

# Physiotherapy In The Management Of Diabetes Mellitus: Utility And Benefits

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## Abstract

### INTRODUCTION

In popular perception the role of physiotherapeutic treatment is limited to common orthopedic problems 1 such as cervical spondylosis, low back ache, joint stiffness, frozen shoulder etc. However, physiotherapy plays a pivotal role in the management of diabetes mellitus as well 2. Exercise is a cornerstone in the management of diabetes, and the physiotherapist holds a place of importance in helping diabetic patients lead a better quality of life.

Physiotherapy has its role not only in control of diabetes as a disease, per se, but also in the management and treatment of various painful neuropathies and arthromyopathy. To assess the utility and benefits of this therapeutic discipline, a study was conducted in the physiotherapy clinic of our hospital. The aim was to assess the frequency of musculoskeletal complaints, and the improvement noted with physiotherapeutic modalities in diabetes patients.

### MATERIAL & METHODS

A prospective observational study was conducted to determine the utility of physiotherapeutic interventions in the management of diabetes mellitus.

371 patients of diabetes mellitus (179 male and 192 female) who attended both the endocrine and physiotherapy clinics were treated for various musculoskeletal problems and painful neuropathies according to routine clinical practice. The complaints and therapeutic modalities used were noted. All patients were administered certain scores to assess the benefit of physiotherapy.

The common complaints were painful sensory neuropathy, weight gain, general debility, De Quervain's disease, hip, knee, wrist and hand stiffness, lateral epicondylitis, hemiplegia, pedal edema, mono/hemiparesis, facial/Bell's

palsy, brachial plexus injury, lower intercostal pain, pectoral weakness, plantar fasciitis/ calcaneal spur, diaphragmatic weakness, headache, trigeminal neuralgia, wrist ganglion, ankle sprain, fractures and fibromyositis.

The physiotherapeutic modalities that were used were TENS (Transcutaneous electrical nerve stimulation)/IFT (Interferential Therapy, SWD (Short wave diathermy), ICT (Intermittent cervical traction), PWB (Paraffin wax bath), electronic muscle stimulator and UST (Ultrasonic therapy). The sittings ranged from 1-10. Highest number of sittings was required for patients with frozen shoulder. Adequate patient counseling was done to ensure concordance with home- based therapeutic regimes.

Diabetes mellitus is a multifaceted illness which needs much more than drugs for management. Essential to ensure management is effective communication with the treating physician. During physiotherapy sessions, patients were encouraged to articulate their problems, and to do the same with their physician.

They were also encouraged to exercise and use cognitive behaviour management techniques for pain relief. The effect of these interventions was assessed by physician communication score, exercise score, and cognitive symptom management score, previously validated by the Stanford Patient Education Centre., 3

Overall benefit of physiotherapy was assessed by the health distress score, social roles limitation score and energy/fatigue score, validated by the same centre 3. Pain relief in patients of neuropathy was assessed by a 10 point Likert Scale<sup>3</sup>

## RESULTS

The maximum number of patients was aged 51-60 years (25.87%) and 41-50 years (22.37%). Female patients who presented to the clinic were younger than male subjects.

The commonest presentations were neuropathic pain (43.39%), cervical symptoms (13.21%), low backache (11.05%), and knee pain (7.55%). 4.58% persons requested advice for weight and waist reduction. An almost equal number of patients (4.31%) sought counseling about exercises for increase in height (weight bearing exercises). 2.96% patients were given the treatment for general debility.

The physiotherapeutic interventions used more often were TENS/IFT (43.39%), ultrasonic therapy (16.97%), and short wave diathermy (13.05%). Other interventions that were used were PWB (2.42%), ICT (8.42%), electronic muscle stimulator (3.24%), manual mobilization and manipulation (9.04%). The other presentations of ailments in our physiotherapy clinic were fibromyositis (2.42%), plantar fasciitis/ calcaneal spur (1.56%), pedal edema (1.35%), headache (1.08%), tennis elbow (1.08%), ankle sprain (1.08%), hand stiffness/ pain (1.07%), lower intercostal pain (1.07%), De Quervains disease (0.81%), hemiplegia (0.80%), ear tinnitus (0.27%), facial/Bell's Palsy (0.54%), brachial plexus injury (0.54%), trigeminal neuralgia (0.27%).

Physiotherapy interventions take time, and the comparatively slow process creates close bonding between therapist and patient. The physiotherapist in our clinic was trained in diabetes counseling as well as behaviour modification. The results of this counseling were assessed by previously validated scales from the Stanford Patient Education Research Centre.

Due to the physiotherapy sessions, the physician communication improved from  $1.43 \pm 1.19$  to  $3.93 \pm 0.86$  over two months of therapy. Time spent by the patient in stretching / strengthening exercises increased from  $0 \pm 0$  to  $15 \pm 0$  to  $45 \pm 0$  minutes/week. The social/ role activities limitations in the patient due to the disease reduced from  $2.25 \pm 0.63$  to  $1.08 \pm 0.39$ . Cognitive symptom management improved from  $1.30 \pm 0.63$  to  $2.00 \pm 0.67$ . The health distress score fell from  $3.20 \pm 0.82$  to  $1.35 \pm 0.47$  & energy /fatigue levels raised from  $2.25 \pm 0.51$  to  $3.30 \pm 0.50$ . Pain scores reduced from  $6.01 \pm 2.46$  to  $4.66 \pm 0.66$  in patients with painful neuropathy. All these changes were statistically significant ( $p < 0.05$ ).

## DISCUSSION

The treatment of diabetes is not just limited to blood glucose control. It encompasses a much wider perspective.

Physiotherapy as a branch of science plays an important role in treatment of secondary complications as neuropathy, arthromyopathy etc. found commonly in diabetes patients.

The physiotherapeutic modalities as transcutaneous electrical nerve stimulation (TENS), Short wave Diathermy (SWD), Ultrasonic therapy (UST) have shown good results in treatment of secondary complications.

The commonest complaints seen in this study of 371 diabetic patients were neuropathic pain, cervical symptoms, low backache, knee pain, weight waist reduction, weight bearing exercises.

The interventions ordered most frequently were TENS/IFT, UST, SWD, Manual mobilization and manipulation and ICT.

This study has also revealed the other benefits of physiotherapeutic interventions. The physician communication with patients improved. This aided the diabetes care team in understanding the patient's problems in a broader sense and hence in delivering an integrated therapy. The social/ role activities limitations experienced by the patients in day to day life reduced, thus improving quality of life in all patients, giving them a non pharmacological way to combat pain and other symptoms. Cognitive symptom management improved while the health distress score fell significantly. This demonstrates that physiotherapy had multi- dimensional effects.

Thus, a diabetes care centre must have an adjoining physiotherapy set-up to ensure an integrated approach towards the patient. In this way not only would glycemic control be achieved, but the complications of the patients would also be dealt with in an appropriate & apt way.

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