



EFFECTIVENESS OF INTERCOSTAL NERVE BLOCK FOR MANAGEMENT OF PAIN IN RIB FRACTURE PATIENTS

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Abstract

Background: The Intercostal Nerves Innervate forms the major parts of the skin and the musculature of the chest as well as the abdominal wall. The thoracic injuries are caused due to various reasons including the injuries due to fall, accidents, sports and various physical assaults. The Intercostal Nerves Innervate is one of the major treatment mechanism used to treat many of the chronic pain conditions affecting the thorax and upper abdomen, including breast and chest wall surgery.

Aim: To study the effectiveness of intercostal nerve block for management of pain in rib fracture patients

Methods: It was an observational study. All the patients with thoracic injuries and rib fractures were included in the study. The VAS score for all the patients were recorded. The patients were divided into two groups namely, control group and ICNB group. The study included 60 patients with 30 patients in the control group and 30 patients in the ICNB group.

Results: The number of men was 40 and that of the women was 20. The mean age of the patients was 46.67±12 years. The number of men was 40 and that of the women was 20. The mean age of the patients was 46.67±12 years. According to the VAS score there was statistically significant difference among the patients immediately after receiving ICNB and conventional methods. However, there was no statistically significant difference among the two groups at different intervals after the therapy.

Conclusion: In the light of the above results it was clear that ICNB had greater capacity of reducing the pain among the patients suffering from thoracic injuries as compared to the other conventional methods. There was statistically significant difference between the ICNB and conventional methods immediately and up to 2-3 days post applying the approach. However, after that there was no statistically significant difference in the pain scores.

Keywords: Intercostal Nerve Block, Rib Fracture, Thoracic Injuries, VAS

Introduction

The Intercostal Nerves Innervate forms the major parts of the skin and the musculature of the chest as well as the abdominal wall^[i]. The thoracic injuries are caused due to various reasons including the injuries due to fall, accidents, sports and various physical assaults^[ii]. Apart from the diverse mechanisms of thoracic injuries, the types of injuries also differ accordingly. These range from rib fractures to traumatic hemothorax associated internal organ damage^[iii].

In the extreme cases the doctors have noticed situations where the thoracic cavity is exposed due to the open thoracic trauma^[iv]. Among all types of thoracic injuries the most common type is the injury of the rib.

The patients suffering from this kind of injury, complaint about redness and tenderness around the affected area

during coughing, breathing, exercising and other physical activities^[v].

Rib fractures are common and it has been found that 10% of all the injuries are rib fractures with blunt thoracic trauma resulting due to road traffic accidents^[vi].

Rib fractures were found to be associated with increased mortality and morbidity. Pain associated with rib movement reduces the tidal volume and predisposes to significant atelectasis. This can further lead to retention of pulmonary secretions and pneumonia^[vii].

The Intercostal Nerves Innervate is one of the major treatment mechanism used to treat many of the chronic pain conditions affecting the thorax and upper abdomen, including breast and chest wall surgery^[viii].

It was first described by Braun in the year 1907^[ix]. Pain control is not only necessary for preventing further complications and its advancement towards chronic pain.

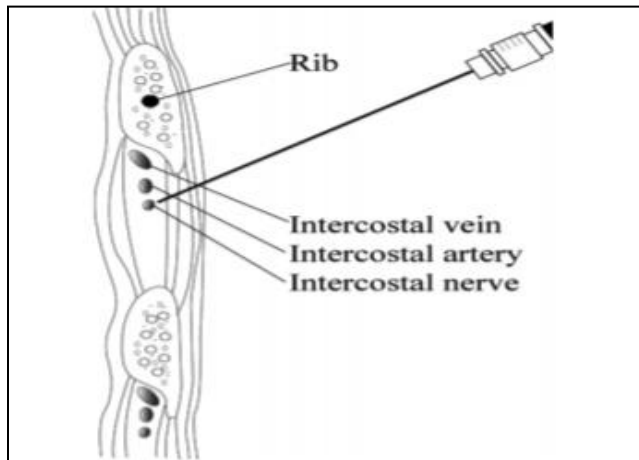


Figure 1: Intercostal Nerve block^[x]

Aim

To study the Effectiveness of intercostal nerve block for management of pain in rib fracture patients

Material and methods

It was an observational study carried out at the _____ department of the _____ hospital. The study period was from _____ to _____. All the patients with thoracic injuries and rib fractures were included in the study. The VAS score for all the patients were recorded. The patients were divided into two groups namely, control group and ICNB group. The study included 60 patients with 30 patients in the control group and 30 patients in the ICNB group.

Results

There were 40 males and 20 females. The mean age of the patients was 46.67±12 years.

Table 1: Causes of Rib Fracture

Causes	Number of Patients
Fall	30
Road Traffic Accident	15
Physical Assault	12
Others	3

From the above table it was identified that the maximum number of patients had rib injuries due to fall and then from road traffic accident.

Table 2: Group Distribution

Group	Number of Patients
Control group	30
ICNB group	30

The above table depicts the distribution of patients according to the two groups taken for the study.

Table 3: VAS score at different stages

VAS score	Control group	ICNB group	P value
VAS score (Before)	8.0	9.45	>0.05
VAS score (immediately)	7.50	5.40	<0.05
VAS score (1 day)	6.10	4.99	<0.05
VAS (7 days)	3.98	3.60	>0.05
Hospital stay	9	11	>0.05

The above table shows the VAS score at various stages and the difference between the two groups.

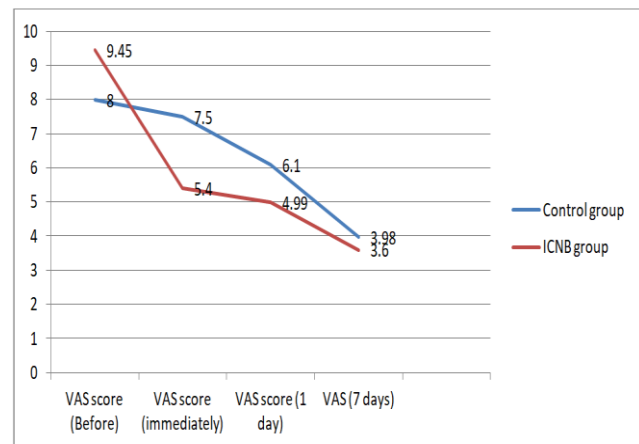


Figure 2: VAS score between Control and ICNB group

Discussion

In the current study, there were two groups that had 30 patients each. On the other hand as per the study of Srinidhi et al., (2015) the two groups had 18 patients each. The VAS score (before) ICNB in the current study was 9.45 while as per the study of Srinidhi et al., (2015) was 7.52±1.13 which was low as compared to the current study. Furthermore, according to the current study, the VAS score (immediately) after ICNB was 5.40 while as per the study of Hwang et al., (2014) it was 5.39 which was at par with the current results. It was also found in the current study there was statistically significant difference among the two groups in the VAS score immediately after the ICNB and the control group. Similar results were found in the study of Hwang et al., (2014) and Srinidhi et al., (2015)^[xi].

Conclusion

In the light of the above results it was clear that ICNB had greater capacity of reducing the pain among the patients suffering from thoracic injuries as compared to the other conventional methods. There was statistically significant difference between the ICNB and conventional methods immediately and up to 2-3 days post applying the approach. However, after that there was no statistically

significant difference in the pain scores. Still, intercostal nerve block remains the simple and easy way to control the severe pain being borne by the rib injury patients along with reducing the mortality and morbidity among such patients.

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