Research - “Low Intensity Laser Therapy in Clinical Practice”

Fred Kahn, M.D., FRCS(C), Michael Graham, B.PHE., Clinical Report.

Introduction

This is a definitive study based on the results of 151 consecutively discharged patients following clinical treatment with low intensity laser therapy.

Low Intensity Laser Therapy was the basic platform in the therapeutic program, augmented in 50% of the cases by massage, thermal therapy and exercise. The latter were utilized to speed up the process initially, particularly in acute injuries but were not felt to be essential to the treatment program.

Historically, laser therapy has failed to gain wide acceptance in the therapeutic community for many reasons (4, 5, 6, 7), usually justifiable. Previous devices were generally poorly engineered, protocols were inappropriate and therapists were not provided with the proper education to operate the equipment. Whereas academics over the past 10 years have continued to promote additional double blind clinical trials (3, 4) and this is certainly commendable, in actual fact over the past decade minimal practical progress has been achieved.

At Meditech we began to recognize this problem twelve years ago at the inception of our research and in this publication share some observations, the results of our clinical approach.

As we often like to quote “no patient's health status was ever improved by a test” and on occasion some have been made considerably worse. Unquestionably there is the need for continuing science and controlled studies. Ideally all tissue treated should be biopsied prior to initiating therapy and subsequently in order to accurately determine the degree of physical resolution of scar tissue, osteophytes, regeneration of cartilage and other phenomena that are discussed in the literature. Unfortunately in a normal clinical setting this is usually not possible. Notably in our studies we have evaluated patients utilizing clinical criteria that have been standard for a long period of time and are still applicable, especially if treatment and observations can be uniformly applied. It can be stated unequivocally that in these 151 patients on completion of therapy the results are sufficiently conclusive to establish laser therapy in its proper position as the ideal therapy in treating musculo-skeletal conditions, particularly when compared to symptom modulators such as ultrasound, interferential current and the use of pharmaceuticals. It should be noted that over 50% of patients in this series suffered from more than one medical problem and the majority of patients had undergone therapy varying from a matter of weeks to years under the direction of the family physician, physiotherapist, chiropractor, neurologist, rheumatologist, orthopedic surgeon or psychologist. Analgesics, anti-

inflammatory medications and cortisone had been utilized extensively in a large number of cases and many surgical procedures had been carried out, often with results that were less than desirable.

A recent review of the world literature comprising over 300 cited articles and abstracts including double blind clinical trials published between January 1998 and November 2001 (8) reveals an overwhelming amount of evidence supporting the positive effects achieved utilizing low intensity laser therapy.

he articles that are negative have generally failed in their approach owing to inappropriate therapy. A lack of standardization, inadequate power and duration of therapy (energy density) are most frequently noted (1, 6), however there exist numerous additional shortcomings. This calls to mind the work of the late Dr. Alvan Feinstein, Sterling Professor of Medicine and Epidemiology at the Yale School of Medicine whose work I recently reviewed. Dr. Feinstein's greatest contribution was his advocacy for the information that patients can offer and the role that clinicians can play in collecting this data. In brief, Dr. Feinstein threw his weight into the issue of evidence-based-medicine versus judgmental reasoning and patho-physiological observations. He endorsed medicine-based-evidence as opposed to evidence-based-medicine (2). To wit the evidence will be revealed by paying close attention to the clinical status of the patient. In essence physicians must rely to greater a degree on independent clinical judgment, rather than only the observations of academic and professional journals.

At our clinic we have followed that course, customizing therapy in accordance with clinical observations based on the following criteria:

- Reduction in pain
- Increase in mobility and range of motion
- Cessation of the use of multiple medications including analgesics, NSAIDS and cortisone
- The patient's general state of well-being (sleep patterns, activity level, headache relief, etc.).

This requires intense effort and close team collaboration but pays immense dividends with regard to results achieved.

Results

Review Table 1 & 2. 'Compilation of Raw Data Based on the Results of 151 Consecutive Discharge Summaries'- *summarizing diagnosis, gender, age, area of treatment, number of treatments and results. Findings – average age of patient treated 49, average number of treatments for maximum improvement 11, overall improvement rate 89.7%.*

Discussion

Analysis of the 151 subjects indicates that -

- 35% of the patients fall into the category of degenerative osteoarthritis. The majority of these involved the lumbo-sacral spine and over 60% of these were accompanied by degenerative disc disease., bulging discs, nerve root compression and/or stenosis of the spinal canal. Numerically in descending order came knees, the cervical spine, hips and ankles.
- In excess of 35% of cases were in the sports injury sector. Individuals in this group were generally younger and the injuries healed with surprising rapidity. For example a 28-year-old NFL safety with a non-resolving tear of the biceps femoris muscle, distally involving the tendon junction had been treated for over two weeks with multiple other therapies without any improvement. This patient was restored to 100% functional capacity in asymptomatic condition after six days of consecutive treatment involving 40 minutes per session, utilizing the BioFlex system. Younger gymnasts, hockey and basketball players often with severe and long-term injuries responded in similar fashion, a feature gratifying to both patient and therapist.
- 20% of cases were ascribed to the repetitive motion injury component. A significant percentage of these individuals work with computers and sit for long periods of time. In some instances these included rotator cuff injuries, carpal tunnel syndrome, epicondylitis and what we sometimes refer to as “the shoulder-neck-arm syndrome”.
- The remaining 10% were composed of a variety of diagnoses such as rheumatoid arthritis, acromio- clavicular joint pathology, plantar fascitis and trauma.
- In almost every situation the biomechanical factor was active. A patient might present with severe symptoms relating to the back, hips and both knees. Through careful assessment our approach was to treat the area most severely affected. This method resolved the symptoms in most of the other areas, obviating the need for additional treatment. This can be ascribed to the compensatory biomechanical factors involved.

Conclusions

- Low intensity laser therapy utilized as the primary therapy in the treatment of musculoskeletal problems including soft tissue and sports related injuries, arthritis and repetitive motion injuries was found to be highly effective.
- The therapeutic process can be accelerated utilizing massage, thermal modalities, gentle stretching in the early phases and strengthening programs as the acute symptoms are alleviated.
- Whereas we have made immense progress in both the engineering and application of this new technological approach, we expect continuing advances as our experience and knowledge increase.
- Low intensity laser therapy appropriately customized for each individual as required can best be described as the most dramatic advance in the rehabilitation process.

Note: This study has excluded patients who for a variety of reasons failed to complete the prescribed course of treatment and those who are continuing maintenance therapy.

References

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Table 1 Frequency Distribution with average success rate

Frequency Distribution	**# of**	**% of**	**Average**	**Average**	**Average**

Diagnosis	Cases	Sample	Success (%)+/-0.2	Age	# of Txs
Degenerative Osteoarthritis	45	29.8	86.1	58.4	12.3
Tears	24	15.9	95.8	41	10.6
Rotator Cuff Injury	17	11.3	84.1	51.3	12.6
Other	17	10.6	90	41	11.2
Medial Epicondylitis	11	7.3	99.5	52.7	8.3
Tendonitis	7	4.6	95.7	26.4	9
Trauma	5	4.0	98	54.2	5.8
Herniated Disc	5	3.3	91	45.4	17.8
Myofascitis	4	2.6	100	46	7.5
Carpal tunnel	4	2.6	52.5	56	15.7
Plantar Fascitis	4	2.6	78.5	67.5	14
Rheumatoid Arthritis	3	2.0	90	31.6	16.3
Facet Joint Syndrome	3	2.0	100	25.3	5
Fracture	2	1.3	100	48.5	7.5
Total	**151**	**100**	**90.1**		

Table 2, Compilation of Raw Data Based on the Results of 151 Discharged Patients

Gender Male=m Female=f	Age (Yrs)	Diagnosis	Area	# of Tx's	Result (%)

Raw data on Patient diagnostic profiles is available on request. For brevity, it has been excluded here but is freely available by indicating your request in any 'Contact US' menu on this web site. Thank you

Dr. Kahn is President and CEO of Meditech International, Inc. He has over 14 years of development and practice in Low Intensy Laser Therapy. His clinical vision created the BioFlex Professional System used with such success today.