Original Research Article

A Comparative study of postoperative pain after open versus endoscopic carpel tunnel release at tertiary health care centre

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Abstract

Background: The carpal tunnel syndrome (CTS) is a common problem since half of century. Carpal tunnel syndrome (CTS) is caused by compression of the median nerve at the wrist resulting in hand numbness, loss of dexterity, muscle wasting and decreased functional ability at work. **Aims and Objectives:** To study postoperative pain after open versus endoscopic carpel tunnel release at tertiary health care centre**. Methodology:** After approval from institutional ethical committee this cross-sectional study was carried out in the department of Orthopedics during the one year period i.e. January 2017 to January 2018, in the patients with carpel tunnel syndrome. All the records of patients which were treated either by open or endoscopic method were retrieved and the 30 patients treated by endoscopic method and 30 patient treated by open method were studied randomly. All details of the patients like age , sex, pain in the patients was assessed on 1^{st} , 2^{nd} , 3^{rd} , 4^{th} , 5^{th} and 6^{th} post operative day was assessed by Visual analogue scale score was studied . The statistical analysis was done by unpaired t-test and Chi-square test calculated by SPSS 19 version software. **Result :** average age Yrs. of Endoscopic Surgery Group was 45 ± 3.54 and Open Surgery Group was 46 ± 4.32 Yrs. and no of Male and Female were comparable in both the groups (t=1.21,=df=58,p>0.05) and (χ^2=0.277,df=1,p>0.05) respectively. The Pain measured by VAS score was significantly higher in the open surgery group as compared to Endoscopic Surgery Group **i.e.** 3.42 ± 2.1 and 6.13 ± 3.42 (t=3.69,df=58,p<0.005); 2.1± 3.12 and 5.23± 2.92 (t=4.92,df=58,p<0.001); 1.92 ± 2.23 and 3.76± 2.61 (t=5.21,df=58,p<0.001); 1.32± 1.98 and 3.52±1.39 (t=3.12,df=58,p<0.01) ; 1.12± 1.62 and 2.92 ± 2.54 (t=5.97,df=58,p<0.001); 0.92 ± 0.43 and 2.12 ± 1.73 (t=4.47,df=58,p<0.001) respectively in Endoscopic Surgery Group and Open Surgery Group. **Conclusion:** It can be concluded from our study that that the post operative pain was significantly higher in the Open Surgery Group as compared to Endoscopic Surgery Group so the pain Endoscopic surgery is a better option as compared open surgery.

Key Words: Carpal tunnel syndrome (CTS), Endoscopic Surgery for CTS, VAS (Visual Analogue Scale).

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INTRODUCTION

The carpal tunnel syndrome (CTS) is a common problem since half of century. Carpal tunnel syndrome (CTS) is caused by compression of the median nerve at the wrist resulting in hand numbness, loss of dexterity, muscle wasting and decreased functional ability at work. Open Carpal tunnel release (CTR) has been considered the operative procedure of choice for decompression of the median nerve at the wrist in patients who have idiopathic CTS.[1–3] Recently, there has been a trend to treat CTS by the endoscopic release of the transverse carpal ligament.[4,5] Endoscopic carpal tunnel release (ECTR) is claimed to be associated with minimal pain and scarring due to small incision, a shortened recovery period and a high level of patient satisfaction.[6] Current literature suggests that the long-term results of endoscopic CTR are the same as those of open CTR.[7] However, there are some reports that doubt the claims that the endoscopic carpal

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tunnel release is associated with quicker functional recovery and less postoperative pain.[8] Concerns persist with the possibility of endoscopic release resulting in incomplete release, higher rate of recurrence along with questionable safety of endoscopic techniques, cost of endoscopic equipment and training and difficulty of the surgery.[1,4]

MATERIAL AND METHODS

After approval from institutional ethical committee this cross-sectional study was carried out in the department of Orthopedics during the one year period i.e. January 2017 to January 2018, in the patients with carpel tunnel syndrome . All the records of patients which were treated either by open or endoscopic method were retrieved and the 30 patients treated by endoscopic method and 30 patient treated by open method were studied randomly. All details of the patients like age , sex, pain in the patients was assessed on 1st , 2nd , 3rd , 4th , 5th and 6th post operative day was assessed by Visual analogue scale was studied . The statistical analysis was done by *unpaired t-test* and *Chi-square test* calculated by SPSS 19 version software.

RESULT

Table 1: Distribution of the patients as per the various demographic characters

Characters	Endoscopic Surgery Group (n=30)	Open Surgery Group (n=30)	Statistics
Average age in Yrs. (Mean ±SD)	45 ± 3.54	46 ± 4.32	t=1.21,=df=58, p>0.05
Sex			
Male	13	11	(χ^2=0.277,df=1, p>0.05)
Female	17	19	

From above table it is clear that the average age Yrs. of Endoscopic Surgery Group was 45 ± 3.54 and Open Surgery Group was 46 ± 4.32 Yrs. and no of Male and Female were comparable in both the groups (t=1.21,=df=58,p>0.05) and (χ^2=0.277,df=1,p>0.05) respectively.

Table 2: Distribution of the patients as per the Visual Analogue Scale on various post operative days

Post operative day	Endoscopic Surgery Group (n=30)	Open Surgery Group (n=30)	Statistics
1st day	3.42 ± 2.1	6.13 ± 3.42	t=3.69,df=58,p<0.005*
2nd day	2.1± 3.12	5.23± 2.92	t=4.92,df=58,p<0.001*
3rd day	1.92 ± 2.23	3.76± 2.61	t=5.21,df=58,p<0.001*
4th day	1.32± 1.98	3.52±1.39	t=3.12,df=58,p<0.01*
5th day	1.12± 1.62	2.92 ± 2.54	t=5.97,df=58,p<0.001*
6th day	0.92 ± 0.43	2.12 ± 1.73	t=4.47,df=58,p<0.001*

The Pain measured by VAS score was significantly higher in the open surgery group as compared to Endoscopic Surgery Group i.e. 3.42 ± 2.1 and 6.13 ± 3.42 (t=3.69,df=58,p<0.005); 2.1± 3.12 and 5.23± 2.92 (t=4.92,df=58,p<0.001); 1.92 ± 2.23 and 3.76± 2.61 (t=5.21,df=58,p<0.001); 1.32± 1.98 and 3.52±1.39 (t=3.12,df=58,p<0.01) ; 1.12± 1.62 and 2.92 ± 2.54 (t=5.97,df=58,p<0.001); 0.92 ± 0.43 and 2.12 ± 1.73 (t=4.47,df=58,p<0.001) respectively in Endoscopic Surgery Group and Open Surgery Group.

DISCUSSION

Postoperative pain is a critical concern affecting the choice between open and endoscopic surgical techniques and it is the main outcome parameter in both techniques. Thus, postoperative pain is frequently assessed in studies comparing the results of open and endoscopic release in carpal tunnel syndrome (CTS), a common peripheral nerve entrapment. While several parameters such as functional outcome, recovery time, scar sensitivity and complication rates are also addressed in these studies, none of them focused on a scheduled and periodical follow up of pain intensity in the early postoperative period.[9,10,11,12] In our study we have seen that the average age Yrs. of Endoscopic Surgery Group was 45 ± 3.54 and Open Surgery Group was 46 ± 4.32 Yrs. and no of Male and Female were comparable in both the groups (t=1.21,=df=58,p>0.05) and (χ^2=0.277,df=1,p>0.05) respectively. The Pain measured by VAS score was significantly higher in the open surgery group as compared to Endoscopic Surgery Group i.e. 3.42 ± 2.1 and 6.13 ± 3.42 (t=3.69,df=58,p<0.005); 2.1± 3.12 and 5.23± 2.92 (t=4.92,df=58,p<0.001); 1.92 ± 2.23 and 3.76± 2.61 (t=5.21,df=58,p<0.001); 1.32± 1.98 and 3.52±1.39 (t=3.12,df=58,p<0.01) ; 1.12± 1.62 and 2.92 ± 2.54 (t=5.97,df=58,p<0.001); 0.92 ± 0.43 and 2.12 ± 1.73 (t=4.47,df=58,p<0.001) respectively in Endoscopic Surgery Group and Open Surgery Group. These findings are similar to Mehmet Müfit Orak [16] et al they found that Pain assessment at the postoperative 1st, 2nd, 4thand 24th hours revealed significantly low VAS scores in the endoscopic surgery group (P = 0.003, P < 0.001, P < 0.001, P < 0.001). Need for analgesic medication was significantly lower in the endoscopic surgery group (P < 0.001) but in our study we assed the pain at 1st, 2nd, 3rd, 4th, 5th, 6th post operative day. These findings are also similar to Atroshi, Chow and Hantes and Agee *et al.* emphasized the low postoperative level of pain but reported subjectively.[13,14,15]

CONCLUSION

It can be concluded from our study that that the post operative pain was significantly higher in the Open Surgery Group as compared to Endoscopic Surgery

Group so the pain Endoscopic surgery is a better option as compared open surgery.

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