Work-Related Musculoskeletal Disorders

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At CCOHS OHS Forum on New Strategies for Recognizing and Preventing Occupational Disease
March 4 2005
Overview

- Definition of Work-Related Musculoskeletal Disorders (WMSD)
- Uncovering the iceberg of burden - issues in recognition & reporting
- Workplace factors important for development of & recovery from MSD
- Effectiveness of workplace interventions for WMSD
- Question and answer format
Some definitions

• Work-related: caused, aggravated, exacerbated by work place exposures (WHO, 1985)

• WMSD: A descriptor for disorders and diseases of the musculoskeletal system… tendon, muscle, nerve, joint, vascular structures and bursa (Hagberg, 1995)
Have you ever had pain at work?
Research finding

• In an office setting, we found (Polanyi et al., 1997):
  – 60% of workers reported having neck or upper limb pain over the past year

• In an auto parts manufacturing company, we found (Wells et al., 2000):
  – 80% of workers reporting some musculoskeletal (MSK) pain (includes back and legs as well) over the past year
Have you ever had pain that was aggravated by work?
Pain aggravated by work

• In an office setting we found:
  – 51% reported that their MSK pain was aggravated by work, at least to some extent

• Should such pain therefore be regarded as work-related?
Have you ever reported pain you have had to your workplace?
Reporting to workplace

• Overall, we found that
  – 22% of all office workers reported pain to the workplace

• Among those workers with pain (599), 362 (the majority) did not report pain to the workplace (Hogg-Johnson et al., in preparation).

• So there is a *threshold* for reporting pain
Not Reporting (1)

- Of the 362 with pain in the last year:
  - Most did not give a reason
  - 85 did not report because symptoms were mild or not considered a problem
Impact of pain on productivity

• And:
  – 40 attributed their pain to non-work factors. Should they have reported?

• Among those with neck and upper limb pain:
  – 7% had difficulty sticking to work routine or schedule
  – 9% had difficulty concentrating on work
  – 16% had difficulty using pens, computer keyboards etc. for at least half of the workday

• So unreported pain was having an impact on ability to work for an important minority
Not Reporting (2)

• As well:
  – 37 expressed fear of layoff, harassment, unemployment or “company’s response”
  – “He wouldn’t report even if he was feeling pain, because he was afraid it would show up on his work record and prejudice his future. He’s just going to work with it.”

• Have any of you feared the consequences of reporting pain at work?
“RSI” Reports at workplace which raised awareness & encouraged reporting
Would you go to see a doctor if you had pain?
Reporting to a health care practitioner

• We found that
  – 29% of all workers had seen a health care practitioner (most physiotherapy and family doctor) due to pain or symptoms (Beaton et al., 2000)

• Now it gets really interesting
  – What do health practitioners do with the kinds of symptoms you describe and clinical signs they find?
Ever been told you have one of these 44 disorders?

- Radiating neck complaints
- Cervical degenerative disease
- Cervico-brachial fibromyalgia
- **Tension neck syndrome**
- Trapezius myalgia
- Levator scapulae myalgia
- Status post-whiplash
- Non-specific musculoskeletal pain (neck)
- **Thoracic outlet syndrome**
- Frozen shoulder syndrome
- Rotator cuff syndrome
- **Acromioclavicular syndrome**
- Gleno-humeral degenerative joint disease
- **Bicipital tendinitis**
- Shoulder pain
- Scapulothoracic pain syndrome
- Thoracalgia
- Arm myalgia
- Triceps tendinitis
- Olecranon bursitis
- **Lateral epicondylitis**
- Medial epicondylitis
- Pronator syndrome
- Radial nerve entrapment
- **Ulnar nerve entrapment (elbow)**
- Posterior interosseus nerve entrapment
- Lateral antebrachial neuritis
- Forearm myalgia
- Non-specific diffuse forearm pain
- **Tendon disorders**
- Wartenberg’s syndrome
- Ganglion cyst
- **Ulnar nerve entrapment (wrist)**
- Carpal tunnel syndrome
- **deQuervain’s**
- Trigger finger
- Painful 1st carpometacarpal joint
- Osteoarthritis
- Arthralgia
- Digital neuritis
- Non-specific discomfort
- Intrinsic hand myalgia
- Myalgia
- Hand arm vibration syndrome
Does your doctor report your WMSD to the WSIB?
Cost shifting research

- In a recent physician survey (Murphy, 2003) 56 family physicians were asked:
- “how many new cases of overuse injury have you seen in the past 3 months”
- The physicians estimated that together they had seen 840 cases, 384 of which they thought were work-related
Who pays?

• Of the 384 work-related overuse disorders patients indicated the following involvement:
  – 152, WSIB
  – 38, employer insurance & not WSIB
  – 30, EI & not WSIB

• Of the 384, the family physicians billed 208 to OHIP
So how does WSIB handle WMSD?

Worker with pain

Employer

Worker

Physician

Clinical Diagnosis

Lost time Claims

Form 7

Form 6

Form 8

Coding:
Nature of injury,
Part of body

Database

End Users

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LA SANTE
Classification of WMSD

- For no lost time claims, little information
- For lost time (LT) claims only, the Ontario WSIB follows the National Work Injuries Statistics Program standardized coding procedures which help us understand more.
Coding of work related injuries

• Nature of injury or disease
• Part of body
• Source of injury or disease
• Injury event/exposure
• Secondary source of injury or disease
Definitions

• Nature of injury or disease (NOI):
  – “the principal physical characteristics of the injury or the disease”
    • Strain/sprain, fracture, systemic diseases
    • > 1, choose most severe, order provided
      – Laceration, concussion > soft tissue.

• Part of body:
  – part or parts of the injured person’s body directly affected by the injury or disease classification code (NOI)
2002 Ontario WSIB lost-time (LT) claims data

Year

% of total LT claims

Sprains & strains
Bruises, contusions
back pain
pain, not back

Source: statistical supplement of the 2002 WSIB annual report
But Remember the WMSD Iceberg!
(Sullivan & Cole, 2002)

Lost days at work  15%
Pain > 12 times or > 7 days in last year, moderate intensity  20%
Reported to workplace  22%
Saw health practitioner  29%
Work aggravates pain  51%
Any neck or upper limb pain  60%

Where should we draw thresholds for Action?
Where Do Workplace Factors Operate in the Course of a MSK disorder?

What affects occurrence?

ONSET OF SYMPTOMS (Reporting)

RISK FACTORS

What affects disability?

PROGNOSTIC FACTORS

OUTCOMES
Etiologic Risk Factors for WMSD

• Broad range of physical, psychological and work organization factors epidemiologically established and plausibly explained as etiological risk factors for WMSD (Panel on Musculoskeletal Disorders and the Workplace, 2001).
Risk Factors for ‘RSI/WMSD’

**PSYCHOSOCIAL FACTORS**
- Low social support
- High psychological demands
- Deadlines - weekly

**PHYSICAL FACTORS**
- Time on keyboard (5h vs. 1.5h)
- Poor screen position
- Female vs. Male

Risk Factors for Reporting Low-Back Pain in a Manufacturing Workplace

- Co-worker support
- Social environment
- Over-education
- Job Satisfaction
- Self-rated demands
- Peak shear
- Peak hand force
- Disc compression
Relative Contribution of Different Risk Factors to reporting LBP at work

<table>
<thead>
<tr>
<th>Domain(s) in Model</th>
<th>Percent of variance explained by factors (%)</th>
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</thead>
<tbody>
<tr>
<td>Individual characteristics: BMI*, prior WC claim for LBP</td>
<td>4.7</td>
</tr>
<tr>
<td>Workplace psychosocial</td>
<td>11.5</td>
</tr>
<tr>
<td>Workplace psychophysical</td>
<td>11.8</td>
</tr>
<tr>
<td>Workplace biomechanical</td>
<td>18.3</td>
</tr>
<tr>
<td>Full model (all above domains)</td>
<td>43.2</td>
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</tbody>
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* Body Mass Index      Kerr et al., (2001)
Prognostic Factors for WMSD

• Broad range of workplace factors have been associated with variable recovery and return them to work including:
  – On-site Ergonomic changes
  – Improved communication among relevant parties
  – Offers of accommodation
Median days on benefits (95% CI) for combinations of key factors among Ontario workers with WMSD

<table>
<thead>
<tr>
<th>Change in Pain Grade(^a)</th>
<th>Recovery Expectations</th>
<th>Yes</th>
<th>No</th>
<th>% reporting workplace offers</th>
</tr>
</thead>
<tbody>
<tr>
<td>improving</td>
<td>soon</td>
<td>14 (7, 25)</td>
<td>14 (13, 19)</td>
<td>37.5%</td>
</tr>
<tr>
<td></td>
<td>N=57</td>
<td></td>
<td>N=95</td>
<td></td>
</tr>
<tr>
<td></td>
<td>not soon</td>
<td>26 (15, 35)</td>
<td>29 (23, 42)</td>
<td>34.5%</td>
</tr>
<tr>
<td></td>
<td>N=49</td>
<td></td>
<td>N=93</td>
<td></td>
</tr>
<tr>
<td>worsening(^c)</td>
<td>soon/not soon</td>
<td>32.5 (16, 113)</td>
<td>112.5 (86, 150)</td>
<td>19.1%</td>
</tr>
<tr>
<td></td>
<td>N=18</td>
<td></td>
<td>N=76</td>
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Interventions to Reduce WMSD Burden (1)

• Preventing occurrence of WMSD
  – Proving primary prevention hard given prevalence of MSD among workers
  – In recent systematic review, some limited evidence that participatory ergonomic interventions are effective in reducing MSD

• What would you suggest? How would you evaluate whether it worked?
Interventions to Reduce WMSD Burden (2)

• Promoting recovery from WMSD. In a recent systematic review, moderate evidence that workplace based:
  – Early contact, work accommodation and workplace-health care provider contact promote reductions in work disability
  – Workplace visits and labour management cooperation reduce work disability
• What would you suggest? How would you evaluate whether it worked?
Healthy Workplaces for WMSD?

• The proportion of workplaces actually implementing ways to reduce etiological risk factors and promoting recovery appears limited

• For example, monitoring of relevant psychosocial and physical risk factors and using such information to inform programmes was rare in Canadian health care organizations
Biggest Challenges

• Achieving coverage i.e.
  – Workplaces acting upon evidence of effective preventive and rehabilitative interventions
  – Clinicians acting upon observations and being supported in interacting with workplace parties to achieve change
  – Policy makers using tools to promote both
Acknowledgements

- Epidemiological, clinical, biomechanical and other colleagues
- Participating organizations and individuals in studies cited
- Workplace Safety & Insurance Board of Ontario funding to IWH
- US National Institute of Occupational Safety & Health for support
Key Reference

Additional References (1)


Additional References (2)

