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TREATMENT PATTERN AND EVALUATION OF EFFECTIVENES OF DEXTROSE PROLOTHERAPY IN KNEE OSTEOARTHRITIS

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ABSTRACT

Prolotherapy is a technique which is used in olden days to heal wounds. The use of prolotherapy is increasing in clinical practice. It involves the injection of irritant solution. There are different kinds of irritant solutions available. The main objective of this study is to assess whether dextrose prolotherapy improves the condition in osteoarthritic patients and to implement a successful simple cost effective treatment for osteoarthritis and to investigate patient outcomes. The injection is given into the joints which causes the body to heal itself through the process of inflammation and repair. A total of 125 patients were participated in this study, out of which 102 only included in the study. Patient data was collected by using a well defined questionnaire. All the 102 patients were given with 25% dextrose intra articularly, then follow up was conducted for every patient for about 6 months. This study concludes that the severity of pain, disability is reduced with this treatment. Movement of the joint is also improved.

Keywords: Osteoarthritis, Prolotherapy, Cripitus, Spurs, Grating Sensation, Tenderness.

INTRODUCTION

Osteoarthritis also known as degenerative joint disease is a group of mechanical abnormalities involving degradation of joints [1-3]. It is a worrisome problem for millions of people all over the world [4]. It is one of the most frequent causes of pain, loss of function and disability in adults [5]. It is caused by breakdown and eventual loss of cartilage of one or more joints [6]. Cartilage is a firm rubbery tissue made up of protein substance which serves as a cushion between the bones of the joints and allows bones to glide over one another. Cartilage can break down and wear away. As a result the bones rub together, causing pain and swelling. Bony spurs or extra bone may form around the joint, ligaments and muscles around the bones become weaker and stiffer.

The following are the causes of osteoarthritis

Congenital disorders of joints, inflammatory diseases, injury to joints as a result of accidents, infections, obesity, sedentary life style, genetic factors,

hormone disturbances long term over use in work or in sports [7]. Symptoms includes pain, tenderness, stiffness, crepitus, grating sensation, locking and sometimes as effusions [8-9].

The advantage of prolotherapy is that it is safe, and also known as “Proliferative Therapy” or “Reconstructive Therapy” or “Regenerative Therapy”. Prolotherapy involves the injection of irritant solution into the joint space. A wide range of irritant solutions used in prolotherapy includes dextrose, phenol, glycerine, sodium morrhuate (purified derivative of cod liver oil). Polotherapy is a technique which reactivates the healing process which stimulates the body’s own healing capability to regrow ligaments and tendons there by restore function to injured joint. It is associated with temporary low grade local inflammation at the site of injection. Inflammation activates fibroblasts to the area which synthesize precursors to mature collagen reinforcing connective tissue [10-11], Then the body

reacts by increasing the flow of blood and nutrients to the spot (injured area).

METHODS

Study Design

A prospective observational study was conducted for a period of 9 months (Feb to Oct 2011) on outpatient department, Tirumala Super Specialty Hospitals, Kakinada, Andhra Pradesh.

Selection of patients

125 participated in the study, adult aged above 20 years. Out of this, 102 patients were included finally in the study as they met eligibility criteria, (10 patients associated with other diseases, 5 bed ridden, remaining 8 are not in follow up). During the first visit, detailed medical history was taken and general examinations like height, weight, B.P. was examined by the doctor. Diagnosis is made by examining the patient's complete history and performing careful physical examination with special tests (ESR, CRP, and RA Factor). Reviewing imaging studies of the affected area is often aid in proper diagnosis [12]. Complete data was collected by using a well defined questionnaire exclusively designed for this study includes patients demographic data i.e, age, sex, occupation, literacy, social status, dosage, clinical symptoms, response and adverse effects. Data was collected after taking their consent and all patients were advised to withdraw analgesics and explained about prolotherapy prior to injection [13]. Patients were counselled about the disease and prolotherapy treatment pattern.

Procedure for prolotherapy

Prolotherapy treatment is commonly consisting of a series of injection sessions, depending on the severity. In this study the procedure includes injecting 10 ml of 25% dextrose solution in a combination of local anesthetic (2 ml of 0.5% lidocaine) at the site of painful, tender ligament and into the joint space by a trained orthopedician. Before injecting the solution, the area into which the solution injected was washed with soap and rinsed thoroughly with water and allow to dry, and it was sterilized. Proliferant (Dextrose solution) was injected into the affected joint space.

Table 1. Improvement in symptoms after treatment

Symptoms	Before treatment (No. of patients)	After treatment (No. of patients)
Pain	98	18
Narrowing of joint	47	17
Crepitus	32	7
Spiking	31	31
Disability in movement	29	4
Unable to fold	27	7
Swelling	25	20
Locking and stiffness	15	2

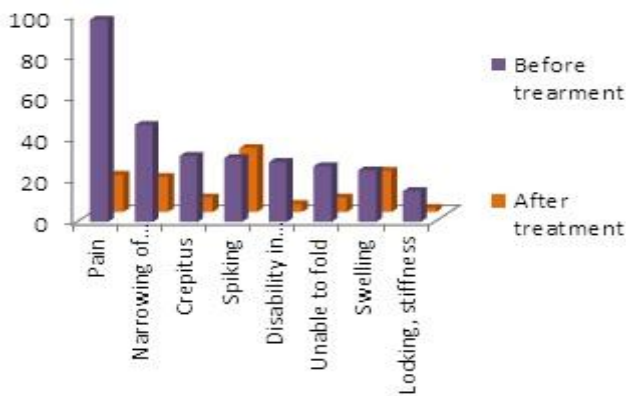
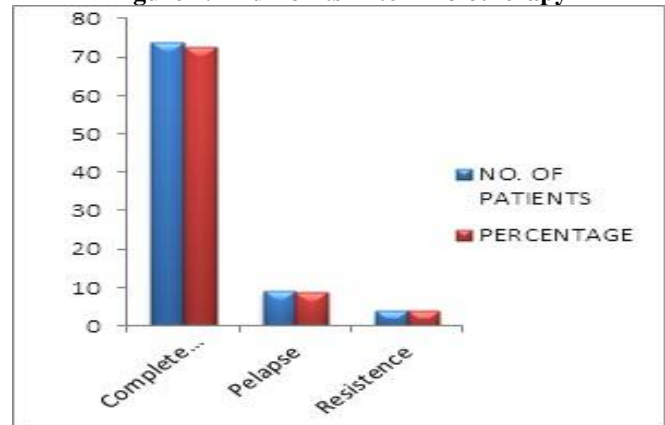
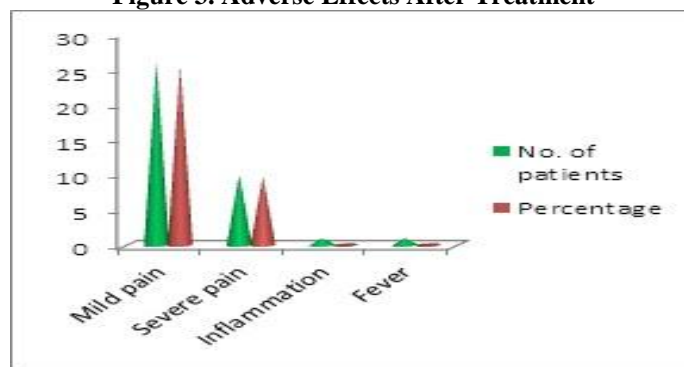


After injecting dextrose solution, patient was advised to move the joint and do some small exercise for about 5 minutes. Then patient was enquired about any difficulties during the injecting procedure recorded. After the patient outcomes were collected during follow up on weekly basis.

RESULTS AND DISCUSSION

Out of 102 patients, (62) 60.78% were female and (40)39.22% were male. Women had a higher prevalence of knee OA because of low bone calcium after menopause. The majority of the people are affected by knee arthritis in the age of 50-60 (35.29%). The prevalence of disease increases dramatically among persons over age 50, because of age related alterations in collagen and proteoglycons. Out of 102 patients included in the study 72(70.05%) were fall under rural, 40(39.21%) were fall under urban classification, it shows that rural people are mostly affected due to lack of awareness. Majority of patients suffering from symptoms were severe pain 98(96.07%) followed by narrowing of joint space 47(46.07%), crepitus 32(31.37%), spiking 31(30.39%), disability in movement 29(28.42%), unable to fold leg 27 (26.74%), swelling 25 (24.5%), locking and stiffness 15 (14.7%) (Figure 1). Severe pain is the main symptom due to erosion of cartilage which result in rubbing action of bone.

After 16 weeks of prolotherapy treatment these findings was observed. Subjective percentage of relief was recorded, Complete remission 74 (72.54%), relapse 9 (8.82%), resistant 4 3.92) (Figure 2) The response rate increased with long time of follow up. Patients symptoms are improved (the reduced pain) usually results from the increased stabilization [14] and ability for muscle to relax with prolotherapy listed in Table 1.

Figure1. Improvement in symptoms after treatment**Figure 2. End Points After Prolotherapy****Figure 3. Adverse Effects After Treatment****Adverse effects after the treatment**

Out of 102 patients, 26(25.49%) experienced mild pain, 10(9.80%) severe pain, 1(0.09%) inflammation, 1(0.09%) fever shown in (Figure 3) these side effects are mild and persists about 2-3 days after the injection. There were no other side effects reported or observed during the study [15].

CONCLUSION

Even though there are many treatment options available for osteoarthritis every treatment has its own limitations due to short term relief, expensive, producing adverse effects. In order to provide safe and cost effective treatment for osteoarthritis prolotherapy was introduced.

Dextrose injection was satisfactory in the treatment of OA of knee with substantial improvement in joint pain, stiffness, range of motion and quality of life in osteoarthritis patients with much less side effects. We conclude from this study and the aforementioned literature that it is possible to induce proliferation of cartilage, collagen in human ligaments. Prolotherapy is a better treatment option for osteoarthritis which patients and health care providers need to be aware of it.

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