NEUROLOGY ECHO NETWORK MOVEMENT DISORDERS

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Y. ZHUANG SECTION - CLINICAL EXAM, DIAGNOSIS

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WHEN TO SUSPECT & TAKING HISTORY PARKINSON'S

- Parkinsonism
  - Rigidity
  - Bradykinesia (slow movement) & hypokinesia (reduced movement)
  - Decrement (movement than gets smaller with repetition)
  - Tremor (30% never get tremor)
- Tremor
  - Rest vs. action (+/- postural)
  - How affecting QoL and ADLs
  - Better with alcohol +/- family history of tremor (clue to ET)
  - Consider drug exposures (anti-dopaminergic medications, valproate, lithium)
- Other clues
  - Complaints of leg/shoulder stiffness
  - Subjective weakness
  - Tiring quickly with repetitive movement (e.g. writing, teeth brushing, cooking tasks (e.g. whisking/chopping)
  - Difficulty walking/shuffling
  - Constipation (can precede PD by decade)
  - Loss of sense of smell
  - REM sleep behavior disorder (collateral hx)
  - Voice change
  - Exposure to toxins – well water, welding, pesticides
  - Sense of presence hallucinations

RED FLAGS ON HISTORY

- Consider early neurologist referral
  - Difficulty manipulating/using everyday objects (apraxia)
  - Early balance issues/falls (esp. backwards)
  - Early cognitive symptoms (short-term memory)
  - Autonomic symptoms (postural hypotension, urinary symptoms)
  - Young age +/- family history of PD

NEUROLOGICAL EXAMINATION

- Gait
  - Short stride length
  - Turning ‘en bloc’
  - Difficulty with getting started
  - Reduced arm swing (esp. on one side)
- Tremor
  - Resting tremor (can bring out with distraction)
  - Finger-nose testing (action)
  - Postural tremor
- Bradykinesia
  - Decrement with finger-thumb tapping or foot tapping
- Other features
  - Glabellar tap sign
  - Difficulty with saccadic eye movements or looking down (red flag)
  - Check for postural BP drop (sitting then standing @ 1 min and 3 min)

INVESTIGATIONS

- Primary Care
  - Reasonable to check FBC, EUC, LFT, thyroid function, B12 (esp. in red flag case or cognitive symptoms)
  - Cognitive screening test
    - Addenbrooke's Cognitive Examination (ACE-R)
    - MMSE or Montreal Cognitive Assessment
- Neurologist
  - May include additional metabolic screening (esp. in young patients)
  - MRI brain with nigrosome-1 sequences to assess for abnormal nigrosomes (seen in PD) and clues to other atypical disorders

DIAGNOSIS

- Typical parkinsonism
  - Idiopathic Parkinson's disease
  - Genetic form (young onset)
  - Drug-induced parkinsonism
- Atypical parkinsonism (less responsive to medications, worse prognosis)
  - Dementia with Lewy Bodies (synucleinopathy like PD but involves cortex before basal ganglia)
  - Progressive supranuclear palsy (tauopathy)
  - Multiple systems atrophy (synucleinopathy)
  - Corticobasal syndrome/degeneration (Alzheimer's or tauopathy)

MANAGEMENT | MEDICAL

- Multidisciplinary management
  - Physiotherapy
  - Speech pathology
  - Occupational therapy
- Non-motor symptomatic management
  - Aperients
  - Melatonin (REM sleep behavior)
  - Donepezil (cognitive symptoms)
  - Quetiapine (psychosis)
    - Clozapine has good evidence but access limited

- Parkinsonism symptomatic management
  - Levodopa + inhibitor of peripheral metabolism (carbidopa/benserazide)
    - Controlled release preparations less predictable and less bioavailable
  - Dopamine agonists (e.g. pramipexole, rotigotine)
    - Consent for impulse control disorders required
    - SE: somnolence, psychosis, ankle swelling, nausea
  - Drugs titrated according to symptoms and side effects
  - All changes should be gradual
  - Drugs best at addressing rigidity and bradykinesia (less effective for tremor)
  - Other drugs used by neurologist for more advanced management incl. amantadine, COMT inhibitors
  - Surgical options (movement disorders subspecialist)
    - Strict criteria for use

MANAGEMENT | MEDICAL

- Example primary care levodopa trial
  - Dosing regimen
    - Start 50mg BD for 1 week
    - Then 50mg TDS for 1 week
    - Then 100mg TDS
  - Take medications away from meal times
- Give it about 3 months to assess benefit

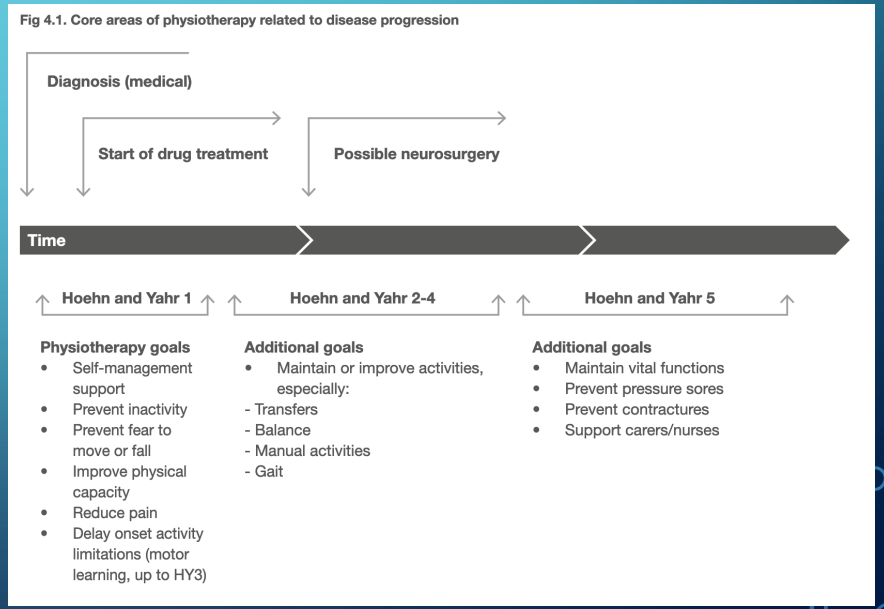
- Example primary care dopamine agonist trial
  - Dosing regimen
    - Pramipexole MR 0.375mg daily for 1 month
    - Then 0.75mg daily
  - Take mane if complaints of stiffness later in day
  - Take nocte if complaints of stiffness first thing in morning

MANAGEMENT | MEDICAL

- Essential tremor
  - Propranolol (can use PRN)
  - Primidone (start low, go slow)
  - Others: gabapentin, topiramate
- Consider drug induced/ exacerbated tremor
  - Valproate and pregabalin common culprits

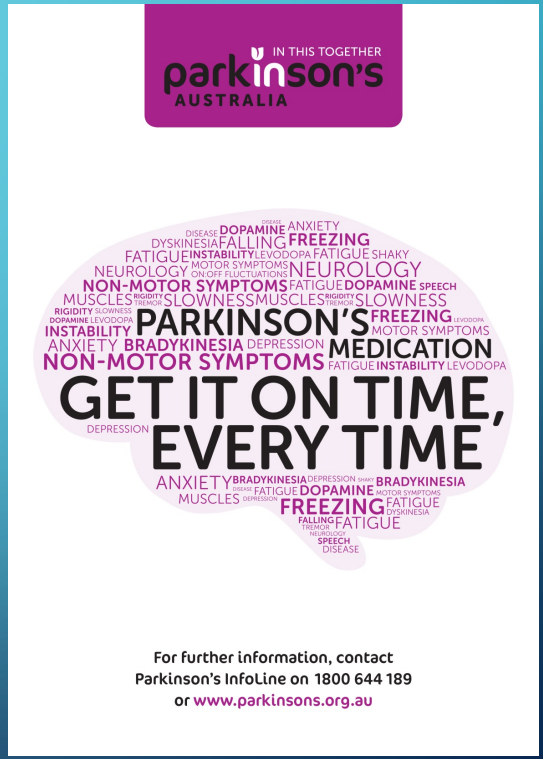
MULTI-DISCIPLINARY CARE

- Medical: Neurologist / GP / Geriatrician
- Specialist PD nurse
- Pharmacist
- Speech pathology
  - Communication strategies
  - Assessment of swallowing function reduce aspiration risk
- Occupational therapy
  - functional performance, environmental set-up
  - Activity modification, assistive devices
  - Home assessment
- Neuropsychology
- Palliative care – including pain management
- Physiotherapy



MULTI-DISCIPLINARY CARE

- Specialist PD Nurse, their role is to:
  - clinical monitoring and medicines adjustment
  - a continuing point of contact for reliable source of information for people with Parkinson's disease (and their carers)
  - self-manage their condition by optimising their knowledge and understanding of treatments, services and supports available
  - communicating between health and social care teams and agencies
- Referral pathway: Metropolitan via Movement disorder clinics in each Local heath network, Rural: via the Rural Support Service



PHYSIOTHERAPY MANAGEMENT

Table 5.3.1a WHO recommendations for physical activity levels

In adults (18 to 64 years):

- Aerobic physical activity for:
  - ≥ 150 minutes / week at moderate intensity
  - or ≥ 75 minutes / week at vigorous intensity
  - or an equivalent combination thereof
- The aerobic activity should be performed in bouts of at least 10 minutes duration
- Muscle-strengthening activities involving major muscle groups on ≥ 2 days / week
- For additional health benefits:
  - 300 minutes of moderate intensity aerobic physical activity / week
  - or 150 minutes of vigorous intensity aerobic physical activity / week
  - or an equivalent combination thereof

In old age (≥ 65 years), equal to adults, but in addition:

- In case of poor mobility: physical activity to enhance balance and prevent falls on ≥ 3 days / week

- 5 Core areas of PT: gait, transfers, falls and balance, dexterity and physical capacity

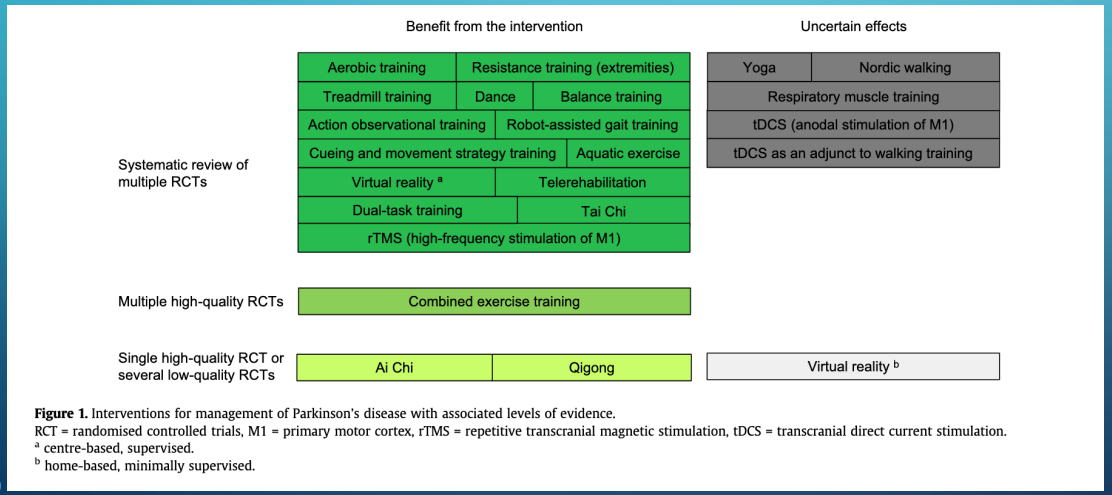


Figure 1. Interventions for management of Parkinson's disease with associated levels of evidence.
RCT = randomised controlled trials, M1 = primary motor cortex, rTMS = repetitive transcranial magnetic stimulation, tDCS = transcranial direct current stimulation.
[a] centre-based, supervised.
[b] home-based, minimally supervised.

- Clinical Tests
  - FTSTS >16 seconds
  - Pull/Push test
  - Gait speed
  - 6MWT

SUPPORT SERVICES

- THRF – Fighting Parkinson's
- https://fightingparkinsons.org.au/
  - Specialist nursing referral
  - Allied Health providers
  - Support groups (local and specialized)
  - Exercise groups
- Parkinson's Australia
- https://www.parkinsons.org.au/
- Strength for life (50+)
  - EP/Fitness trainer/Aqua
- Day rehabilitation services
  - Access for multi-disciplinary allied health (PT/EP/OT/SP//Neuropsychology)
- Country referral unit