



Comparing the pain-relieving efficacy of transdermal diclofenac patch versus transdermal methyl salicylate patch after performing closed reduction and inter maxillary fixation of undisplaced mandibular para symphysis fracture

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Abstract

Closed reduction of parasymphysis fracture with internal maxillary fixation is a routine procedure which can be performed under local anesthesia on a dental chair itself. But, the prevalence of patient compliance factor about, intake of oral medications, is not always as directed by the physician in a greater manner.

Besides this, another factor is the adverse effects of oral ingestion of Non-steroidal anti-inflammatory drugs suggest the need to look for an alternative, similarly efficient but lesser adverse effects giving medication to relieve pain.

Keywords: Parasymphysis fracture, transdermal patch, pain relieving, methyl salicylate, diclofenac sodium

1. Introduction

In today's world there are various techniques to relieve pain [4].

Not necessary by administering orally, Sub cutaneous, Intra venous, etc. medications. Today it is not even important to take allopathy medications for relieving mild to moderate pain. To relieve pain by taking medications can be as compliant and easy as to apply transdermal patches [5]. These can be working systemically or working locally. There is overuse and abuse of the pain relieving medications [6] available in the market may it be opioids or Non-steroidal anti-inflammatory drugs.

In this era where the population is not aware of whether science is a curse or a boon, it is necessary to limit the adverse effects and dependency of a patient on pain killers [7].

It can be done by using trans dermal patches [8] which establish the purpose of not overusing and only necessary using of the drugs available in the market. This is in turn going to give a better standard of living to the society.

Mandibular fractures are the most common type of facial fractures in the adult population, accounting for 36%-59% of all maxillofacial injuries and their treatment is one of the most frequent forms of therapy provided by maxillofacial surgeons [9].

Fractures of symphysis and parasymphysis of the mandible are extremely common injuries [10]. The key to successful management of these fractures is to understand the principles of accurate fracture reduction, reestablishment of occlusion, and stable internal fixation.

The basic requirement of rigid fixation is to provide adequate stability to prevent inter-fragmentary motion even with active mandibular movements [11]. This can be achieved by accurate close approximation of fracture

fragments and ensuring larger contact areas in regions that are under compressive forces [12]. Many modalities like bone reconstruction plates, lag screws, geometric bone plates and miniplates are available to achieve internal fixation of body/symphysis fractures.

Inclusion Criteria

Both the genders Age 20 to 30 years Patients undergoing closed reduction of parasymphysis fracture with internal maxillary fixation

Exclusion Criteria

Local inflammation Local pathology Local carcinoma Patients on pain threshold lowering drugs Use of tobacco in any form Immunocompromised individuals Pregnant women Patients with hereditary blood conditions

2. Materials and Methods

30 patients randomly were selected from the departmental OPD in the oral and maxillofacial surgery in R.K.D.F. Dental College and Research centre, Bhopal, M.P. who underwent the process of closed reduction of parasymphysis fracture with internal maxillary fixation Pain after the given procedure was alternatively relieved by using transdermal methyl salicylate patch and transdermal diclofenac patch in every other patient Each patient was given visual analogue scale to evaluate the effectiveness of the medications Thereafter, the patients were observed 8 and 12 hours post operatively respectively Every alternate patient the transdermal diclofenac sodium patch was applied on the inner forearm [13] and changed after 12 hours. The remaining alternate patients were given methyl salicylate patch on the lateral neck [14] and it was changed 8 hours.

3. Results

Both the transdermal patches show similar pain-relieving effects but Methyl Salicylate transdermal patch is slightly more effective than the Diclofenac Sodium transdermal patch.

4. Discussion

Patients suffering from organ disorders are not likely to get results the way doctors have advised and the pattern of drugs intake which is not as designed. Transdermal patches came into existence in late 1970s known as trans dermal drug delivery system^[15].

These are dosage form designed to deliver a therapeutically effective amount of drug across a patient's skin^[16]. This, not only provides controlled and constant administration of the drug^[17] but also allows continuous input of drugs with short biological half-lives and eliminates pulsed entry into systemic circulation.

Administration of therapeutic agents normally used in surgical extraction go through the first pass metabolism but, methods used across the skin enables drugs to avoid first-pass chemical or enzymatic degradation in the gastrointestinal tract. There are a variety of patches used for trans dermal delivery namely: reservoir patches, matrix patches, drugs in adhesives and micro reservoir system^[18]. Matrix patches can be applied to the skin by either gluing the backing to the skin adjacent to the matrix or an adhesive on the matrix to the skin^[19].

Other than the normal out patients in the department, the candidates selected for the delivery of the application of the patches can be the ones who are not aware of the importance of administering medications like the specially abled ones. The other candidates can be one inform the doctor that they are most likely to skip medications and cannot necessarily be regular with their doses. One category can be the medically affected patients facing conditions like gastritis, etc. who are relatively or absolutely contraindicated to administer Non-steroidal anti-inflammatory drugs orally.

5. Conclusion

Transdermal drug delivery system stands effective in relieving moderate to extreme pain after surgical extraction with both the patches showing efficacy in providing pain relief.

6. References

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