Different Treatments for Neck Pain: What Works?

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The Decade of the Bone and Joint 2000-2010 Task Force

on Neck Pain and Its Associated Disorders

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Treatment of Neck Pain: Noninvasive Interventions

Results of the Bone and Joint Decade 2000–2010 Task Force on Neck Pain and Its Associated Disorders

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Study Design. Best evidence synthesis.

Objective. To identify, critically appraise, and synthesize literature from 1980 through 2006 on noninvasive interventions for neck pain and its associated disorders.

Summary of Background Data. No comprehensive systematic literature reviews have been published on interventions for neck pain and its associated disorders in the past decade.

Methods. We systematically searched Medline and screened for relevance literature published from 1980 through 2006 on the use, effectiveness, and safety of noninvasive interventions for neck pain and associated disorders. Consensus decisions were made about the scientific merit of each article; those judged to have adequate internal validity were included in our best evidence synthesis.

Results. Of the 359 invasive and noninvasive intervention articles deemed relevant, 170 (47%) were accepted as scientifically admissible, and 139 of these related to noninvasive interventions (including health care utilization, costs, and safety). For whiplash-associated disorders, there is evidence that educational videos, mobilization, and exercises appear more beneficial than usual care or physical modalities. For other neck pain, the evidence suggests that manual and supervised exercise interventions, low-level laser therapy, and perhaps acupuncture are more effective than no treatment, sham, or alternative interventions; however, none of the active treatments was clearly superior to any other in either the short- or long-term. For both whiplash-associated disorders and other neck pain without radicular symptoms, interventions that focused on regaining function as soon as possible are relatively more effective than interventions that do not have such a focus.

Conclusion. Our best evidence synthesis suggests

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Learning Objectives

At the end of this session, you will be able to discuss the effectiveness of common non-surgical interventions for the treatment of :

- Neck pain
- Whiplash-associated disorders
- Cervicogenic headaches
- Neck pain in workers

Classification of Neck Pain

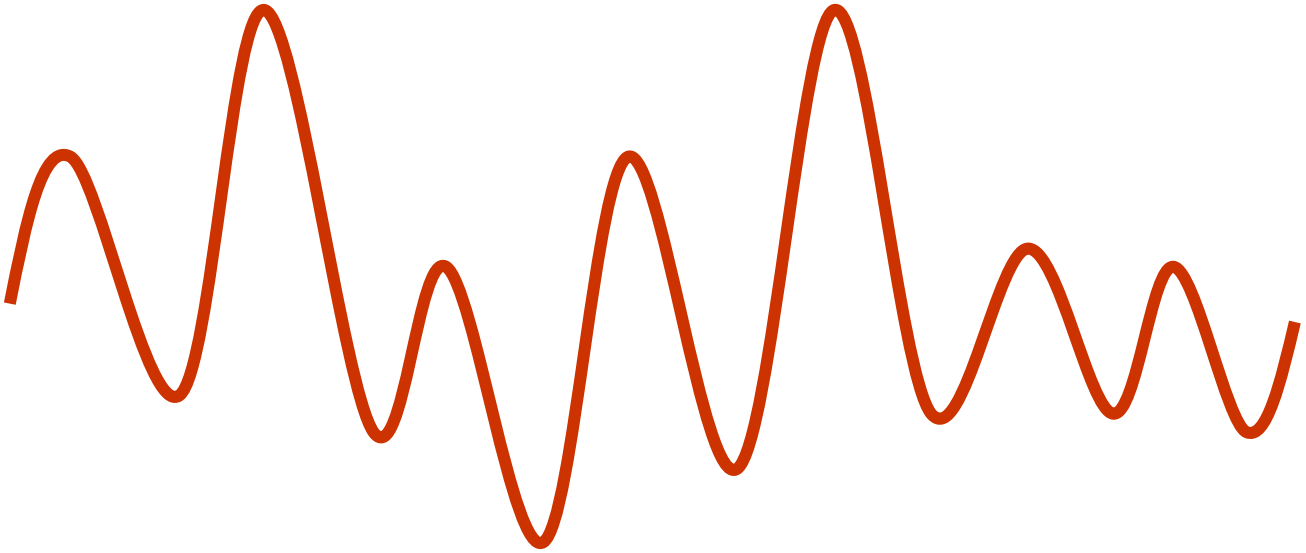
	Stiffness	Tenderness	Neurological signs and symptoms	Interference with ADL	Pathology
Grade I	±	±	-	None or trivial	-
Grade II	±	±	-	Yes	-
Grade III	+	+	+	Yes	-
Grade IV					+

Research Question

What Treatments are Effective in Promoting Recovery from Neck Pain ?

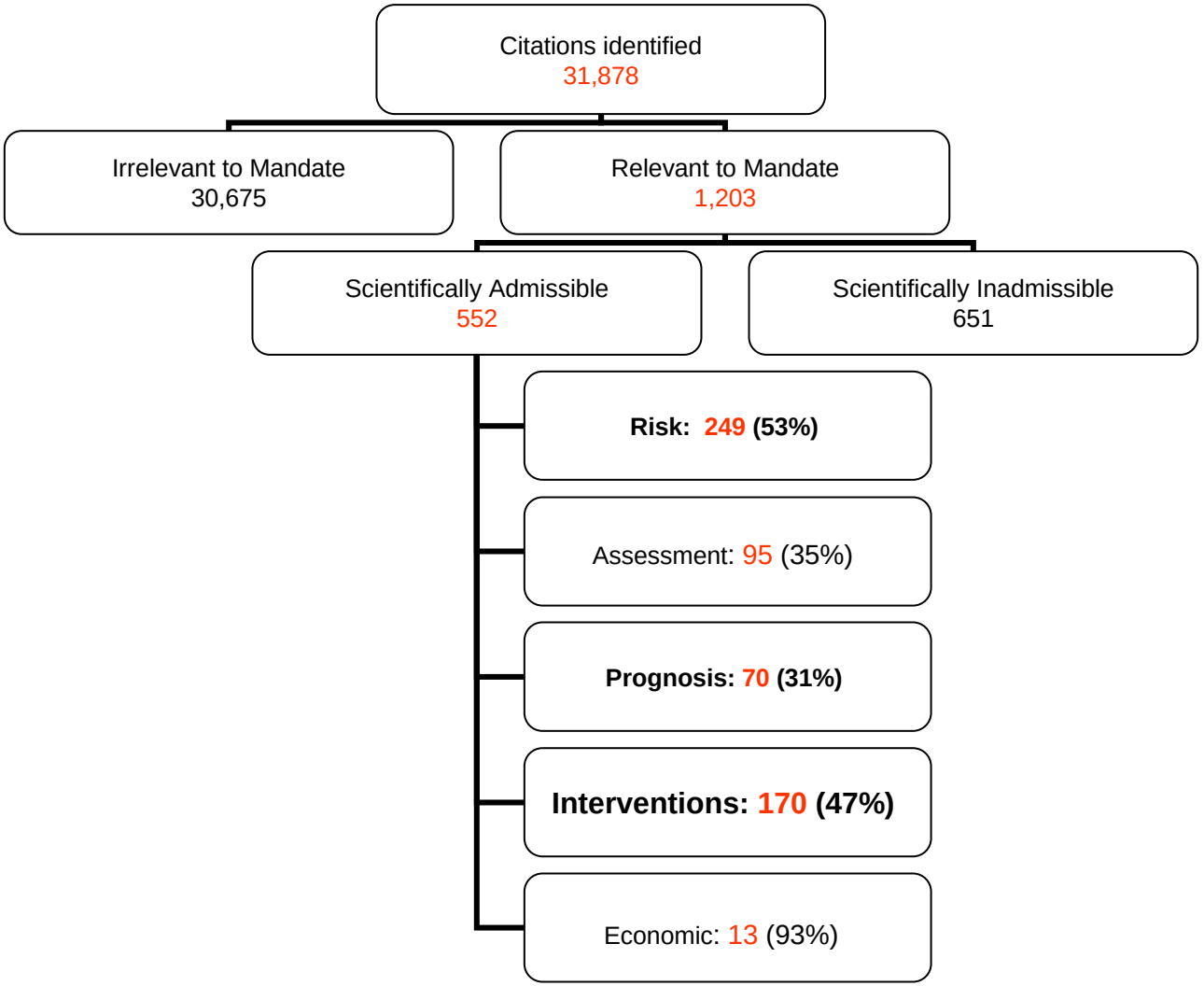
The Purpose of Treatment

Natural history



Treatment

Results


Citations identified
31,878
Irrelevant to Mandate
30,675
Relevant to Mandate
1,203
Scientifically Admissible
552
Scientifically Inadmissible
651
Risk: 249 (53%)
Assessment: 95 (35%)
Prognosis: 70 (31%)
Interventions: 170 (47%)
Economic: 13 (93%)

Accepted Papers

Area of Interest	Papers Reviewed	Accepted (%)
Risk	469	249 (53%)
Diagnosis	274	95 (35%)
Prognosis	226	70 (31%)
Intervention	359	170 (47%)
Total	1328*	584 (44%)

* The task force reviewed 1203 studies, some of which related to more than one area of interest.

Results

- WAD
  - Mobilization and exercises are more beneficial than usual care or physical modalities
  - Collars and high health-care utilization delay recovery
  - Educational videos focusing on self efficacy are helpful
- Non-traumatic Neck Pain (no radicular signs or symptoms)
  - Manual (manipulation or mobilization) and exercise interventions, low-level laser therapy and acupuncture are more effective than no treatment, sham, or alternative interventions
  - None of these treatments is clearly superior to any other in either the short or long term
  - Effect sizes tend to be small

Results

- WAD and Non-traumatic Neck Pain
  - Supervised exercise with or without manual therapy is better than usual or no care
  - Manipulation and mobilization yield comparable clinical outcomes
  - Risk of minor transient adverse effects is higher with manipulation
  - Efficacy of thoracic manipulation as a promising alternative to cervical manipulation has recently been investigated and deserves further examination
  - We found no additional risk of VBA stroke following chiropractic care,
- The risk for serious side effects from NSAIDs is negligible;
  - Minor side effects may be much more frequent

Results

- No evidence that a particular course of care improves prognosis or the natural history
- Some evidence that “Too Much Too Early” delays recovery of WAD
- The evidence does not support care longer than 6-8 weeks
- There are no acceptable studies on neck disorders with radiation and neurological signs (Grade III neck pain)
  - We cannot make conclusions regarding the risks and benefits of non-invasive interventions for these conditions
- Evidence lacking for the effectiveness of neck-pain prevention strategies

Interventions for Acute WAD I or II

- Helpful
  - Educational video
  - Manual therapy (mobilization)
  - Exercises (Mckenzie-type)
  - Manual therapy plus exercises (mobilization)
- Possibly helpful
  - Pulsed electromagnetic therapy
- Not Helpful
  - Pamphlet/neck booklet alone, collars, passive modalities (TENS, ultrasound), referral to fitness or rehab program, frequent early health-care use, methylprednisolone

Interventions for Non-acute WAD I or II

- Helpful
  - ???
- Possibly helpful
  - Supervised exercises
  - Coordinated multidisciplinary care
- Not helpful
  - Passive modalities (TENS, ultrasound)
  - Corticosteroid injections

Interventions for Non-traumatic Neck Pain, Grade I and II

- Helpful
  - Manipulation or mobilization
  - Exercise program alone or with manipulation
  - Manual therapy (manipulation, mobilization, massage) plus exercises
  - Exercise plus advice on coping
  - Low-level laser therapy
  - Analgesics
- Possibly helpful
  - Percutaneous neuromodulation therapy
  - Brief intervention using cognitive behavioral principles
  - Acupuncture
- Not helpful
  - Advice alone, collars, passive modalities, exercise instruction, Botulinum toxin A

Interventions for Cervicogenic Headache

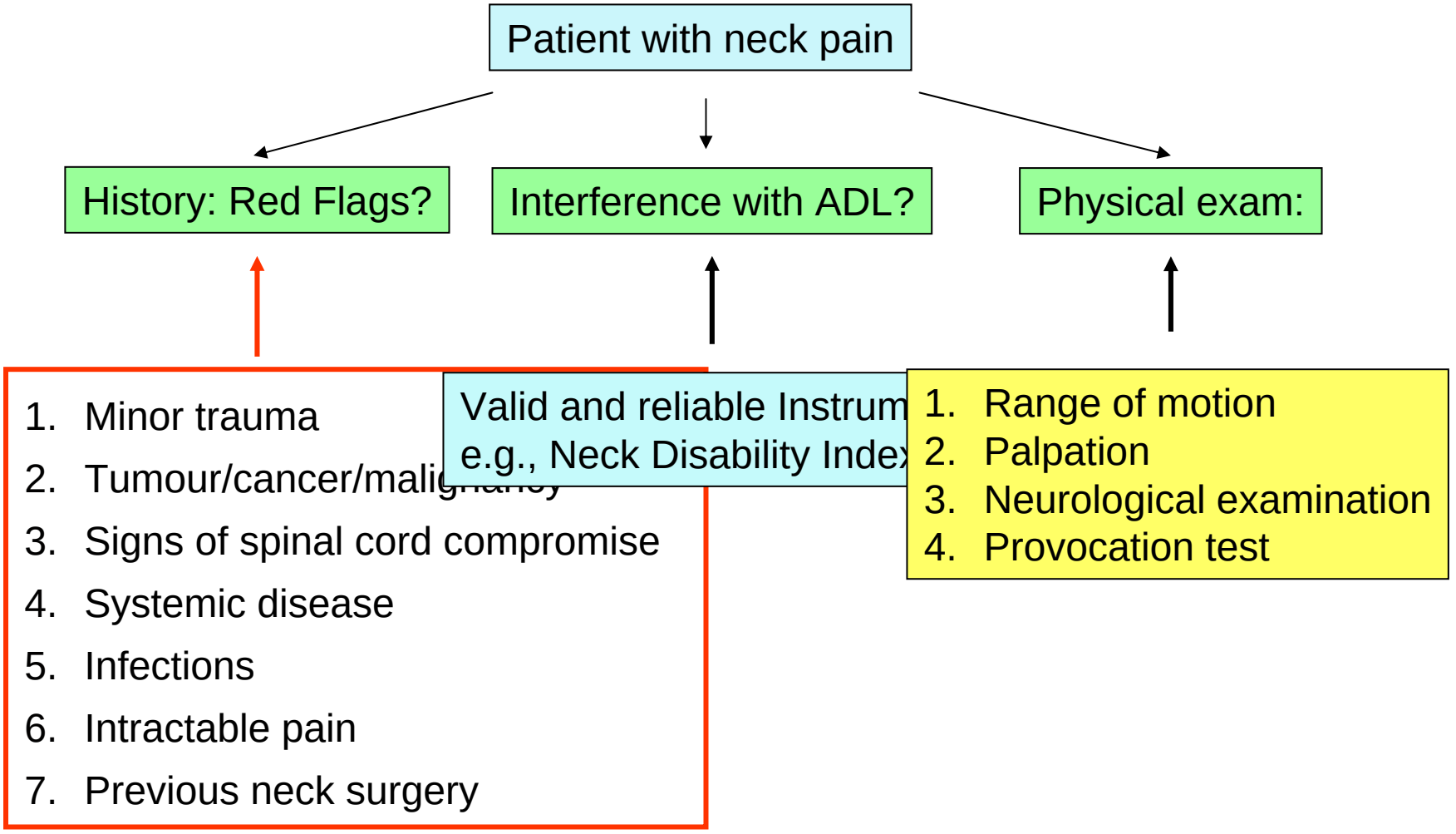
- Helpful
  - ??
- Possibly helpful
  - Manipulation
  - Mobilization
  - Supervised exercises
  - Manipulation or mobilization plus supervised exercises
  - Water pillow
- Likely not helpful
  - ??

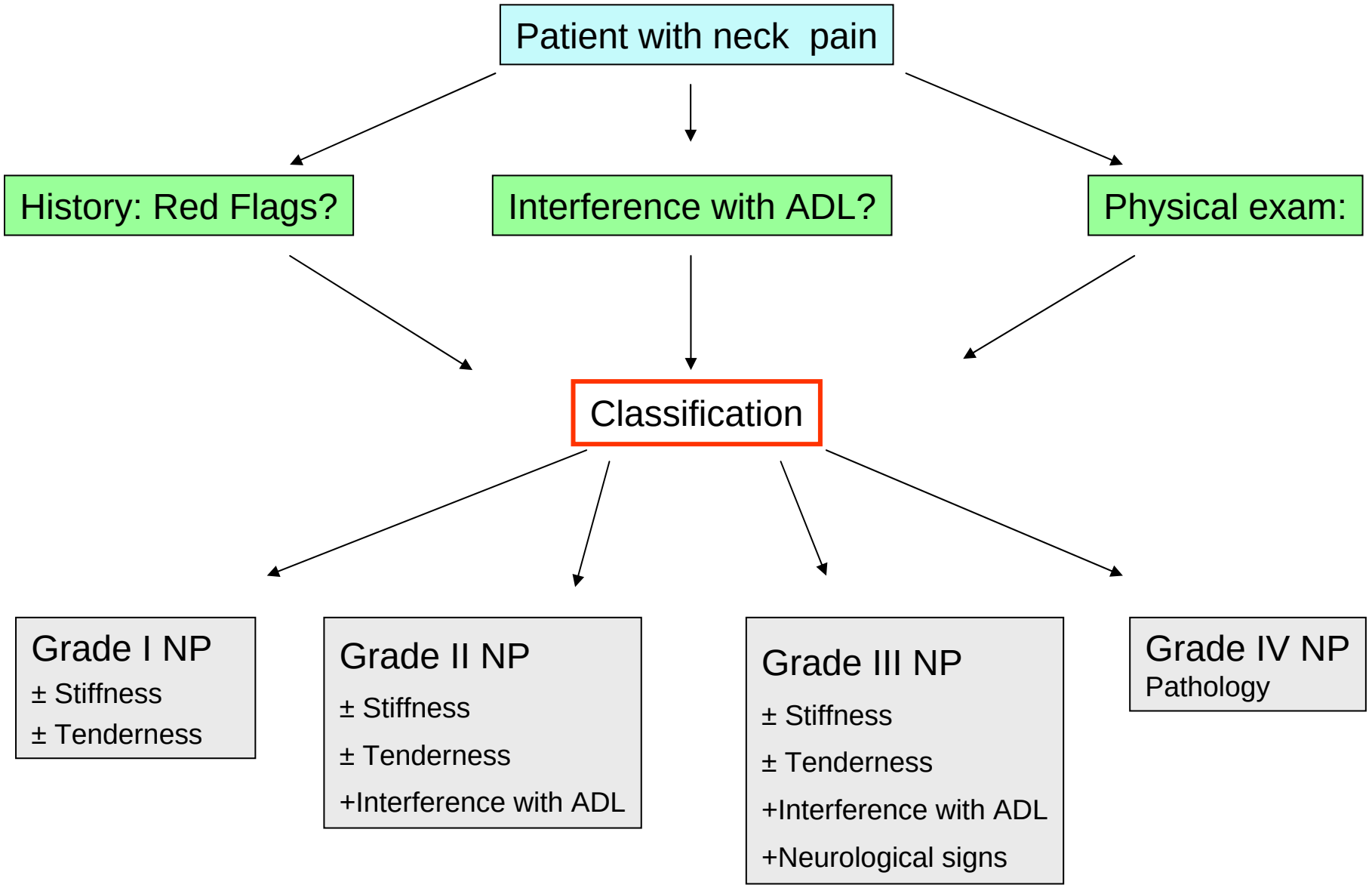
Interventions for Cervical Radiculopathy

- Not enough evidence to make recommendations
- To be continued…

Interventions for Neck Pain interfering with Work

- Helpful
  - ??
- Possibly helpful
  - Strength or endurance training with dynamic exercises of the upper and lower extremities
- Not helpful
  - Relaxation training with behavioural support, ergonomic interventions, forced work breaks, rehabilitation programs, stress management programs, relaxation training, physical training, exercise instruction


Patient with neck pain
History: Red Flags?
Interference with ADL?
Physical exam:
1. Minor trauma
2. Tumour/cancer/malig
3. Signs of spinal cord compromise
4. Systemic disease
5. Infections
6. Intractable pain
7. Previous neck surgery
Valid and reliable Instrum
e.g., Neck Disability Index
1. Range of motion
2. Palpation
3. Neurological examination
4. Provocation test


Patient with neck pain
History: Red Flags?
Interference with ADL?
Physical exam:
Classification
Grade I NP
± Stiffness
± Tenderness
Grade II NP
± Stiffness
± Tenderness
+Interference with ADL
Grade III NP
± Stiffness
± Tenderness
+Interference with ADL
+Neurological signs
Grade IV NP
Pathology

Recommended Non-Invasive Treatment

Grade I NP
± Stiffness
± Tenderness

Grade II NP
± Stiffness
± Tenderness
+Interference with ADL

Grade III NP
± Stiffness
± Tenderness
+Interference with ADL
+Neurological signs

Grade IV NP
Pathology

Non-traumatic neck pain
- Manipulation
- Mobilization
- Supervised exercises
- Manual therapy + exercises
- Acupuncture
- Low level laser therapy
- Analgesics

WAD
1. Pulsed Electromagnetic therapy
2. Brief cognitive behavioural therapy

Immediate medical referral!

Not enough scientific evidence to make recommendations

Recommended Invasive Treatment

Grade I NP
± Stiffness
± Tenderness

Grade II NP
± Stiffness
± Tenderness
+Interference with ADL

Grade III NP
± Stiffness
± Tenderness
+Interference with ADL
+Neurological signs

Grade IV NP
Pathology

Non-traumatic neck pain
Neck pain following a MVC – WAD

➢ Not Indicated!

1. Discectomy
2. Discectomy with fusion

As indicated

1. Discectomy with Instrumentation
2. <4 corticosteroid injections
3. Cervical disc

Key Messages

1. Several conservative treatments appeared to be more effective than ‘usual care’, sham or alternative interventions
2. None of the active treatments were clearly superior in the short- or long-term
3. Educational videos, manipulation and/or mobilization, and exercises, low-level laser therapy, and perhaps acupuncture appeared to be of benefit in relieving neck pain

Key Messages

4. For both WAD and other neck pain without radicular symptoms, interventions that focused on regaining function and returning to work as soon as possible were relatively more effective than interventions that did not have such a focus

5. Patient preference should be an important consideration in choice of treatment modality

Merci!

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