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ROLE OF TRAMADOL INFILTRATION IN THE MANAGEMENT OF POST-OPERATIVE PAIN IN PATIENTS UNDERGOING SEPTAL AND SINUS SURGERIES

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Abstract:
Introduction: Postoperative pain is an important component which demotivates the patients from undergoing elective surgeries. Septoplasty is a commonly performed elective procedure. This study aims to know the role of tramadol infiltration in septal and sinus surgeries in reducing postoperative pain.
Materials and Methods: A prospective study was done on a sample of 100 patients.50 patients were given Tramadol infiltration and the other 50 patients were infiltrated with Saline as the control group.
Results: Patients in the Tramadol infiltration group had significant reduction in postoperative pain when compared with the Saline infiltration. Patients in the Tramadol infiltration group had reduced consumption of postoperative analgesics compared to the Saline infiltration group.
Conclusion: Tramadol is an efficient alternative to other analgesic agents. Submucosal infiltration of Tramadol gives significant post-operative pain relief up to 12 hours post operatively.
Keywords: Nasal Surgical procedures, Tramadol, Local, Infiltration

1. Introduction

As per the definition given by the International association for the study of pain (IASP), Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage. Pain therefore is a natural protective mechanism. It occurs as a part of tissue injury and it is an alert for the individual to react and remove the pain stimulus.[1]

Post-Operative pain is a response to an acute inflammatory process that starts with surgical trauma and ends with tissue healing. Many of the patients suffering from an illness requiring surgery are worried about the post-operative pain and keep deferring the procedure. Therefore, it is always important for the medical professionals to manage the pain efficiently and also make sure that analgesics cause less harm to the patient. Most post-operative analgesic management is taken care of by NSAIDS which can cause gastric disturbances such as bleeding, gastrointestinal irritation, nausea and vomiting needing medication to manage these problems. Inadequate analgesia can prolong the hospital stay, add to the expenses and disturbs the quality of life.[2]

Septal and sinus surgeries are usually associated with mild to moderate facial pain in the post-operative period. The nasal mucosa is sensitive to pain because of rich innervation. Pain from these procedures can be aggravated by the presence of nasal packs and therefore the pain experienced is much more. Tramadol is a centrally acting opioid commonly used for moderate to severe pain both for acute and chronic conditions.[3]

The present study aims to know the role of submucosal tramadol infiltration in the management of post-operative pain in patients undergoing septal and sinus surgeries.

2. Materials and Methods

The present study was carried out in a tertiary care hospital with the approval of the Institutional Ethics committee. Relevant clinical and demographic data was obtained from the patients. A detailed clinical examination was performed and relevant investigations conducted.

Patients with predominant symptoms associated with deviated nasal septum and/or chronic rhinosinusitis like nasal obstruction, nasal discharge, headache and postnasal discharge who had already been on medical treatment for the same without relief, were selected for the procedure. A sample size of 100 was considered for the study. The patients were randomly divided into 2 groups.50 patients forming the group receiving Tramadol were named Group T as the test group and 50 patients who were receiving the saline infiltration forming the control group were called Group C. The study was done double blind.

Our standard protocol of anesthesia for any septal surgery is general anesthesia. Intra operative infiltration of saline: adrenaline (1:100000) was administered to both groups. Sub mucosal infiltration was given on either side of the septum in cases undergoing septal surgery and over the lateral nasal wall including the bulla ethmoidalis, uncinate

process and the middle turbinate in cases undergoing FESS. Group T received infiltration of tramadol at 2 mg/kg (max. 4ml). Group C patients were getting equal volume of saline (max. 4ml). The infiltration was given intra operatively before the procedure began. Both the groups were monitored post operatively. The patient's postoperative analgesic demand, visual analogue score, additional analgesic consumptions were analyzed up to 24 hours following surgery. Statistical analysis was done using Mann Whitney test. P values of <0.05 was considered statistically significant and P values >0.05 was considered not significant. The visual analogue scoring was done using Likert's Scoring. Here a score is given for the pain described by the patient. The scoring was done between 1 and 5. (Table I)

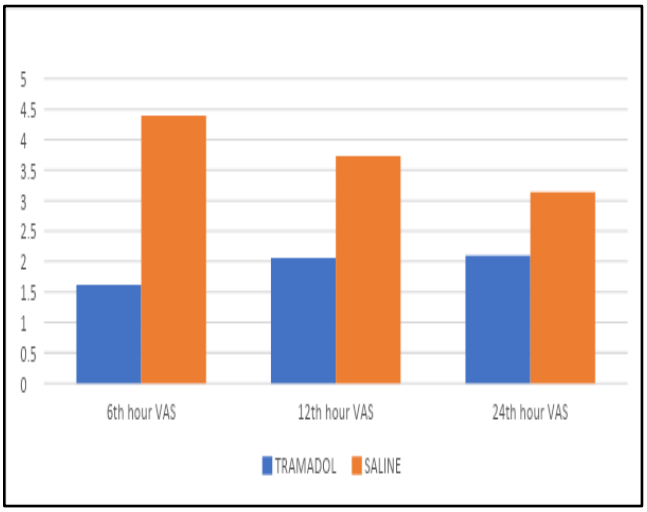
Table I: Visual analogue score as per Likert's scale

LIKERT SCORE	Pain Assessment
Score 1	Completely comfortable
Score 2	Very Comfortable
Score 3	Slight Discomfort
Score 4	Painful
Score 5	Very Painful

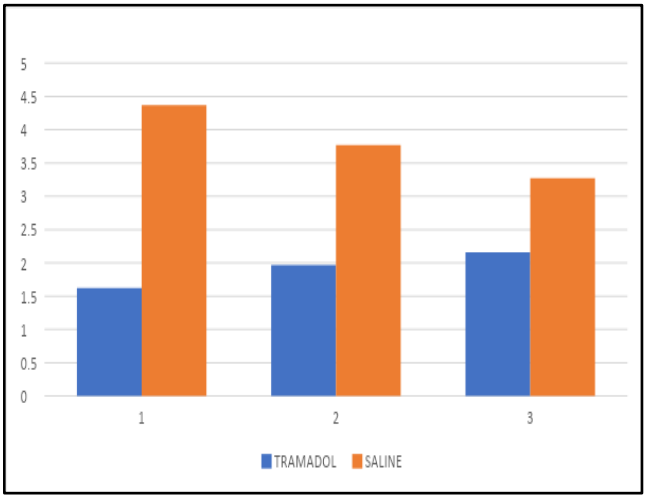
3. Results and Discussion

The average age of 100 patients studied was 28 years. The youngest being 12 years and oldest was 63 years. The average age of patients in Tramadol group was 27 years and in the saline group was 30 years. The patients underwent Septoplasty (67%) or Functional Endoscopic Sinus Surgery (17%) or Septoplasty with Functional Endoscopic Sinus Surgery (16%).

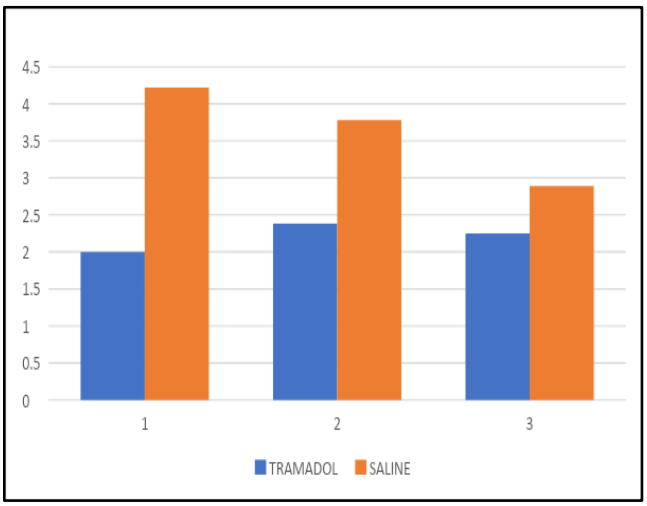
The Visual Analogue scoring was done at 6th, 12th and 24th hour post operatively. Patients were asked to scale their pain between 1 and 5 according to the Likert's Score. Visual Analogue Scores were higher in patients of saline group as compared to tramadol group. Patients in the saline group scored significantly higher in the first 6 hours of surgery when compared to tramadol group which continued for 12 hours and 24 hours score also. The patients in the tramadol group had significantly lesser pain when compared to those in the saline group. (Graphs I, II, III and IV)



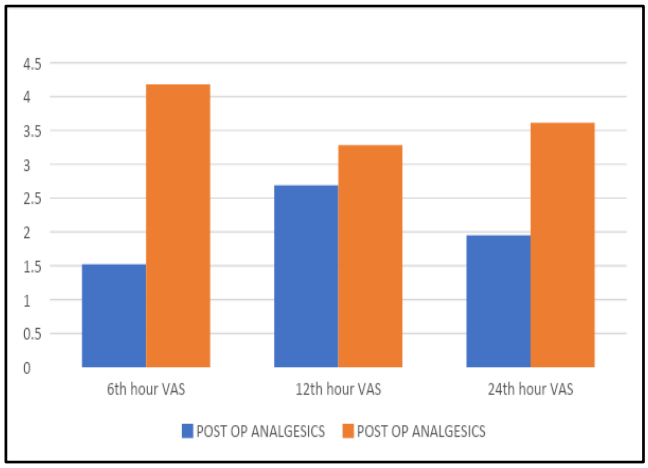
Graph 1: Comparison of VAS in Saline and Tramadol Groups



Graph II: Comparison of VAS in patients undergoing Septoplasty



Graph III: Comparison of VAS in patients undergoing FESS



Graph IV: Comparison of Post-Operative Analgesic requirements in Saline and Tramadol Groups

Postoperative pain is an important component which demotivates the patients from undergoing elective procedures. Efficient management of postoperative pain improves the patient satisfaction rates. Patients undergoing septal and sinus surgeries have mild to moderate facial pain and these patients generally will have nasal packs or splints which gives a feeling of nasal obstruction and aggravates the pain.[4]

In most of the cases, post-operative analgesic management is taken care of by NSAIDs, mostly paracetamol with or without diclofenac or aceclofenac, which can cause gastric disturbances such as bleeding, gastrointestinal irritation, nausea and vomiting needing additional medications to manage the complications. A combination of lignocaine 2% with adrenaline (1:100000) is the most accepted form of infiltration given for pain relief and to obtain relatively blood less field. The action of lignocaine lasts for only for few hours post-operatively without severe side effects. There are few studies showing that bupivacaine and ropivacaine are also equally effective.[5]

Tramadol is structurally related to codeine, which is, in fact, a methylmorphine. Tramadol exerts its action on central monoaminergic systems and this mechanism may contribute to its analgesic effect. Tramadol might have a mechanism different from that of lidocaine for producing conduction blocks; the presence of a large calcium concentration in the external medium increases tramadol's activity whereas decreasing lignocaine's activity.[6]

In our study, Visual Analogue Scores were higher in patients of saline group as compared to tramadol group. Patients in the saline group scored significantly higher in the first 6 hours of surgery when compared to tramadol group. The groups between 12th and 24th hour also had increased pain when compared to tramadol group. Number of post-operative NSAID (Aceclofenac + Paracetamol) prescription was higher in the saline group while comparing with tramadol group.

Patients in FESS group had significant reduction of pain post operatively in the tramadol group while comparing with the saline group in the 6th (<0.001) and 12th post-operative hour but the effects of tramadol infiltration tapered off after 12 hours and pain scores were only slightly lower on comparison with saline after 24 hours.

Patients who underwent Septoplasty with FESS had comparatively higher pain than patients who underwent either Septoplasty or FESS alone. Septoplasty with FESS patients who were on Tramadol infiltration had significantly lower Visual Analogue Score than their counterparts on the Saline infiltration after 6 hours postoperatively.12th and 24 hours post-operatively both groups had significant pain and required post-operative analgesics but the tramadol group required comparatively lesser post-operative analgesia.

In the study by Altunkaya H et al, 40 patients undergoing minor surgery (lipoma excision and scar revision) under local anesthesia were included. The patients were randomly allocated into two groups: One group was given tramadol injection and the other was given lignocaine subcutaneously. Subjects with VAS – 4 were advised to take paracetamol as needed. No side effects were recorded in either group except for 1 patient complaining of nausea in group T at the 30th min of operation. In the study by Altunkaya H et al, there was no significant difference between the Visual Analogue Score between the two groups in the immediate postoperative period.[3] In our study the comparison was done between tramadol and saline. Hence, we had significant difference in Visual Analogue Score between the patients of the two groups.

In a study by Koputan MH et al where they compared the post-operative pain in patients undergoing endoscopic sinus surgery and septorhinoplasty who received Tramadol and Levobupivacaine infiltrations showed that tramadol was more efficient, practical and safe alternative to Levobupivacaine. They also suggested that Tramadol infiltration can be given as an alternative to other analgesic agents in case of side effects to NSAIDs.[7] In our study significant reduction in pain was achieved in the first 12 hours post-surgery after which the efficacy of Tramadol drops (half-life - 5.5hrs). In the study by Koputan MH et al, the post-operative analgesic effects with Tramadol were significant until 16 hours post-surgery. They attributed this to not just the weak opioid and local anesthetic properties of tramadol but also to the re uptake inhibition of noradrenaline and serotonin.[7]

In a study done by Ekmekci et al, tramadol infiltration was given at the end of the septoplasty and the control group received saline. The sample size was 30 each. The results

show that patients receiving tramadol had lower VAS scores.[8]

Studies have shown that peritonsillar infiltration with tramadol has reduced post tonsillectomy pain in pediatric patients.[9] Tramadol infiltrated to nasal packings decrease the need of additional analgesics in the postoperative period, increases patient's satisfaction, decreases the length of hospital stay and reduces the rate of secondary infections.[10]

Though tramadol infiltration has gained popularity in other fields of surgery its use in septal and sinus surgeries are limited. This made our study more important and unique as not many had done similar studies before.

4. Conclusion

Patients undergoing Septoplasty had significant reduction of post-operative pain and this was well maintained for the first 24 hours after surgery. These patients had reduced requirement of post-operative analgesics in the form of NSAIDs thus reducing NSAID induced complications and further medications.

Patients undergoing FESS had significant reduction of post-operative pain which was well maintained for 12 hours post-operatively but there was significant pain after that comparable to saline infiltration group. This is probably due to FESS being an extensive surgery and that the effects of tramadol were best within the first 12 hours after surgery.

Patients who had underwent both Septoplasty and FESS had significantly less pain in the first 6 hours after surgery following which they had increased pain. These patients had substantially required more post-operative analgesics but the analgesic requirement was much lower than the saline infiltration group. In conclusion it was found that Tramadol is an effective alternative if not better than other local analgesic infiltrations available. They also had no side effects post-operatively according to our study.

Intraoperative tramadol provides efficient analgesia, reduces intravenous opioid consumption and increases patient satisfaction without adding to the side effects. To ascertain their superiority further study with a bigger sample size would be required comparing them with other drugs available.

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