

# Effect of Narcotic Analgesia on Decision to Operate in Acute Appendicitis

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## ABSTRACT

**Aim:** To study that narcotic analgesia administration in patients of acute appendicitis does not delay the diagnosis and does not interfere with the decision to operate in these patients.

**Study design:** A randomized cross-over study.

**Setting and duration of study:** Study was done at surgery department of Combined military hospital Lahore over a period of two years from March 2019-2021.

**Methodology:** It was a double-blind randomized crossover study. A total of 100 patients, who were confirmed as acute appendicitis by clinical examination, were included. All the male and female patients of age 16 years and above were included in the study. The patients were divided in two groups each having 50 patients. The drugs were labelled as drug A and drug B. Drug A was morphine and drug B was placebo. Each drug was given to both the groups by crossover with an interval of 30 minutes and the components of physical examination were analyzed for both groups. The pain score was calculated by the visual analogue scale (VAS) for both the groups at both intervals. The *p*-value was calculated by using student's *t*-test. The frequency and percentages of the decision to operate were calculated. The data was tabulated and then analyzed on SPSS version 23.

**Results:** The pain score was calculated for both groups of male and females. The pain score difference was calculated in both groups and then *p*-value was calculated which came out to be significant. The frequencies of the decision to be operated were also calculated in both the groups and the results showed that there was no effect of narcotic analgesia on the decision to operate in patients with clinically diagnosed acute appendicitis

**Conclusion:** The use of morphine analgesia in the patients of acute appendicitis does not alter the diagnostic efficacy of the patients of acute appendicitis.

**Keywords:** Acute abdominal pain, acute appendicitis, Narcotic analgesia, Visual analog scale (VAS)

## INTRODUCTION

Acute appendicitis is the most common cause of abdominal pain all over the world.<sup>1</sup> Its incidence is 7% and approximately 260000 appendectomies are being performed in United States every year<sup>1</sup>. The common symptoms are nausea, vomiting, fever and abdominal pain. These symptoms are more pronounced in adults than in children. Acute appendicitis is equally common in children and adults<sup>2</sup>. 20-30 % of all the patients admitted with acute abdomen in the emergency departments are diagnosed with acute appendicitis. The diagnosis of acute appendicitis is essentially clinical and sometimes may be difficult and this can lead to severe complications<sup>3</sup>.

As far as the practice of the doctors in the emergency ward and hospital is concerned it is a general practice to provide analgesia to the patients received with abdominal pain. In emergency department, it is very common that the doctors on duty give analgesia to the patients even prior to the consultation with the surgical team<sup>4</sup>.

Many studies have shown that the analgesia practice has been safely used prior to the surgical planning in a patient<sup>3</sup>. Many previous researches have shown that surgeons are reluctant to use any kind of analgesia prior to surgery as this would mask the diagnostic accuracy of the acute appendicitis and can delaying the surgery and hence can increase the chances of complications<sup>5</sup>. In 2019, an article in American journal of surgery proposed the use of analgesia for acute abdomen, providing a data base to safely use the narcotic analgesia, for acute abdomen in patients in emergency departments<sup>6</sup>. A review in 2021 showed that appendectomy had been the first line treatment for acute appendicitis and also that the analgesia did not mask the symptoms of acute appendicitis and hence had no effect on the diagnostic accuracy and plan for the surgery<sup>1</sup>.

Another research was conducted to see the effect of narcotic analgesia on the outcome of acute abdomen was carried out on

100 patients on groups of 50 patients each. The effect of analgesia were studied in both groups and the results were that there is no difference of narcotic analgesia on the diagnostic accuracy of the acute abdomen and acute appendicitis<sup>7</sup>. A study was done in 2019, on a Covid positive patient to see the effect of conservative management and analgesia and it was recorded that the patient was satisfactorily recovered to delay the surgery with analgesia use<sup>8</sup>.

Similarly a study in 2019 also showed that the surgical treatment of acute appendicitis is the gold standard and the use of narcotic analgesia prior to the operation did not alter the decisive accuracy of the acute appendicitis<sup>9</sup>.

Also a study done in children in 2020 showed that appendectomy proved to be the better option for acute appendicitis in children also. On the other hand interval appendectomy with narcotics use had also been applied as another alternate treatment option<sup>10</sup>.

Many surgeons believed that use of narcotic analgesia may mask and delay the symptom appearance and hence can delay the treatment of acute appendicitis. The above-mentioned researches suggest that there is no correlation of the use of narcotic analgesia and delay in the decision to operate in patients of acute appendicitis. But still there is a lot room in the field to fill with the supporting information on the topic. Narcotic analgesia helps in localizing the pain to the specific region hence making the diagnosis more accurate and specific.

The objective of this study was to evaluate that whether narcotic analgesia administration in the patients of acute appendicitis delays the diagnosis and the decision to operate in the patients or not.

## MATERIALS AND METHODS

It was a double-blind randomized crossover study. A total of 100 patients presenting in the emergency department with acute abdominal pain, which was confirmed as acute appendicitis by clinical examination, were included<sup>11</sup>. All the male and female patients of age 16 years and above were included in the study.

Received on 11-03-2022

Accepted on 27-07-2022

Those having a previous appendectomy were excluded. After taking ethical approval from Ethical Review Board and a proper informed consent, all the patients were assessed on a visual analog scale for pain from 0-10cm. The patients were divided in two groups each having 50 patients. The drugs were labelled as drug A and drug B. Drug A was morphine 0.1 mg/kg of the body weight and drug B was placebo. Each drug was given to the both groups by crossover with an interval of 30 minutes and the components of physical examination were analyzed for both groups. A doctor on duty was assigned to perform the duty to examine the groups before the administration and after 30 minutes of administration of drugs also. The pain score was calculated by the VAS scale for both the groups at both intervals. The p-value was calculated by using student's-test. Also, the frequency and percentages of the decision to operate were calculated. The data was tabulated and then analyzed on SPSS 23 for statistical analysis.

**RESULTS**

The results were based on the two factors. First, the pain scoring was done and then p- value was calculated by applying t-test. 60 female patients and 40 male patients were divided in two equal groups receiving morphine as a drug and placebo. Pain scoring on visual analog scale was performed before the administration of these two drugs and then 30 minutes after administration of the both drugs. The pain score difference was calculated in both groups and then p-value was calculated which came out to be significant (Table 1).

Table 1: Pain scoring by VAS scale:

Characteristics	Pain score before adm.	Pain score after adm	Difference of scores	p-value
<b>Females (n=60)</b>				
Morphine(n=30)	6.00	3.50	2.5	0.001
Placebo(n=30)	5.50	4.00	1.5	0.001
<b>Males (n=40)</b>				
Morphine(n=20)	5.00	3.00	2.00	0.001
Placebo(n=20)	5.50	4.12	1.38	0.001

After that we calculated the frequencies of both the groups regarding the ones who were decided to be operated and the one who were discharged at the elimination of symptoms clinically. Out of 60 total females, 42 were decided to be operated while 18 were discharged after the symptoms were not there. Similarly, out of total 40 males, 28 were decided to be operated, while 12 were discharged after the symptoms got better (Table 2). Hence, the results showed that there is no effect of narcotic analgesia on the decision to operate in patients with clinically diagnosed acute appendicitis.

Table 2: Frequency of decision to operate:

Clinically diagnosed cases	Decided to operate	Discharged without appendectomy
<b>Females (n=60)</b>	42	18
Morphine (n=30)	21	9
Placebo (n=30)	21	9
<b>Males (n=40)</b>	28	12
Morphine (n=20)	14	6
Placebo (n=20)	14	6

**DISCUSSION**

A meta-analysis established in 2019 to see the effect of narcotic analgesia on diagnostic accuracy. It included all the data from last 30 years from all the renowned databases. The meta-analysis described that the use of any type of analgesia does not alter the diagnostic accuracy and the decision of the appendectomy. Hence the decision to do the appendectomy was not at all affected by the use of the analgesia<sup>12</sup>. As our study also showed, that there is no significant effect of the narcotic analgesia on decision to operate in acute appendicitis patients.

Another systematic review of the randomized controlled trials were done from 1980-2013 to identify the effect of narcotic analgesia on the appendectomy decision. And it was concluded that opioid analgesia had no effect on the decision to operate in acute appendicitis in children also, hence proving our point of discussion as well. However it was recommended that further more trials are needed in this regard<sup>13</sup>.

Another systematic review from years 1929-2011 was carried out to see the same effect of narcotic analgesia on the diagnostic accuracy. It included 84 papers from very renowned databases like PubMed, Cochrane etc. and the conclusion was that narcotic analgesia did not affect the diagnostic accuracy of appendicitis<sup>14</sup>.

Another systematic review published in Cochrane database suggested that several trials were included from 1996-2009 to see the effects of narcotic analgesia on the decision to operate. Total eight trials were included in the review and the conclusion was that opioid or narcotic analgesia did not affect the surgical decision of acute appendicitis in any age and gender<sup>15</sup>.

As per the results of our study as well it was observed that narcotic analgesia of any type did not alter the diagnostic accuracy and the decision to operate in the patients of acute appendicitis. Hence the use of narcotic analgesia will not be affected due to the fear of the change in the decision of appendectomy.

**CONCLUSION**

It is concluded that use of morphine analgesia in the patients of acute appendicitis, does not alter the diagnostic efficacy of the patients of acute appendicitis. Further, more researches and data collaboration can be made to make a universally acceptable standard for the use of narcotic analgesia in the patients of acute appendicitis.

**Conflict of interest:** Nil

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