



ELECTROTHERAPY– VERSUS EXERCISE THERAPY – CROSS OVER STUDY IN SUBACROMIAL BURSTITIS

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ABSTRACT

An increased usage of electronic communication gadgets and their impact on musculoskeletal system are widely recorded. Chronic pain with disability associated with these ailments needs to be evaluated and treated promptly.

Aims & Objective of this original cross over research was to compare the effects of electrotherapy versus specific exercises in subacromial bursitis. **Materials & Methodology:** This research on a 38 year old male software professional with left shoulder pain was treated for more than 2 years till March 2019 with NSAID and electrotherapy elsewhere. Since April 2019 he was treated with specific exercises for 10 sessions in this centre.

Results of shoulder and neck disability index for electrotherapy ($P < .05$) exercises ($P < .001$) alone statistically analyzed were **Conclusion:** Patient specific evaluation and therapy can be more effective with exercises than symptomatic electrotherapy

KEYWORDS: NSAID- Nonsteroidal anti-inflammatory drug, SASD – Subacromial Sub Deltoid, TENS – Transcutaneous Electrical Nerve, QOL – Quality of Life, SAB.

INTRODUCTION

1. Bursae are synovial line sacs overlying areas where structures moving against each other causing friction SASD bursa – an extra articular synovial space. Lies between the rotator cuff tendons and the under surface of the acromion, the acromioclavicular joint (AC) and the deltoid muscle, overlying the bicipital groove (Hiriji et al 2011) SASD bursitis can be caused by disorders of AC joint, supraspinatus tendon tear, acute shoulder trauma, rheumatoid arthritis, infection, synovitis (Cadogan et al 2013 & Kim et al 2007).
2. Painful shoulders are common, with 50% of the US population experience at least one episode of shoulder pain every year (Chalian et al 2011), the underlying pathologies are extremely varied including tears of rotator cuffs, glenohumeral and acromioclavicular arthritis, bone marrow edema, where as subacromial, sub deltoid bursa (SASD) inflammation can be a radiologic predicting factor with pain and limitation of movements (Collin et al 2014).
3. The subacromial and sub deltoid bursa in the shoulder are connected (Duranton et al 2001) where as few studies present these bursa to be completely separated (Beals et al 1998). Also subacromial bursa is innervated by branches of supra scapular nerve

(Aszmann et al 1996) and another study reported 60% of branches of axillary nerve are distributed in subacromial bursa (Nasu et al 2015). These give vital information with pain management and rehabilitation of these subjects.

4. Pain and disability are major symptoms and acute subacromial bursitis often with a sudden onset with calcific deposits in the bursa (Bosworth et al 1941). Existing treatment options includes needle aspiration and irrigation as described by Patterson and (Journeau et al 2011). Cortico steroid injection has shown wonderful results (Moher et al 1998).
5. Physiotherapy modalities and manual techniques are the preferred choices of management in MSD (Akyuz et al 2014). Ginsberg and Famey 1991 have reported topical and oral NSAID to be effective in pain relief up to four weeks. Therapeutic ultrasound has been proved with short term relief and limited evidence in SAB (Ebenbicher et al 1998).

AIMS AND OBJECTIVES: Of this research was to compare electrotherapy and NSAID versus exercises alone among subacromial bursitis

BACKGROUND INFORMATION
C/O

Pain over neck and left shoulder and difficulty in using left arm since 2016.

Mr. Manimaran, Aged 38 year old DM on medication of hba1c -7.8%, soft ware professional with sedentary life style Vitamin D – 15ng/ml, treated for neck pain and left supraspinatus tendinitis elsewhere for more than 2 years with NSAID, IFT, Ultrasound, Wax bath elsewhere till March 2019.

O/e as on March 2019

- Cervical lordosis obliterated, trapezitis (Left)
- Restricted shoulder abduction, lateral rotation
- Mild atrophy of deltoid
- Nil radicular symptoms
- Mesomorph
- Upper thoracic kyphosis
- Anteverted scapula

NMRI on 12.09.2017 has revealed subacromial bursitis left shoulder.

Differential Diagnosis

1. Foraminal compression test was positive for c4-c5 nerve root involvement
 2. Drop arm, empty can were positive,
- Phase I – December 2016 to March 2019, he was treated with NSAID elsewhere ultrasound and TENS
Phase II from April 2019 to May 2019.

MATERIALS AND METHODOLOGY

He was treated with resisted shoulder bracing, resisted isometric cervical spine and PA (Posterior Anterior) glide to shoulder, closed kinematic shoulder exercises in sitting and prone positions thrice a week frequency for three weeks duration, neck disability index was used prior to starting exercises and again after 10 sessions using the above said exercises. a set of 10 exercises, were used, progression were based on number of repetition, duration of hold and amount of manual resistance used.

RESULTS

Phase – I

Table 1: Paired ‘t’ on shoulder and neck disability index with NSAID, US and TENS.

Pre	Post	SD	SE	t	p
69	59	3.80	2.20	2.09	<.05

Phase II

Table 2: Paired ‘t’ test on shoulder neck disability index using specific exercises therapy.

Pre	Post	SD	SE	t	p
59	32	11	6.59	4.09	<.001

DISCUSSION ANALYSIS WITH EVIDENCE

Critical Research Questions

1. What are the causes and complications of subacromial bursitis.

2. How much prognosis can be obtained.
3. Evidence for exercises and electrotherapy.
4. Does follow-up is required after functional recovery.

1. Subacromial bursitis is one of the common diagnosis shoulder pain (Murphy et al 2010) which can restrict movements of shoulder (Senbursa et al 2007). In a 5 year period 1940 among subjects with shoulder pain with mean age of 52 years shoulder ultrasound examinations were performed has reported that effusion in the SASD bursais frequently associated with shoulder pain often independently from the underlying pathology (Draghi et al 2015). **These researches support this research subject being a diabetic and system analyst involving sedentary, prolonged hours of static posture with computer and related activities may form etiopathogenic factors.**

2. Shoulder pain is a common problem encountered in diabetes and the efficacy of physiotherapy modalities may be limited (Ginn et al 1997) and (Ko et al 2008) interleukins may be responsible for pain and stiffness in diabetes (Gotoh et al 1998) have emphasised the role of substance ‘P’ for sub abdominal burrito among diabetic subjects. **This study subject being a diabetic may have shown moderate improvement as evidenced by the above literature with electrotherapy modalities as shown in Table-1.**

3. Few studies have recorded improved shoulder pain in subjects with rotator cuff disease but not maintained after 12 weeks with mobilisation, soft tissue stretching, moist packs (Hay et al 2003), **contrary to these findings with his specific problems, exercises were designed also we continue regular follow up with exercises, home programme this research subject is getting treated with frequency of once a week achieved ROM, motor power, pain relief were maintained.**

4. (Phase I) With NSAID, ultrasound and Tens in a subject with SASD has shown 50% reduction in pain hence (Phase II), was managed with steroid injection twice with a gap of 10 days (Phase III), then physiotherapy with yoga asanas were given for 4 weeks, only then the subjects become pain free and his QOL (Sing et al 2013). **Where as this research subjects in Phase I was treated with NSAID and ultrasound with mild pain reduction, Phase II comprising of manual therapy and specific exercises and hot pac has shown good QOL as displayed in table-2.**

CONCLUSION

Manual therapy and mobilization exercises can be more effective than symptomatic electrotherapy modalities among subacromial bursitis, however continued follow

up is required for established QOL in this research subject.

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