Meeting the Challenges of Parkinson’s Disease (Part 1 of 3)

Resources collated for the WACHS South West Clinical Update Day
May 2013
Funded through the TRACS WA Subacute Learning Fund
(Project 1.9)

All information current at May 2013. No responsibility accepted for currency of information accessed after this date
Resource description

These resources were collated by the WA Health Training Centre in Subacute Care (TRACS WA) for the PD Clinical Update day initiated by Bunbury Hospital Subacute Services held in May 2013. This document is a collation of the presentations delivered.

All information was current at the time of the event.

TRACS WA provided funds from the Subacute Learning Fund to support the day and worked with the South West Subacute service to develop the content.

The input of WA Health staff in the development of these resources is acknowledged within the body of the work.

All material generated by TRACS WA remains the intellectual property of WA Health. In keeping with TRACS WA’s Guiding Principles to support the availability, dissemination and exchange of information (and subject to the operation of the Copyright Act), you are welcome to reproduce the material for personal, in-house or non-commercial use, without formal permission or charge and with full acknowledgement of the provenance of the material.

In the event that you wish to reproduce, alter, store or transmit the material for a purpose other than personal, in-house or non-commercial use you can apply to TRACS WA for formal permission: tracsWA@health.wa.gov.au
1. Overview of the Day
   Stephanie Daniels, Regional Sub Acute Care Coordinator WA Country Health Service - South West

2. Parkinson’s Disease Overview
   Dr Ramesh Parthasarathy, Geriatrician Bunbury Hospital

3. Medical management: pharmacological therapies in PD and side-effects
   Dr Ramesh Parthasarathy, Geriatrician Bunbury Hospital

4. Medication management and nursing implications
   Marieta Simmons- NCWA Neurological Nurse

5. Consequences of PD and Rehabilitation Strategies (The Kingston Principles)
   Tanya Larsen (OPH Senior Physiotherapist)

6. Managing mobility and activities of daily living: Practical assessment and treatment strategies
   Tanya Larsen (OPH Senior Physiotherapist) and Emily Cheetham (OT, OPH)

7. Falls, Exercise and the Evidence
   Tanya Larsen (OPH Senior Physiotherapist)

8. Non-motor symptoms and management implications: Autonomic symptoms; Sleep; Mood; Cognitive decline/ dementia
   Jo Chadwick (PDAWA Nurse Specialist) and Emily Cheetham (OT, OPH)

9. Preventing malnutrition, weight loss and complications associated with aspiration
   Denise Stapleton and Gillian Penman (Dietitian & Speech Pathologist Fremantle Hospital – Moss St Clinic)

10. Addressing patient and carer support – case management and future care planning
    Beng Lin Tan (Social Work Fremantle Hospital – Moss St Clinic)
WACHS – Southwest

Meeting the Challenges of Parkinson’s disease

Staff Education Day - May 2013
Welcome and Introductions

- Housekeeping

- WACHS Southwest – TRACS WA Collaboration
  - TRACS WA Training Centre in Sub-acute Care: Sub acute Learning Project 1.9 WACHS Southwest: Parkinson’s Disease Management Education
Why the focus on Parkinson’s disease?

• What were the drivers for this Staff Education forum?

  – The implementation of the Sub Acute Care Program in the South West has resulted in an increase of patients with Parkinson's Disease accessing our services. To ensure the delivery of excellence in care it was identified that an education and skills update in Parkinson’s Disease management was required.

• How did this Education Day evolve?

  – In response to the 2012 TRACS WA funding opportunity for sub acute projects an application for funding to run a study day in the SW was initiated. A successful application resulted in a more comprehensive staff learning needs analysis and subsequent defining of topics through staff audit.
Why the focus on Parkinson’s disease?

What is this Education Day all about?

This day has been designed to provide a comprehensive, multidisciplinary and interdisciplinary approach to meeting the challenges of managing the needs of people living with Parkinson’s disease. The purpose is to address the medical management of the condition together with motor, communication, pharmacological and psychological issues associated with the disease.

• Who is involved in this day?

TRACS WA were able promote the proposed program and attract a variety of experts in the management of Parkinson's Disease to present at the forum today. We have Medical representation from our Regional Geriatrician, Dr Ramesh as well as one of the SW Community Neurological Nurses. In addition we have allied health staff from Osborne Park Hospital and the Moss Street Clinic in Fremantle together with a Parkinson's WA Nurse Specialist.
Why the focus on Parkinson’s disease

• What do we hope to achieve?

  – The goals for today and into the future include the up-skilling of sub acute staff in Parkinson’s Disease management through the use of evidence based practice.

  – Establishment of links and networks with our metropolitan colleagues.
What are we going to cover?

Agenda

- Medical **Overview** of Parkinson’s disease
- **Motor symptoms** and consequences
- **Medication** management and implications for nursing
- Consequences of PD and rehabilitation principles
- Managing **mobility** and **activities of daily living**
- **Falls, exercise** the evidence
- **Non motor symptoms** and management implications
- Prevention of **malnutrition, weight loss** and **aspiration**
- Tips on treating **voice, speech, communication** disorders
- **Patient and carer support** – case management
- **Networking** Opportunity
An overview of Parkinson’s disease:
Symptoms and Consequence

Dr Ramesh Parthasarathy, Geriatrician Bunbury Hospital

24th May 2013
Parkinson’s disease-
Current and emerging aspects....

Dr P Ramesh
MBBS, FRCP(Lon), FRCP (Ire), FRACP, PGCE
Consultant Physician and Geriatrician
Bunbury and South West
Parkinson’s disease-learning objectives

- History
- Neuropathology
- Clinical presentation
- Diagnosis
- Pharmacological
- Nonpharmacological
- Newer treatments
- Educational videos
THE HISTORY OF PARKINSON’S DISEASE

‘Shaking palsy (paralysis agitans) Involuntary tremulous motion, with lessened muscular power, in parts not in action even when supported; with a propensity to bend the trunk forward, and to pass from a walking to a running pace: the senses and intellects being uninjured.’

James Parkinson (1817)
Essay on the Shaking Palsy
Neuroanatomy – Parkinson’s disease

BRAIN REGIONS affected physically or functionally by Parkinson’s disease are highlighted. The pars compacta region of the substantia nigra (dark area in detail) loses neurons that normally issue motion-controlling signals (arrows) to the striatum in the form of the naturally occurring chemical dopamine. Striatal neurons relay the messages to higher motor centers (gray).

Death of the nigral neurons lowers dopamine levels and thereby disrupts the circuit and, in turn, a patient’s motor control. Dopamine-producing neurons outside the substantia nigra are not harmed much, but areas that lose other kinds of neurons, such as the raphe nuclei and locus ceruleus, contribute to depression and to additional nonmotor manifestations of the disorder.
DEFINITION OF PARKINSON’S DISEASE

- A degeneration of dopaminergic nigrostriatal neurones

- Characterised by
  - Loss of pigmented cells in pars compacta of substantia nigra
  - Depressed striatal dopamine

Dr P Ramesh, Parkinson's TRACS May 24th 2013
PREVALENCE OF OTHER NEUROLOGICAL DISORDERS


Dr P Ramesh, Parkinson's
TRACS May24th2013
AETIOLOGY OF PARKINSON’S DISEASE – III

The toxin hypothesis

- MPTP exposure causes a disease similar to Parkinson’s disease
- MPP⁺ accumulates in mitochondria and inhibits Complex I
- Specific cell loss in dopaminergic neurones of SNc
- Does exposure to a toxin similar to MPTP cause Parkinson’s disease?

Dr P Ramesh, Parkinson’s
TRACS May 24th 2013
Parkinson’s disease-
Clinical presentation
CARDINAL SIGNS OF PARKINSON’S DISEASE

- Rest tremor – shaking of limb when relaxed
- Rigidity – stiffness, limbs feel heavy/weak
- Bradykinesia – slowness of movement

Dr P Ramesh, Parkinson’s TRACS May 24th 2013
PRESENTING SYMPTOMS OF PARKINSON’S DISEASE – I

- Pill-rolling rest tremor
- Micrographia
- Difficulty with fine movements
PRESENTING SYMPTOMS OF PARKINSON’S DISEASE – II

- Poverty of blinking
- Impassive face
- Dribbling and swallowing difficulties
- Monotony of speech and loss of volume of voice
PRESENTING SYMPTOMS OF PARKINSON’S DISEASE – III

- Disorders of posture - flexion of neck and trunk
- Lack of arm swing
PRESENTING SYMPTOMS OF PARKINSON’S DISEASE – IV

- Loss of balance - lack of righting reflexes, retropulsion
- Short steps, shuffling gait, and festination
PRESENTING SYMPTOMS OF PARKINSON’S DISEASE – V

- Depression
- Pain
- Taste disturbance/parosmia

- Autonomic dysfunction
  - Constipation
  - Postural hypotension
  - Urinary frequency/urgency
  - Impotence
  - Increased sweating
  - Seborrhoeic dermatitis

Dr P Ramesh, Parkinson's
TRACS May24th2013
Stages of Parkinson’s Disease\textsuperscript{1,2}

- **Presymptomatic phase of disease** c 4-10 years
- **Abnormal rate of dopaminergic neuron deterioration begins**
- **Onset of symptoms**
- **Diagnosis**
- **Maintenance**
- **Complex**
- **Palliative**
- **Death**

- **Dopaminergic neuron number and function**
- **Severity of the disease**

Adapted from Olanow 2001 & Baker 2003

"Dr P Ramesh, Parkinson’s TRACS May 24th 2013"
Rating scales in Parkinson’s disease

- UPDRS
- Hoehn and Yahr
- Schwab and England ADL scale
- GDS
- EPSS
- PDQ39
- PDSS
- NPI-Q
HOEHN AND YAHRR SCALE FOR RATING SEVERITY OF DISABILITY IN PARKINSON’S DISEASE

Stage

1
Unilateral symptoms

2
Bilateral mild disease

3
Loss of balance

4
Unable to live independently

5
Confined to wheelchair or bed

Hoehn M, Yahr M. Neurology (1967); 17: 427-442

Dr P Ramesh, Parkinson's
TRACS May24th2013
DIFFERENTIAL DIAGNOSIS IN PARKINSON’S DISEASE

Idiopathic
- Brain stem Lewy body Parkinson’s disease

Secondary parkinsonism
- Drug induced
- Head trauma
- Infective/post infective
- Tumour
- Huntington’s chorea

Atypical parkinsonism
- Multi-system atrophy
- Progressive supranuclear palsy
- Corticobasal degeneration
- Diffuse Lewy body disease

Dr P Ramesh, Parkinson’s TRACS May 24th 2013
Parkinson’s disease-diagnosis
Cardiac MIBG and Parkinson’s disease

MIBG-Normal

MIBG_HY 1 tremor

MIBG-Rigid

Dr P Ramesh, Parkinson's
TRACS May24th2013
The Parkinson's Progression Markers Initiative (PPM/)}
Preliminary Discoveries of Promising PO Biomarkers

CSF Alpha-synuclein is reduced in PO subjects (Önenauer et al. 2008)

Plasma DJ-1 is elevated in PO subjects and increases with the progression (Aragane et al. 2007)
Medical management: pharmacological therapies in PD and side-effects

Dr Ramesh Parthasarathy, Geriatrician Bunbury Hospital

24th May 2013
Parkinson’s disease—Treatments
Synthesis of Dopamine From Levodopa in Presynaptic Neuron

Dr P Ramesh, Parkinson's
TRACS May24th2013
# Levodopa preparations

<table>
<thead>
<tr>
<th>Levodopa alone</th>
<th>Levodopa plus DDC inhibitor</th>
<th>Levodopa plus DDC inhibitor and a COMT inhibitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dopamine</td>
<td>Dopamine</td>
<td>Dopamine</td>
</tr>
<tr>
<td>Levodopa</td>
<td>I81 LODopa</td>
<td></td>
</tr>
<tr>
<td>DOC</td>
<td>DOC Inhibitor</td>
<td></td>
</tr>
<tr>
<td>Breakdown in the body</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COMT</td>
<td>LAvodopa</td>
<td></td>
</tr>
<tr>
<td>3-OMD</td>
<td>3-OMD</td>
<td>3-OMD</td>
</tr>
</tbody>
</table>

Dr P Ramesh, Parkinson's TRACS May 24th 2013
Parkinson’s disease—pharmacological
MAO-B Inhibitors

Zelapar®
(Selegiline hydrochloride)

Dr P Ramesh, Parkinson's
TRACS May 24th 2013
Newer and emerging treatments
Apomorphine
Apomorphine

Dr P Ramesh, Parkinson's
TRACS May24th2013
Neupro®
(Rotigotine Transdermal Patch)
DUODOPA Infusion

Dr P Ramesh, Parkinson's
TRACS May 24th 2013
Deep Brain Stimulation (DBS)
Stem cell Transplant

Myth or magic?
Pharmacological measures in PD-Summary

- Levodopa combinations
- Pramipexole
- Ropinirole
- Rotigotine
- Selegiline
- Apomorphine
- Amantadine
- Cholinesterase inhibitors
  - Rivastigmine, Aricept
- Atypical antipsychotics
  - Quetiapine, Olanzapine
Non Pharmacological Therapies

- Parkinson’s disease nurse specialist
- Physiotherapy
- Occupational Therapy
- Speech and Language therapist
- Dietitian
- Psychologist
- Social Worker
Palliative care and PD

- Parkinsonism is rarely cited on death certificates as a contributory factor
- Many symptoms of PD are not necessarily relieved by PD drug treatments
  - Neuropsychiatric complications often lead to need for institutional care
- Cause of death may be due to:
  - Consequences of immobility
  - Falls
  - Chest and urinary infections
  - Exhaustion
  - Weight loss
Key points

- Progressive disease
- Pharmacological, Non pharmacological treatments
- Palliative treatments
- Newer Treatments
- Evolving therapies
Acknowledgements

- PD Connect
- Movement disorder society
- EPDA
- NICE
- Solvay
- PD Atlas
- Radiopaedia
Any questions?
Medication Management & Nursing Implications in Parkinson’s Disease

Presented by
Marieta Simmons
Community Neurological Nurse
RN, BN, PGCert (Community Neurological Nursing)
The key treatment of Parkinson’s Disease is medication and there are specific drugs which work by replacing or mimicking the actions of dopamine.

Often people will be on a number of Parkinson’s drugs, each of which MUST be taken throughout the day at specific times. These drugs stimulate a carefully timed release of chemicals into the brain to allow a person with Parkinson’s Disease to control their movement and other symptoms.
Get it on Time

The Parkinson’s Disease Society’s (PDS) Get it on Time campaign aims to ensure all people with Parkinson’s in hospitals get their medications on time—every time.

The key message is to achieve good symptom control and promote physical independence, health and wellness.
STOP
DO NOT alter or stop Parkinson's medications without consultation with the treating medical specialist.

CAUTION
when prescribing Anti-emetics.
BE AWARE of fluctuations in symptoms that are out of the control of the patient.

GO
LISTEN to your patients & family carers
CORRECT Individual drug regime and timings are essential to allow patients to maintain mobility and independence.

Pal'kinson's Western Australia Inc.
Phone 08 9346 7373
Country Callers 1800 644 189
www.parkinsonswa.org.au

Distributed by Parkinson's Western Australia Inc
Endorsed by Parkinson's Australia Inc

This publication was made possible by a bequest from Bianka Francis.
The symptoms and progression of Parkinson’s Disease is unique to each individual.
Taking tablets four times a day does not mean QID!
Remember that how the condition affects the patient varies from hour to hour and day to day.
The condition does not only affect mobility, non-motor symptoms also need to be monitored and treated.
People with Parkinson’s Disease and their carers are experts in their condition, nurses will ensure the client is heard and use a client centre approach to identifying their needs.
Drugs to Avoid

Anti emetics-  
- Metoclopramine (Maxalon)
- Prochlorperazine Maleate (Stemetil)

Antipsychotics- 
- Haloperidol (Serenace)
- Chlorpromazine HCL (Largactil)

Anti -depressants- 
- Amitriptyline (Endep)
- Fluoxetine (Prozac)

Please note: People with Parkinson’s who are taking Elderpryl or Selgene MUST NOT HAVE Pethidine, as this may result in a potentially fatal drug interaction.

More information from Parkinson’s WA : PD Info Sheet 1.4 Medication Treatment Options
Other implications & side effects of PD medications

Surgery- Some operations require a nil-by-mouth regime, so please ensure a stable drug regime before, during and after the surgery. Patches often gets used with Surgery Patients.

Possible side effects of dopamine replacement therapy can be:
• Nausea and Vomiting
• Constipation
• Postural Hypotension
• Increased dreams
• Hallucinations
• Dyskinesia
• Impulsive & Compulsive behaviour
Going home after Hospitalisation

- Educate the patient and carer on new medications or regimes.
- Ensure the patient and carer have access to a multidisciplinary team of health professionals throughout the course of their condition.
- Educate the patient and carer about the effects of infections.
- Ensure the patient and carer are aware of current medications and ceased medications after their hospital stay.
- Connect the patient and carer with a PD Nurse Specialist or a Community Neurology Nurse as they are the link between the Hospital and the Community.
Thank you
References


Parkinson’s Western Australia (July 2011) Medications to be Used with Caution for People with Parkinson’s Disease. www.parkinsons.org.au

Parkinson’s Western Australia (October 2012) Parkinson’s and Hospitalisation: Guidelines. www.parkinsons.org.au
References


Parkinson’s Western Australia 2011, Hospitalisation Guidelines Brochure.
Time for morning tea?