

ETPS- Electro Therapeutic Point Stimulation: AN EFFECTIVE MODALITY IN CHRONIC SYNOVITIS TO ENHANCE ACTIVITY

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Rationale of study :-

Popular methods in treating hemophilic synovitis are continuous infusion, non-surgical and surgical interventions like synovectomy, intra-articular chemical ablation, use of steroids etc. in developing countries conservative methods like exercises, E-stim, splintage, joint protection techniques have been the mainstay of management in Occupational Therapy. Exorbitant costs in the treatment of hemophilic synovitis and its complications calls for the need of using cost effective methods in its management. Destructive capability of hemophilic synovium are patient specific and treatment protocols need to be altered to suit individuals. We used ETPS 1000 using the acupuncture meridian and trigger points to treat chronic synovitis. In its most basic form ETPS Therapy applies brief, staged concentrated stimulation points relating to different therapeutic systems. Key acupuncture points were utilized for their beneficial therapeutic effects on the body. Distal points are located on the extremities and are stimulated to produce proximal relief and have been integrated into ETPS protocol for pain relief, myofascial release and healing of soft tissues.

Introduction :-

Untoward effects of synovitis lead to early joint disintegration, treating synovitis and control of bleeds secondary to synovitis is important to prevent joint disintegration and disability. In the past we established a protocol for intra-articular joint infusion and post procedure immobilization and mobilization in chronic synovitis at our center in Mumbai. By evidence and application of the new technique we discovered that the size of the swelling secondary to synovitis reduced and patients reported an improvement in overall joint function. Hence for all the patients who were attending the Mumbai hemophilia care center and did not show a change in the status of synovitis after receiving intra-articular infusion or following other conservative methods of intervention for synovitis, we decided to use the new technique and observe its effectiveness in treating chronic synovitis.

Methodology :-

Inclusion criteria	Exclusion criteria
All patients diagnosed as chronic synovitis – Grade II to III	Synovitis < Grade II and > Grade IV
Patients with history of 5 to 6 bleeds six months prior to inclusion	Patients with, 5 bleeds six months prior to inclusion
Peterson radiological score < 9	Petersons radiological score > 9
Patients with limitations in ADLs, daily tasks	Patients with no limitations in ADLs, daily tasks
Regular dependence on assistive devices	Devuse of assistive devices occasionally
Limitations in Terminal ROM up to 10 degrees in elbow and knee, up to 7 to 5 degrees in the ankle	Limitations in elbow, knee and ankle > 1/3 ROM in pre-episodic evaluation

Type of study: Prospective – randomized - single experimental design.

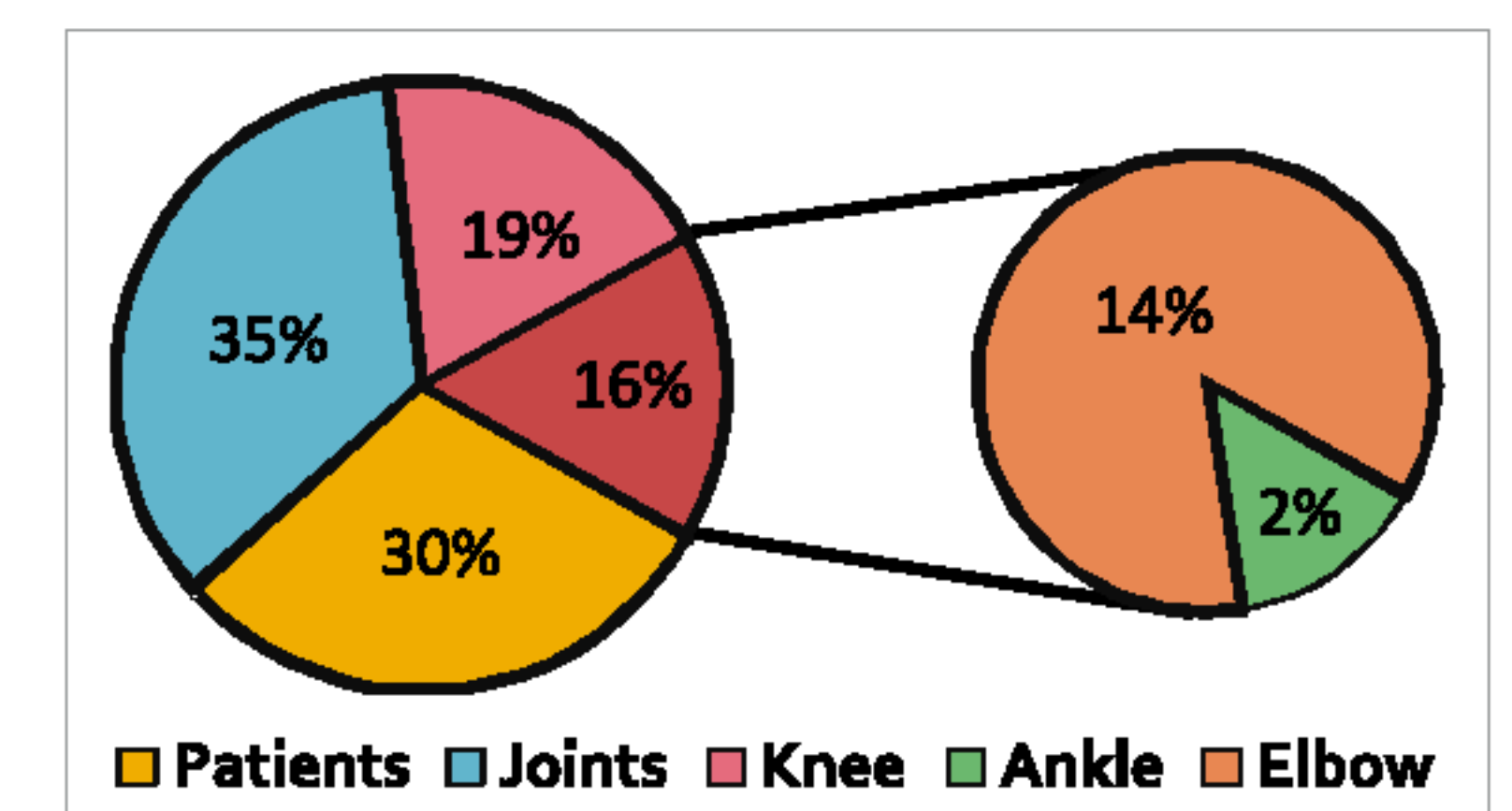
Study period: Eight Weeks, Location of Study - OT College and Comprehensives Hemophilia Care Center, KEM, Mumbai.

Selection process: 30 hemophiliacs with chronic synovitis following a signed consent were included at the outset, 13 subjects - 15 joints were selected from these by Randomization on the basis of inclusion criteria, compliance with protocol and schedule.

Demographics: Age range of patients was 18 - 32 yrs, average age of patients was 24.6yrs. 1 ankle, 6 elbow & 8 knee joints were included in the study, 2 patients with F-IX deficiency, 11 patients with F-VIII deficiency, 1 patient with F-VIII deficiency had inhibitors.

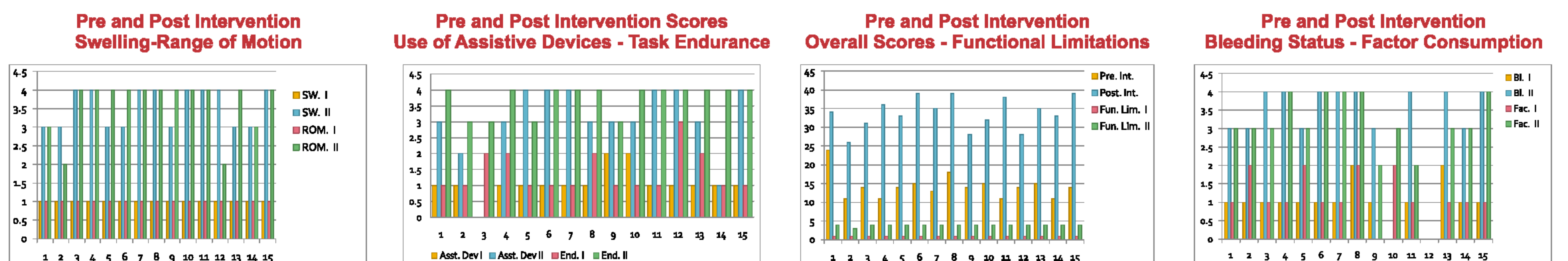
A scale was designed by identifying the commonest signs, symptoms, ADL and functional components, bleeding status, factor consumption and other difficulties as expressed by the patients. We used the tally and frequency method to form the components of the scale. The scale was validated by 10 experts [Occupational Therapists, Orthopaedic Surgeons, Hematology Residents] in the field to establish the face validity.

The responses and clinical observations on patients were converted into a Likert score from ranging from 1-4 for the purpose of scoring. Each patient was evaluated on the scale at the outset and at the end of 8 weeks. Patients were treated with ETPS 1000 on the acupuncture points and trigger points related to the target joints with grade II and grade III synovitis as per recommendation of the chart three times a week. Patients were given exercises to the joints on the three occasions and were recommended a home exercise program on the other days.



Results :-

Wilcoxin single rank test was applied to find the improvement in each parameter of the scale. Paired 't' test was used to compare overall pre and post intervention results within the group. The confidence interval for mean differences in the pre and post intervention phases was found to be significant at 95%



Discussion :-

Concentrated Low rate TENS [1-4 pps], E-stim stimulates the release of endorphin from the mid brain, hypothalamus and pituitary into the spinal cord and circulatory systems. Endorphins stimulate the hypothalamus and anterior pituitary to release the ACTH, which increases the cortisol and accelerates natural healing of soft tissues through gluco-corticoids similar to acupuncture treatment. TENS can be used to stimulate the entry or acupuncture points along the same meridians used in traditional acupuncture points. Basic acupuncture points are highly innervated and vascular regions of the body that may overlie the nerves at their superficial aspects. Soft tissue research suggests that there is a strong therapeutic connection between trigger, motor and acupuncture points and a low level of skin resistance. The statistical analysis indicates the improvement in the swelling, ROM, functional capability, task endurance, independence and overall feeling of well being [Refer to graphs in the text]. The pre and post improvement in scores as tested by the 't' test for overall scores and improvement in each parameter [p<.05] and as assessed on non parametric tests [wilcoxin], signifies that the differences in pre and post intervention phases were significant. The graphical presentation of pre v/s post intervention scores for each parameter assessed on the scale too shows significant differences. Difference in the mean scores for parameters in the post intervention phases was calculated for all the parameters was almost twice that of the pre intervention phase for all parameters except for the pain scores at rest and during activity.

Conclusion :-

ETPS stimulation along with exercises is an effective and low cost treatment of chronic synovitis. Since the study was a short term study, longitudinal studies on a larger population can be done in order to establish the authenticity of the adjunctive modality to control long term effects of synovitis on joint disintegration.

