COMPARATIVE STUDY OF ORAL AND INTRALESIONAL VERAPAMIL IN PEYRONIE’S DISEASE

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ABSTRACT

BACKGROUND
Treatment of Peyronie's disease is a dilemma for the treating urologist. Part of this problem is due to an incomplete understanding of the aetiopathophysiology of the disease. Multiple nonsurgical treatment are available for Peyronie's Disease (PD) including calcium channel blocker verapamil, both oral and intraplaque injectable. The use of verapamil is based on its capacity to alter fibroblast function and promote collagen degradation. As a result, calcium channel antagonists may have the capacity to slow, prevent or even reverse plaque formation. There are many studies suggesting benefits of intraplaque verapamil injection. In our study, we aim to compare the outcomes of oral versus intraplaque verapamil injection in terms of pain reduction, decrease in curvature and improved sexual function.

MATERIALS AND METHODS
In this randomised study, 20 patients were randomly divided into 2 groups of 10 patients each (Group I patients were treated with oral verapamil and group II patients were treated with intraplaque verapamil injection). Results from both the groups were compared and interpreted in terms of change in plaque size, curvature, erectile function and pain. Size of plaque was assessed with the help of color Doppler in pre and post-treatment period. All the 20 patients were followed for 3 years after completion of treatment. None of the 20 patients lost to follow up.

RESULTS
30% of group I patients (oral verapamil) showed decreased plaque volume. Softening of plaque was noted in only 60% of the patients. Subjective erectile dysfunction improved in only 40% of the patients. In group II patients who received intraplaque verapamil injection, 70% showed decreased plaque volume with improvement in penile curvature. There was softening of the plaque in all the patients in group II. Subjective erectile dysfunction improved in 60% of the patients. No local or systemic toxicity was noted except mild ecchymosis in 2 patients of group II.

CONCLUSION
This study concludes that intraplaque verapamil injection is more effective and reasonable option than oral verapamil in nonsurgical patients of Peyronie's disease. Maximum benefits are seen up to 3 months of treatment.

KEYWORDS
Verapamil, Plaque, Peyronie's Disease, Intraplaque Injection.


BACKGROUND
Peyronie’s Disease (PD) is a disfiguring and psychologically devastating localised connective tissue disorder of the penis. It may cause formation of plaque, penile deformity, pain, erectile dysfunction, penile shortening, indentation, hourglass deformity of penis and emotional stress. Treating a patient of PD still poses a dilemma and frustrating situation for the practicing urologist till date. Since, it is a localised disease, a focal therapy appears to be most appropriate. Additionally, the patients are not easily convincible to undergo penile surgery.

Many therapeutic approaches have been mentioned in the medical literature since de La Peyronie’s description of induratio penis plastica. Surgical as well as nonsurgical options are available. Nonsurgical therapy involves extracorporeal shockwave therapy, radiotherapy, iontophoresis, oral agents such as vitamin E, colchicine, tamoxifen, Potaba and intraplaque injection of compounds including collagenase, steroids, Orgotein, interferon alpha 2B and verapamil. In our study, we have compared the efficacy of oral versus intraplaque verapamil injection.
Aims and Objectives
To compare the efficacy of oral verapamil versus intraplaque verapamil injection in patients of Peyronie's disease.

MATERIALS AND METHODS
In this study, 20 patients were randomly divided into two groups (10 in each group). None of the 20 patients lost to follow up. Patients in group I received oral verapamil and group II patients received intraplaque verapamil injection. Results from both the groups were compared in terms of change in plaque size, pain, penile curvature and sexual life.

Exclusion Criteria
1. Any history of previous treatment for Peyronie’s disease.
2. Patient on calcium channel blocker therapy for some other reasons.

Technique- Group I patients were advised to take oral verapamil 40 mg daily for 6 months.

Group II penile blockage was given with 2% lidocaine. Punctures were done in plaque at appropriate places to distribute the drug uniformly throughout the plaque. Instillation was done by fanning technique. The verapamil was injected as 20 mg in 2 mL (1 mg/0.1 cc) weekly for 6 weeks- cycle was repeated after 6 months. The injection site was compressed for 10 minutes to prevent haematoma formation. Blood pressure and heart rate were continuously monitored throughout the procedure. No systemic or local toxicity was noted except for mild ecchymosis in 2 patients. The needle was inserted into the dorsolateral or lateral side depending on the location of plaque to prevent nerve injury.

RESULTS
Objective and subjective data were collected after completion of the study. Objective assessment was done by physical examination and measurement of plaque volume by colour Doppler ultrasound 3 monthly. Subjective data included questionnaire 3 monthly. Follow up as above was done for 3 years and none of the patients lost to follow up. The groups were compared using the unpaired Student’s t-test at a significance of P<0.05.

30% (3/10) of group I patients (oral verapamil) showed decreased plaque volume by mean of 15%. Softening of plaque was noted in only 60% (6/10) of the patients. Subjective erectile dysfunction improved in only 40% (4/10) of the patients.

In group II patients who received intraplaque verapamil injection, 70% (7/10) patients showed decreased plaque volume by 43% with improvement in penile curvature. There was softening of the plaque in all the patients in group II. Subjective erectile dysfunction improved in 60% (6/10) of the patients. No local or systemic toxicity was noted except mild ecchymosis in 2 patients of group II.

DISCUSSION
PD was first described in 1743 by the French physician Francois Gigot de la Peyronie. It has a prevalence of 8.9%. Age group to be affected is between 45 and 60 years, however, men as young as 15 years have been reported. Pathology involved behind PD is still unclear, but studies show that it is a wound-healing disorder occurring in a genetically susceptible individual whose tunica albuginea responds inappropriately to an inciting event, most commonly trauma (silent microfracture) leading to a proliferative fibrotic reaction resulting in formation of plaque and persistent scar. PD plaque does not resolve due to absent or malfunctioning metalloproteinase and/or elevated levels of tissue inhibitors of metalloproteinase (TIMPs). Resultant fibrous scar causes multiple deformities of the penis including curvature, narrowing, indentation, hinging, loss of penile length, pain, psychological distress and sexual dysfunction. Spontaneous improvement occurs in 3% to 13% of patients, but up to 30% to 48% patients may worsen if left untreated. 40% to 50% patients have ED at the time of presentation. At this point of time, nonsurgical approach does not seem to benefit the patient, but treatment does appear to be able to stabilise scar progression and possibly reduce deformity and improve function. So, nonsurgical treatment should be considered in the active phase (progressive deformity with painful erections) of the disease (less than 12 months from onset). Surgery is the gold standard treatment once the disease process is stable. Informed consent for any PD treatment must be taken as these patients are both physically and psychologically devastated. Urologist’s aim is to make the penis functionally straight without compromising rigidity.

There is paucity of studies investigating the clinical benefits of oral therapy for PD, but the published placebo-controlled trials show that there is no evidence of benefit with the use of oral vitamin E, Potaba, colchicine, tamoxifen, carnitine or omega-3 fatty acids. Injection therapy has also been used for many years starting with intraslesional steroid injection. Intraslesional verapamil shows decreased Peyronie’s disease-derived fibroblast proliferation and decreased extracellular matrix production in vitro. Levine et al reported in the Journal of Urology in 1994 study involving 14 patients who were injected with intraslesional verapamil biweekly for 6 months. Of these, 91% had resolution of pain, 42% had decrease in curvature and 58% had subjective improvement in erectile dysfunction, while 100% noticed an increase in penile girth. Levine et al in...
CONCLUSION

Most of the patients are understandably hesitant to pursue surgery and are willing to undergo the repeated injections to achieve a less invasive approach to their deformities. Verapamil is appropriate for less stable disease and in softer plaques. For technique, a fanning technique is appropriate for verapamil, administered via a 21G needle for maximum hydrodistention. The best results are seen when patients comply with manipulation of the plaque via a combination of stretching, gentle bending of the erect penis in the opposite direction of the curve and massage of the plaque.

REFERENCES


[15] Roth M, Eickelberg O, Kohler E, et al. Ca2+ channel blockers modulate metabolism of collagens within the...


