TENDERNESS

ABSTRACT

A literature review on myofascial pain, concepts of fibrositis and fibromyalgia are presented. Myofascial pain is discussed as regards its definition, occurrence, behaviour, characteristics and modern approaches to treatment. Theories of the pathology of trigger points are described. Also the myofascial pain-dysfunction syndrome and its clinical recognition are addressed.

PART TWO: TRIGGER POINTS

An historical overview of the literature relating to muscular pain was presented previously. In recent studies it has been shown that myofascial pain syndromes are the most common causes of pain that bring patients to chronic pain treatment centres. Among 283 consecutive admissions to a comprehensive pain centre, 85% were diagnosed independently by a neurosurgeon and physiatrist as being sufferers of myofascial syndrome.

Fibrositis/Fibromyalgia and myofascial pain are not often clearly defined in the literature, but are now acknowledged as two very different entities.

The aetiology of fibromyalgia comprises internal and environmental factors while myofascial pain is associated with chronic or abnormal strains, infections, allergies, nutritional or metabolic factors and emotional stress. Rogers and Rogers, Simons and Sheon compared various aspects of fibrositis/fibromyalgia and myofascial pain. These are summarised in Tables I-III.

TABLE I: COMPARISON OF THE DEMOGRAPHY

<table>
<thead>
<tr>
<th>FEATURE</th>
<th>FIBROMYALGIA</th>
<th>FIBROSITIS</th>
<th>MYOFASCIAL PAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEX</td>
<td>Mainly females</td>
<td>fourth most common rheumatic disorder</td>
<td>Both sexes</td>
</tr>
<tr>
<td>PERVALENCE</td>
<td>Mainly 40 - 60 years</td>
<td>Very common</td>
<td>Any age</td>
</tr>
<tr>
<td>AGE</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TABLE II: CHARACTERISTICS OF PAIN

<table>
<thead>
<tr>
<th>FEATURE</th>
<th>FIBROMYALGIA</th>
<th>MYOFASCIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>ONSET</td>
<td>Gradual</td>
<td>Acute/Gradual</td>
</tr>
<tr>
<td>LOCATION</td>
<td>Three or more</td>
<td>Usually one</td>
</tr>
<tr>
<td>PAIN TYPE</td>
<td>Diffuse, deep ache</td>
<td>Sharp, localised</td>
</tr>
<tr>
<td>RADIATION</td>
<td>Widespread, Chronic</td>
<td>Muscle-specific patterns</td>
</tr>
<tr>
<td>TENDERNESS</td>
<td>Multiple tender points (7 - 12)</td>
<td>Over Trigger points – one or more</td>
</tr>
</tbody>
</table>

The treatment for fibrositis is non-specific and is seldom cured, and use must be made of comprehensive and supportive team therapy. Myofascial pain on the other hand responds well to specific local therapy and is usually cured.

ABSTRACT

FEATURE       FIBROMYALGIA          MYOFASCIAL
------------------------------------------------------------------
MUSCLE SPASM  Usually none          Present with shortening
MUSCLE WEAKNESS Uncommon            Common
RANGE OF MOTION Not usually restricted Always restricted
MUSCLE ACTIVITY Painful diffusely    Painful in local areas
NODULES/CORD Diffuse tenderness      Tend to cluster acute pain
LOCAL TWITCH ON None                  Frequent
PALPATION     Often                    Common
WEATHER SENSITIVE Usually            Occasionally
SKIN ROLL     Not present              In acute cases vasodilatation in trigger areas, vasoconstriction on referred zone
RAYNAUD’S PHENOMENON

DIFFERENTIAL DIAGNOSIS OF MYOFASCIAL PAIN

Normal muscles do not contain myofascial trigger points; they have no taut bands of muscle fibres; they exhibit no local twitch responses and they do not refer pain in response to applied pressure. Escobar and Ballesteros tabulated a differential diagnosis in myofascial pain syndrome (1987). They included myopathies, arthropathies, musculoskeletal injuries (eg. tendinitis, bursitis overuse syndrome), neurological conditions (eg. neuralgias, radiculopathies), visceral conditions (eg. ischemic heart disease, peptic ulcer), viral or bacterial infections, neoplasm and psychogenic pain or behaviour.

The diagnosis of myofascial pain is purely clinical. Histologic studies show that there appears to be no evidence for inflammation, but that something is wrong with the muscle. The limited EMG studies available suggest an abnormality localised to the trigger point and its associated taut band. This may reflect some kind of reflex hyperirritability, mediated perhaps at a spinal level.

CHARACTERISTICS AND BEHAVIOUR OF MYOFASCIAL TRIGGER POINTS

An active trigger point causes pain, while a latent trigger point is clinically silent with respect to pain, but may cause restriction of movement and weakness of the affected muscle. This predisposes to acute attacks of pain. Only active trigger points cause pain, but both active and latent trigger points may cause dysfunction.

Normal stresses and strains produce slight tissue damage that usually heals. However, if healing does not occur, areas of hyperexcitability or structural change in muscle may form. These are called latent trigger points, and the individual may be unaware of their existence. Precipitating factors may activate latent trigger point, thus producing an active trigger point which may in turn be perpetuated by specific factors.

Concurrent pathology such as nerve root compression and visceral and joint diseases may also cause activation or perpetuation of trigger points. Afferent discharge from a compressed nerve root or diseased joint may cause facilitation of a spinal segment, thus activating a latent trigger point within the same segmental distribution.

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Non-pain symptoms of myofascial trigger points include excessive lacrimation, nasal secretion, pilomotor activity, changes in sweat patterns, electrical skin resistance, vasodilatation with dermographia, skin temperature changes and reflex vasconstriction (coldness locally). Less frequently one may observe hypoaesthesia and local or general fatigue or fine tremor weakness. Other non-pain symptoms may include postural dizziness, spatial disorientation and disturbed weight perception. Most of these above-mentioned symptoms are specific to myofascial trigger points in specific individual muscles.

PATHOPHYSIOLOGY OF MYOFASCIAL TRIGGER POINTS

The pathophysiology of myofascial trigger points is poorly understood: Histologic examinations "have revealed areas of fibre degeneration, proliferation of nuclei, and fatty infiltration. Mast cell degranulation and platelet aggregation have also been seen, Decreases in the level of ATP, ADP and AMP have been noted".

A generally accepted theory coupling the ideas of Simons, Melzack and Simons and Travell is summarised as follows:

Trauma disturbs the normal or weakened muscle through muscle injury or sustained muscle contraction. These traumas release free calcium within the muscle through disruption of the sarcoplasmic reticulum and, with ATP, stimulate actin and myosin interaction and local contractile and metabolic activity which results in increases in noxious by-products. Substances such as serotonin, histamine, kinins, and prostaglandins sensitize and fire Groups 3 and 4 muscle nociceptors, and a reverberatory neural circuit is established between the nociceptors, the CNS, and the motor units. These afferent inputs converge with other visceral and somatic inputs onto cells in the dorsal horn, which project to higher centres and result in perception of local and referred pain. These inputs may be facilitated or inhibited by multiple peripherally or centrally initiated alterations in neural input, including those produced by treatment modalities (cold, heat, analgesic medication, massage, trigger point injections, TENS.). The cycle may be perpetuated by protective splinting of the painful muscle through distorted muscle posture and by avoiding painful stretching of the muscles. Any other perpetuating factors will support the reverberatory circuit.

With sustained contractile activity local blood flow decreases with resulting low oxygen tension, depleted ATP reserves and diminished calcium pump. Free calcium continues to interact with ATP to result within the limits of pain, until full range is achieved.

The consideration of perpetuating factors may include corrective action of mechanical stresses, drug control of depression, inflammatory or pain, management of nutritional inadequacies or metabolic disturbances and the recognition of influencing psychological factors.

MYOFASCIAL PAIN DYSFUNCTION SYNDROME

There is much dental literature on the role of the skeletal muscles in the myofascial pain-dysfunction syndrome (MPD syndrome) and in the temporomandibular joint (TMJ) pain-dysfunction syndrome. Travell and Simons include the following concepts:

The terms MPD syndrome and TMJ dysfunction syndrome overlap widely and clinically it is difficult to make a sharp distinction. When the symptoms include pain anywhere throughout the head, neck and jaw, the term craniomandibular syndrome is more appropriate.

The classical definition of the MPD syndrome is as follows:

- Diagnosis requires the presence of one of the following:
  - A unilateral pain in the ear or periauricular area;
  - masticatory muscle tenderness;
  - clicking or popping noises in the TMJ accompanies by pain or tenderness; and
  - limited opening of the jaw or deviation of the mandible on opening.

- In addition there should be no clinical or radiological evidence of organic changes in the TMJ.

Three major viewpoints regarding the etiology of MPD syndrome:

- muscular origin;
- complex psychophysiological phenomenon; and
- disturbed occlusal mechanics.
The pain is in fact often referred to the joint from myofascial trigger points in the lateral pterygoid, sometimes the medial pterygoid or the masseter muscles. These trigger points can be inactivated in order to relieve the pain and, if necessary, the perpetuating factors must be eliminated to provide lasting relief.

CONCLUSION

Ashburn concluded that in the case of persistent pain one should realise that this pain is a separate process from the original problem. First any correctable pathology must be ruled out then the pain itself should be addressed.

Likewise the possibility of acute pain being myofascial in origin should not be overlooked because all too soon this easily becomes chronic pain. It is this chronic pain which leads to disability, decreased productivity and dramatic effects on the patient’s life. So accurate diagnosis and at least an awareness of the myofascial origins of pain may lead to prompt administration of appropriate treatment and management by a multi-disciplinary team. In this way “most patients will experience significant decreases in their pain, allowing them to return to the workforce and resume a normal life”.

REFERENCES


WORLD CONFEDERATION FOR PHYSICAL THERAPY

POSITION STATEMENT*

PHYSICAL THERAPY FOR THE CARE OF ELDERLY PERSONS

The World Confederation for Physical Therapy Accepting the United Nations' Principle for Older Persons - Item 10 (New York 1991): “Older persons should have access to health care to help them maintain or regain the optimum level of physical, mental and emotional well-being and to prevent or delay the onset of illness”;

Recognising the rapid escalation in the number of elderly persons throughout the world;

Appreciating that epidemiological data indicates that 20% or more of elderly persons experience mobility and functional problems which may compromise their well being;

Mindful of the financial implications of disability to the elderly individual, the family and the community; and

Aware that many physical problems may be prevented, corrected or ameliorated by the timely intervention of physical therapists;

Urges member organisations to take action by vigorously encouraging legislative and regulatory bodies to incorporate the following principles into their national planning and programmes.

• There should be active involvement of physical therapists with appropriate knowledge and experience of the development of services for elderly persons in policy and planning at international, national and local levels.

• Prompt and coordinated services provided by physical therapists should be promoted as an alternative to high cost hospital or institutional care.

• The provision of physical therapy services in the home or in programmes organised for elderly persons who usually reside at home, such as out-patient clinics, day hospitals, day care centres or respite care programmes, should be promoted as an alternative to high cost hospital or institutional care.

• The establishment of physical therapy programmes for those who do not have direct access to mainstream services, for example elderly persons in rural areas.

• There should be recognition that functional assessment, especially in the home environment, is necessary to determine the needs of elderly persons, and that physical therapists are key personnel in the management of mobility and physical function problems.

• That health promotion programmes conducted by physical therapists and aimed at enhancing physical function, especially in well elderly persons, may contribute subsequently to the development of optimal health and well-being of elderly persons.

• Reimbursement systems should allow for the complex and multiple health problems which elderly persons may have, and take into account the likely slower response to intervention.

• The identification of gaps in services in health and welfare programmes for elderly people which may be filled by the provision of physical therapy.

• The provision of funding for research and programme development into aspects of physical therapy relevant to the care of elderly people should receive due recognition.

• That physical therapists participate in the education and training programmes for primary health care workers, including families.

PHYSICAL THERAPISTS CHART A COURSE FOR OLDER PERSONS

Healthcare issues and needs of older persons worldwide were the topics of a collaborative meeting between an international group of physical therapists and representatives of the International Institute of Aging (United Nations) – Malta. As a result of the meeting a pilot short course on physical therapy services for older persons is planned for 1993.

The physical therapists present were: Doreen Bauer from the Western Pacific region, Jo Beenhakker from Africa, Neva Greenwald from North America and Margrit List from Europe, along with rapporteur, Barbara Sutcliffe and Lois Dyer. Present from INIA were the director, Dr Alfred Grech, Dr Julian Mamo, Dr Mario Garrett and Marika Wirth.

The final report and proposed curriculum will be issued by INIA, 117 St Pauls Street, Valetta, VLT07, Malta, available on request.

PILOT TEST SHORT COURSE

At the meeting priority was given to raising awareness of the contribution of physical therapy to services for elderly people and ultimate aims are:

• To improve health care services for elderly people by developing relevant physical therapy attitudes, skills and knowledge.

• To develop physical therapy skills to influence policy both locally and nationally.

The pilot course will address these aims and the resulting curriculum will be available for further courses worldwide.

Criteria for selection to the pilot course, costs and funding details will be available from INIA.

Applications from developing countries are especially encouraged.

* As devised by the Working Party of Physical Therapists at the meeting with the International Institute of Aging (United Nations) – Malta, in January 1992, as agreed by the WCPT Executive Committee in February 1992, for ratification at the next WCPT General Meeting in Washington in June 1995.

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