The Challenge of Post Polio

Wellness Weekend 2013
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If you saw this list—what would you think??

- Has trouble organising daily routine
- Has difficulty responding to 2 or more things at the same time
- Does not always take medication on time, if at all
- Makes errors with finances
- Has difficulties completing everyday tasks
- Sleeping is disturbed
- So what is this??--------------------PD!!!
Other features??

- tender points, cramps, weakness, pain above and below the waist, stress, sleep issues, - lowered pain thresholds, fatigue, altered pain processing, low muscle tone, short-term memory issues, distractible, autonomic signs-reaction to heat

- So what is it???

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MS!!!
Is it just ME?

- Persistent fatigue,
- Reduced activity
- Insomnia
- Muscle/joint pain
- Concentration issues
- Physical exertion makes things worse
- Headaches
Fatigue dimensions in others

- Lower voice volume
- Vision problems-e.g.-Di
- SOB
- Frequent sighing
- Irritability
- Crying episodes
- Lack of enjoyment in prev. hobbies
- Deterioration in grooming?
- Increased forgetfulness and concentration
Post Polio Fatigue

- Types-central (RAS) global, aerobic, local joint, muscular or neural
- Case example-Nancy-late effects-FOF
- Depression, stress
- OT hints
- Transfer strategies
- Care with crutch or stick height
- Research on recovery time, metabolic changes, strength, O2 uptake,
Case study

Mick is now 65 years old

Had polio at age 6, spent 3 weeks at Northfield, 1 year at ACH, 1 at home

2 scoliosis operations at aged 14—neither worked, in spite of regular bivalve of plaster jacket—stretching caused left arm nerve palsy

Fusion of C7-T9
Now

- Major kypho-scoliosis
- BIPAP at night
- One leg shorter-partial build up
- Main concern-fatigue-is it safe to travel?
Recommendations and discussion

- Bipap on plane?
- Carrying machine?
- Ramps or stairs?
- What exercise?
- Build up on new shoes?
- Massage
- Breathing exercises

- Late effects and/or residual?
Jules

- Polio at aged 2
- First new features 20 years ago
- Pain, fatigue, weakness
- Depression, stress
- Fibromyalgia elements
Fibromyalgia?

- Hip pain after gardening
- Initial diagnosis was L4 disc bulge
- Spreading pain from initial in hip to arms and hands, ribs, headaches
- Bladder spasms
- Short sitting tolerance
- Central pain issues
Fibromyalgia

- pain, stress, sleep issues, central brain system problems,
- lowered pain thresholds, increased ratings for pain thresholds, altered pain processing (JAMA 2004)
- treatment - medication, CBT, exercise-
  aerobic, strength, relaxation, pool work
Fay-66

- Polio at aged 4
- Slight left sided weakness
- Scoliosis
- Rotator cuff surgery-left
- Sub acromial bursitis-right
- C 4/5 retro-listhesis
- L 4/5 disc issues-in 06
New episode of prickling, tingling in R side of neck and arm

Previous dizziness episodes—sinusitis?

Causes of new pain?

-fatigue, shingles, shoulder irritability?,

Causes --/central processing?, wind up features?

Treatment???

—hydro---
Andy

- Polio at aged 18 months, now 45
- Crawled until aged 8
- Hip release operations
- Walked in long calipers and crutches
- Burn out of arms, major fatigue
Discussion with Andy

- Pacing, rest!!!
- Hydrotherapy-access issues
- Change of crutch handles
- Gentle arm exercise after time/ work re-organisation
Eileen

- Chronic neck problems
- Increasing limp (Trendelenberg)
- Sleep disruption
- Where is the weakness—how is it measured?
Facts and figures -

- Pain 86%
- Muscular weakness 83%
- New atrophy 23%
- Fatigue 89%
- Outdoor walking impaired in 65%
- Other features - biomechanical dysfunction -(e.g.), falls risks, cervical, lumbar radiculopathies, degenerative joint disease, achieving personality, -not asking for help (Westbrook-etc)
Other issues

- Nocturia
- Falls risk
- Shortness of breath
- Weight—h/v example
- Bulbar concerns
- Coping styles
- Creatine kinase?
Pain in post polio syndrome

- Myalgia-overuse? Cramps-/prevention?
- Degenerative Changes-joint pain
- Tendinitis, bursitis, spinal stenosis?
- Multi-modal
- Multi-dimensional-not symmetrical
- Acute/chronic
- Osteopaenia
- Failing joint fusions?
Pain Treatment

- Local
- Pain education, counselling, pain diary
- Cramp care
- Anti-depressants
- Medication review—with pharmacist
- Tens, FES—evidence?
- Distraction, relaxation, stress management cognitive restructuring
- Exercise, weight reduction
- Neuro-dynamics -
- Splinting--? Prevention?
The jeans of 2010
Dumfermline College of Hygiene
and Physical Training
Background to new weakness

- The extent of recovery is determined by:
  - The number of neurones that recovered and resumed normal function
  - The number of motor neurones that develop axon sprouts to reinnervate muscle fibres left orphaned by the death of their original motor neurones
  - Muscle fibre hypertrophy
Motor neurones pre and post

Figure 1: The Motor Neuron Unit Before and After Polio
(Adapted from Halstead, 1998)
Aspects of recovery

- Motor unit size can increase 7 to 8 fold
- A single motor neurone for quadriceps that originally innervated 5000 muscle fibres may eventually support 35,000 to 40,000
- A muscle can retain normal strength even after 50% of the original motor neurones have been lost
Exercise

- Supervised gentle aerobic and non-fatiguing strengthening exercise after lifestyle and orthotic modifications
- Arm ergometer/ vibra-gym/? moto-med cycle?
- Balance and Postural work-BBT, sit to stand
- Increase gradually
- Increase CV fitness –walk, cycle or swim
- Beware boom and bust!!!—10 commandments!!
Management/exercise strategies

- Identify non-polio disorders
- Optimise balance between strength, endurance vs burden; Pacing; decrease energy expenditure
- Avoid over stretching
- Osteoporosis issues
- Lose weight
- Use orthotics and mobility aids
- Take care with contractures
- Learn to read and rate exertion levels
Respiration matters

- The system
- Presentation
- Complications
- Predictors of aspiration pneumonia
- Causes of respiratory problems
- Ventilation-sleep studies
- Physical Assessment
- Strategies
The respiratory system and PP issues

- Central drive
- Diaphragm
- Rib movement
- Abdominal muscles
- Accessory muscles
Strategies

- Breathing control
- Activity pacing
- Short of breath or just fatigued?
- Relaxation techniques
- Psychological support
Presentation

- Attacks of breathlessness
- Worse when supine (orthopnia)
- Morning headaches
- Excessive daytime sleepiness
- Nocturnal dyspnoea
- Poor nocturnal O2
- Nightmares
Complications

- Aspiration
- Aspiration pneumonia
- Reduced coughing
- Persistent chest infections
- Trunk muscle weakness
- Decreased postural support
Causes of complications

- Decreased central drive
- Diaphragm insufficiency
- Chest infection
- Sleep apnoea
Dyspnoea

- Assessment
- V A Scale
- Numerical or verbal scale
- Exertion scale-/Borg?
- Worsens with pain decrease
- Similar mechanism to chronic pain-central enlargement of matrix
10 commandments of PPs

- Listen to yourself
- Activity is not exercise - conserve to preserve
- Break - don’t brake
- A crutch is not a crutch
- Just say no to drugs - unless —
- Sleep right all night
- Some polio survivors like it hot
- Breakfast is the most important meal of the day
- Do unto yourself as you have been doing for others
- Make doctors cooperate before they operate!!
PT examination and treatment of the polio survivor,
Management of a patient with PPS
The course of functional status and muscle strength in pts with late onset PPS
Current treatment options in PPS
Fear of Falling, Balance confidence and QOL in individuals with PPS
Disability in a 4-year follow up study of people with PPS
Health and physical functioning -6 yr follow up,
Effect of treatment and non-compliance on PPS
Impact of PP related fatigue on QOL
Effective intervention strategies for management of impaired posture and fatigue with PPS-A Case report,
Predictive Factors for PPS