin uygulanıp uygulanamayacağını araştırdık.

Yöntem: Hazrat Rasul-e- Akram hastanesinde ameliyat olmak için hazırlanan beş yaş veya daha üzeri 118 hasta ile bir randomize klinik çalışma planlanmıştır. Çift kör, randomize çalışmada ağrı, hassasiyet ve rebound hassasiyet oranları morfin ve plasebo uygulamasından önce ve sonra tespit edilmiştir.

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Bulgular: Hastalara 0.1mg/kg morfin uygulanmasından sonra hassasiyet ve rebound hassasiyet Rakamsal Skala Ortalaması (Numeric Scale Mean) düşmüştür ancak bu istatistiksel olarak anlamlı değildir. Rebound hassasiyetin aksine (Pv=0.07) , hassasiyet ve ağrı Rakamsal Skala Ortalaması (Numeric Scale Mean) belirgin olarak düşmüştür ve bu istatistiksel olarak anlamlıdır. (Pv=0.00, Pv=0.00). Ancak, hassasiyet ve rebound hassasiyet istatistiki olarak belirgin bir fark göstermemiştir (Pv=1.00, Pv=0.06).
Sonuç: Uygun bir ağrı kontrolu sağlamasına rağmen, morfin kullanmak periton irritasyonunun ana bulgularını suprese etmez. Bu yüzden non- travmatik akut karın ağrısında
ilk izlenim olarak, non- travmatik karın ağrısı teşhisi konulan Acil Servis hastalarında başlangıç dozu olarak 0.1mg/kg morfin kullanılması tavsiye edilebilir.

Anahtar Kelimeler: Morfin, Akut karın, Ağrı skalası, Hassasiyet, Rebound hassasiyet

INTRODUCTION

The acute abdomen has been one of the most common causes of emergency surgery in the world and in some causes of abdominal pain accounts for serious and damaging outcomes among patients presenting to an emergency department (ED)[1].

Since, controlling of patient's pain constitutes a duty for every physician pain relief in patients with an acute abdomen is an important and vital issue[2]. However, due to the importance of signs of peritoneal irritation (like tenderness and rebound tenderness) in the diagnosis of an acute abdomen case awaiting surgery, conventional medicine does not recommend routine usage of opioids, since it is feared that these reduce cardinal clinical signs[3].

Among many cases presenting to an ED, hours may be needed for diagnostic or ancillary tests to be completed and in some cases close observation is the best strategy to make an accurate decision. These are issues of importance for pain management in the ED for patients who may spend long hours in the ED before being sent to the operating room with definite diagnosis.

Recent studies compared to older studies imply that IV opioids do not confound the diagnostic or therapeutic process in acute abdomen cases, but reduce their pain[4].

In this study, we address the problem an analysis that assesses opioid effects on patients awaiting abdominal surgery.

MATERIAL AND METHOD

Study design: This was a double blind randomized interventional clinical trial with two administrative databases to examine the pain, tenderness and rebound tenderness ratio before and after administration of opioid.

Study setting: All patients more than 5 years of age who came to Hazrate Rasul ¨Ce-Akram Hospital with a chief complaint of abdominal pain and had a diagnosis of an acute abdomen requiring surgery were included in the study. We excluded patients with an opioid addiction, patients younger than 5 years of age and patients who had received intravenous or oral opioid pain killers in the past week.

This clinical trial has been endorsed by Iran University of medical science and this is suggested by University and has been approved by the university research authority; And also we prepared the form of consent inform for all patient in the experimental group.

Databases used for the study: We entered patients into the study continuously and put them in two groups with 60 patients in each group. Data were gathered by asking questions (subjective) and by a physical examination (objective). All the data were recorded on forms that recorded the severity of pain, tenderness and rebound tenderness as determined by the Numeric Pain Assessment Scale[5]. All patients were visited and the severity of pain, tenderness, and rebound tenderness were documented. After a decision for surgery had made the patient a candidate for an operation, and before transfer to the operating room, one group of patients reveived morphine 0.1mg/kg and other group received a placebo. After 10 min, all patients were reevaluated and pain, tenderness and

rebound tenderness were again documented. Use of the morphine or the placebo was double blind because all of them were in labeled A or B and only the nurse knew which of them placebo or morphine.

Data: The severity of pain, tenderness and rebound tenderness before and after administration of the morphine or placebo were documented.

Data analysis: All data were analyzed in SPSS 15.0. A Student's t- test was run for the Numeric Pain Assessment Scale and a Chi-square was used for tenderness and rebound tenderness.

RESULTS

In this clinical trial, we included 120 patients. These patients were randomly divided into two groups: experimental and control groups. In the experimental group, we had 33 (55%) male patients and 27 (45%) female patients. In the control group, we had 32 (53.2%) and 28 (46.7%) male and female patients respectively (pv ≤0.00).

The mean age in the experimental and control groups was 17.4±9.2 and 18.5 ±9.2 years old respectively (pv ≤0.00).

The pathology findings after surgery are shown in Figures 1 and 2.

The pain score was decreased significantly after administration of morphine. Before the administration of morphine or placebo the mean pain score was 6.1±1.8 and 6.4±1.3 respectively and after the administration of morphine or placebo was 1.5±1.4 and 6.3±1.3 respectively (pv =0.00 and pv=0.91)(Figures 3 and 4)

The tenderness was not significantly decreased in either group (PV=1.00, pv =1.00). The rebound tenderness was not significantly decreased in either group (pv= 0.63, pv=0.70).

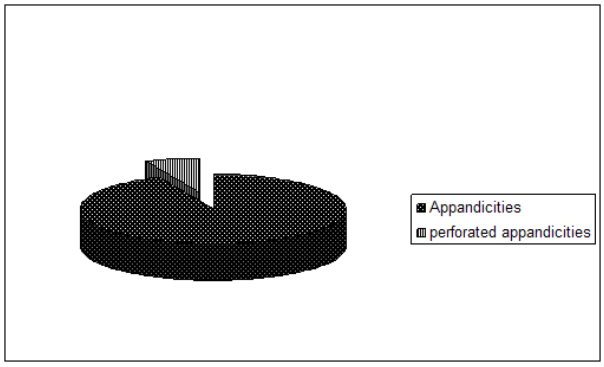

Figure 1: The pathology findings after surgery in expremental group

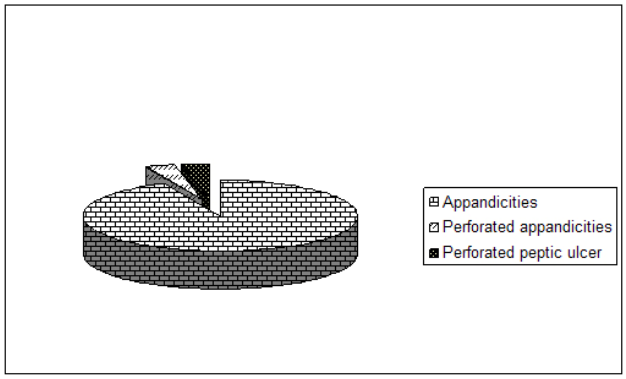

Figure 2: The pathology findings after surgery in control group

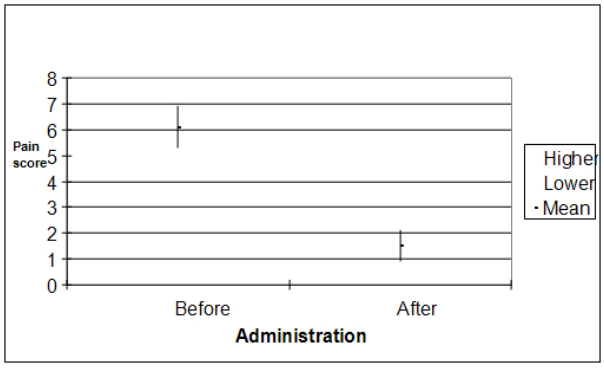

Figure 3: Pain score before and after morphin administration

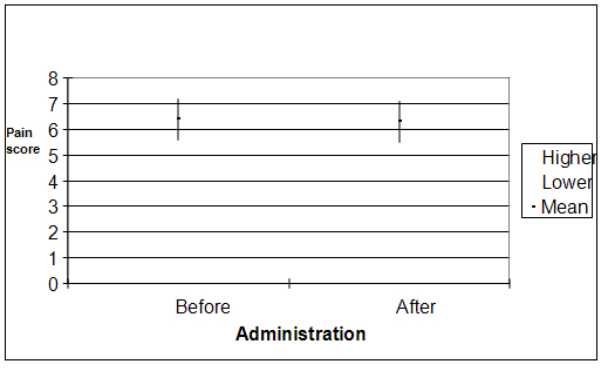

Figure 4: Pain score before and after placebo administration

DISCUSSION

The term 'acute abdomen' is applied when an acute and sudden abdominal pain has occurred during the past seven days or, usually, less than 48 hours[5].

Acute abdominal pain may result from a variety of intraperitoneal disorders and mandates surgical approach as the definite treatment. This group is named acute abdomen requiring surgery. However, acute abdominal pain may result from causes which do not mandate surgical approach[4].

Abdominal pain can be classified in three groups; visceral, somatic, and referral.

Visceral pain occurs due to stretching, compression, twisting or ischemias of the viscera, and visceral pain spreads through the intramural tissues of hollow viscera or in serous organs. This pain is generally dull and is poorly localized.

Somatic pain is due to irritation of (mural) peritoneum and usually localized in one of abdominal quadrants. The quality is sharp, threatening and often continuous.

Referral pain felt in a location away from the original cause and is due to a shared innervation. As an example, when the left hemidiaphragm is irritated by a ruptured spleen, this causes the pain to be felt in the left shoulder, known as Kehr's sign[6].

Colic often indicates an obstructive process in intestines. Such pain implies hyperperistalsis produced by the smooth muscles of the intestinal wall and between episodes, the pain subsides or completely disappears.

Pain caused by inflammation including appendicitis or diverticulitis, is continuous and increases with time.

A sudden onset of abdominal pain implies an abdominal catastrophic source like a rupture of an abdominal aortic aneurism or a visceral perforation or a ruptured Ectopic Pregnancy (EP). A rapidly progressive pain can be revealing a pancreatitis and a stabbing pain is a common finding in an aortic dissection. The pain that wakes a patient indicates a serious pathogenesis. The pain waxing with movement, deep respiration or sneezing, confirms a peritoneal inflammation. The pain of pancreatitis is enhanced in the supine position and is relived when sitting. The pain controlled by taking antacids, arouses the diagnosis of peptic ulcer.

In the big Randomized Clinical Trial (RCT) study of 340 patients, it is shown that morphine can decrease the pain but that missed diagnoses were equally frequent between the drug and the placebo[7].

In the study of Zoltie et al., of 288 patients the pain relief depended on the opioid dose, but there was no missed diagnosis[8].

The most recent study in 2005, by Kokki et al. of 104 patients showed that early administration of analgesic relieved pain effectively without changing the clinical signs[9].

Morphine does not suppress the main signs of peritoneal irritation, though pain can be effectively controlled by it. Therefore, using morphine as an analgesic in ED cases with a dosage of 0.1mg/gr, still remains advisable EP as an approach to the appearance of a non traumatic acute abdomen.

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