Medicines Management and the Unwell Parkinson’s Patient

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What to do with the ill Parkinson patient...

AN ESSAY ON THE SHAKING PALSY

CHAPTER I.
DEFINITION—HISTORY—ILLUSTRATIONS

SHAKING PALSY. (Paralysis Agitans.)

Involuntary tremulous motion, with loss of muscular power, in parts not in action even when supported; with a tendency to bend the trunk forward, and a change from a walking to a running gait, the senses and intellects being uninjured.
... so they can be fighting fit again!
Objectives

- Acute management of PD emergencies
- Drugs to use and those to avoid
- Prevent making sick PD patients a whole lot worse
How Common is PD in Hospitals?
Causes of emergency admissions

• 4 year study in UK DGH
• 129 patients admitted
• Mean LOS 17.3 days
• New diagnosis of PD in 4.9% of these patients

Emergency hospital admissions in idiopathic Parkinson's disease
Henry Woodford, BSc, MRCP, Richard Walker, MD, FRCP
Movement Disorders 2005 Sept:20(9):1104-8
Causes of emergency admissions

- Falls / Fracture: 18%
- Cardiac: 14%
- Pneumonia: 11%
- UTI: 9%
- Immobility: 8%
- Psychiatric: 8%
- OH: 4%
- Surgical: 4%
- GI bleed: 3%
- Stroke: 2%
- Other: 19%
- GI bleed: 3%
- Surgical: 4%
- Psychiatric: 8%
- Immobility: 8%
- UTI: 9%
- Cardiac: 14%
- Pneumonia: 11%
Types of problems encountered

• Sick patients who also have PD
• Sick patients due to PD
• Sick patients due to mismanagement of PD
Sick patients with PD

• Treat appropriately for the acute illness but beware;
  – Higher risk of aspiration
  – Higher risk of poor mobilisation and falls
  – Higher risk of delerium
  – Longer time to recover
Remember

- Avoid certain drugs

- Don’t leave ‘nil by mouth’

- Watch
  - Bladder
  - Bowels
  - Swallow
  - Analgesia
Drugs to avoid

Anti-dopaminergics

• Anti-emetics
  – Prochlorperazine (stemetil )
  – Metoclopramide (maxalon)

**But** can use Domperidone

• Anti-psychotics
  – Haloperidol
  – Chlorpromazine
  – Atypical anti-psychotics
  
If necessary use Quetiapine orally or iv benzodiazepines
Analgesia

- Fentanyl can cause muscle rigidity in normal and PD patients
- Morphine can also exacerbate akinesia at high dose
- Beware the increased risk of acute confusion in PD patients if giving opioids
Sick Patients due to Parkinson’s complications

- Acute akinesia
- Acute dyskinesias
- Acute delerium
- Drug side effects
Acute akinetic states

**Acute Rigid States**

- Acute de novo Parkinson’s disease
  - Usually L-dopa responsive
- Chemotherapy induced PD
  - E.g. Low dose oral methotrexate
  - Anti-emetics-maxalon and stemetil
- Acute neuroleptic treatment
Treatments

• Withdraw or moderate offending drugs
  - atypical antipsychotics better than typical
  - domperidone/cyclizine/ondansetron as alternative anti-emetic

• Acute PD –
  L-dopa/dopamine agonists
Acute severe dyskinesias

Management;

acute
• Controlled decrease of PD medication
• Watch for rhabdomyolysis

longer term
• Consider Amantidine
• Consider Apomorphine
• Consider DBS
Deep Brain Stimulation
Psychosis

Consider if due to PD or PD drugs

- PD psychosis
  - If PD psychosis; quetiapine or clozapine
  - If wont tolerate oral then Benzodiazepines
  - Consider decreasing PD drugs as well
  - Commonly underlying unrecognised cognitive impairment

- If drug related
  - Usual considerations for non-pharmacological management of delirium
  - Decrease antiparkinsonian agents appropriately according to “league table”
Psychiatric Side-effects
- ’last in, first out principle’
- Order of stopping;
  - anticholinergics
  - selegiline
  - amantidine
  - COMT inhibitor
  - dopamine agonists
  - L-dopa

Most psychogenic
Least psychogenic
Sick patients due to mismanagement of PD
Case report

Prescribing medications in Parkinson's disease (PD) patients during acute admissions to a District General Hospital

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Abstract

This is a short report illustrating the problems of prescribing anti-Parkinson's disease (PD) medication in patients with PD who are admitted acutely to hospital for any reason. There were a large number of complications as a result of inappropriate or lack of anti-PD drug administration and poor understanding amongst junior doctors and nursing staff. We suggest some changes that we hope will reduce this problem.

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Keywords: Parkinson's disease; Medications; Complications

1. Introduction

In patients with Parkinson's disease (PD) abrupt cessation of their anti-PD medication can have severe adverse effects. Several of our PD patients became very unwell following emergency admission to hospital and their medications were inappropriately withheld for a variety of reasons. We looked into this and found very little published data on the extent of this problem. We decided to therefore carry out a retrospective audit of all patients with PD in our area who were admitted to the Princess Royal University Hospital (PRUH), a medium-sized District General Hospital in North Kent, over a year long period.

We examined the patient's condition, disability and treatments with specific reference to their anti-PD medication. We looked at whether medications were given, whether they were given on time, and if not what were the reasons for it. We also looked at any complaints that had been sent around these issues and analyzed them as part of the audit tool. A questionnaire was given to all pre-registration House Officers (PRHOs) in the Trust to assess their understanding of anti-PD medications, reasons why medications may be omitted, alternative medications that may be given and any complications that occurred.

2. Data collection and analysis

We used case notes to examine all emergency admissions of patients that were followed up in our PD clinic. In addition, drug charts and nursing notes were also examined. Patients were interviewed by telephone as a check on what happened. All PRHOs were given a questionnaire asking about their understanding of anti-PD medications, reasons why medications may be omitted, alternative medications that may be given and any complications that occurred. The PRHOs were given individual questionnaires. The period between November 2004 and December 2005 was examined. During this time 33 PD patients were admitted to the hospital. 26 to the medical wards and 7 to the surgical wards. All were emergency admissions via the Emergency Department except one 20 PRHOs responded to the questionnaire.

3. Results

- Of the 35 patients admitted 26 (74%) of them had their medications stopped, omitted or prescribed inappropriately. Of those who had their medication stopped 16
Prescribing Medications in PD patients during acute admissions to a DGH

• 35 emergency admissions of PD patients over 1 year
  – 26 pts (74%) had drugs stopped, omitted or prescribed inappropriately
  – Of those whose drugs were stopped 16 (61%) had clinically significant sequelae

Sequelae of drug errors

8 patients had serious clinical sequelae

– 1 fractured hip
– 1 ‘cardiac arrest and stroke’
– 1 required ITU
Avoidance is best therapy

• Only admit if really necessary

• ‘Get it on time’ campaign by PD society
  – Educate patients and carers
  – Educate medical staff

• Allow competent patients to self-medicate
Beware Nil By Mouth

• If ‘Nil by mouth’ ensure alternate route
  – NG tube and crush sinemet or dispersible madopar
• Consider Rotigotine patch (Neupro®)
### Managing Parkinson's disease during surgery

**Algorithm for estimating parenteral doses of drugs for Parkinson’s disease**

1. **Controlled release L-dopa?**
   - Yes: mg x 0.7
   - No: mg

2. **COMT inhibitor?**
   - Yes: mg x 1.3
   - No: mg

3. **Patient requiring parenteral treatment**
   - **Is patient on levodopa?**
     - Yes: Calculate total daily levodopa dose
       (not including carbidopa/benserazide)
     - No: Adjusted total levodopa dose = mg
       (Total A = mg if not on levodopa)

4. **Is patient on a dopamine agonist?**
   - Yes: Calculate total dopamine agonist dose
   - No: Equivalent total levodopa dose = mg
     (Total B = mg if not on dopamine agonist)

5. Adjust LDD to reduce side effects
   - Total A + total B = mg (LDD)
   - Adjusted LDD = mg

6. **Prescribe ropinirole**
   - Calculate estimated equivalent dose of ropinirole
     - Adjusted LDD / 20 mg
     - mg
   - Round to nearest 2 mg (up to 16 mg) and prescribe once daily

7. **Prescribe apomorphine**
   - Calculate estimated equivalent dose of subcutaneous apomorphine
     - Adjusted LDD / 240 mg per hour
     - mg per hour
   - Remember to pre-load with domperidone

8. **Patient requires review from movement disorder specialist at earliest opportunity**

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**Indications for parenteral medication**
- Delay to oral treatment predicted
- Ileus or other cause of poor drug absorption likely

**Table: Estimate levodopa equivalent factor (LEF)**

<table>
<thead>
<tr>
<th>Drug</th>
<th>LEF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pergolide</td>
<td>100</td>
</tr>
<tr>
<td>Lisuride</td>
<td>100</td>
</tr>
<tr>
<td>Pramipexole (base)</td>
<td>100</td>
</tr>
<tr>
<td>Cabergoline</td>
<td>100</td>
</tr>
<tr>
<td>Ropinirole</td>
<td>20</td>
</tr>
<tr>
<td>Rotigotine</td>
<td>20</td>
</tr>
<tr>
<td>Bromocriptine</td>
<td>10</td>
</tr>
<tr>
<td>Apomorphine</td>
<td>10</td>
</tr>
</tbody>
</table>
• Apomorphine
  – Can be given by injection (apo-go pen)
  – Can be given by subcutaneous infusion
    • With Apo pump

• With normal Graseby pump

• Also give domperidone (po/NG/pr)
Why can’t you leave PD patients ‘Nil By Mouth’?
Neuroleptic malignant like syndrome

NMS can be caused not only by neuroleptics but also by abrupt withdrawal or decrease of anti-Parkinsonian treatment
Neuroleptic Malignant Syndrome - Levenson’s criteria

Diagnosis requires three major or two major and four minor criteria

Major Criteria:
• Rigidity
• Fever
• Elevated CK

Minor Criteria:
• Tachycardia
• Abnormal BP
• Tachypnoea
• Altered Mental status
• Diaphoresis
• Leukocytosis

Management

• Supportive care
  – i.v. fluids
  – Cooling down
  – Consider HDU/ITU

• Restart Parkinson medication
  – L-dopa through NG tube

• Other options
  – Apomorphine (?Rotigotine patch)
  – Lorazepam
  – ECT
  – Methyl prednisolone
Complications of NMLS

• Aspiration Pneumonia
• Rhabdomyolysis leading to acute renal failure
• Thrombo-embolism
• Disseminated Intravascular Coagulopathy
• Death in 4-30% and long term sequelae in one third
PD Emergency Guidelines

Available on the intranet;

• Names of Drugs
• Routes of Administration
• Drug Availabilities
• Common Complications (Management and Treatment)
  – Confusion and hallucinations
  – Nausea and vomiting
  – Dizziness and falls
PD Emergency Guidelines cont.

Advice on:
- Management of complications
- Drugs to use
- Drugs **not** to use

- Must not stop all PD drugs as risk of Neuroleptic Malignant-Like Syndrome
GUIDELINES FOR TREATMENT OF PATIENTS WITH PARKINSON’S DISEASE IN AN EMERGENCY OR WHEN NIL-BY-MOUTH

YES – GIVE PD MEDICATION

IS PATIENT CONFUSED, AGITATED OR HALLUCINATING

CAN PATIENT SWALLOW?

IF NG TUBE IS BEING INSERTED FOR OTHER MEDICATIONS OR FOR FEEDING, THEN PD MEDICATION CAN BE GIVEN VIA THIS ROUTE

IF AN NG IS NOT REQUIRED/APPROPRIATE CONSIDER USE OF A ROTIGOTINE PATCH (KEEP IN FRIDGE)

IF NG TUBE IS BEING INSERTED FOR OTHER MEDICATIONS OR FOR FEEDING, THEN PD MEDICATION CAN BE GIVEN VIA THIS ROUTE

IS PATIENT COMPLAINING OF NAUSEA OR VOMITING

USE DOMPERIDONE ORALLY OR PR OR IV CYCLIZINE/ONDANSETRON - AVOID METOCLOPRAMIDE (MAXALON) & PROCHLORPERAZINE (STEMETIL) – CAN WORSEN PD

MADOPAR DISPENSABLE CAN BE USED IN EQUIVALENT DOSAGES – QUICK ACTING BUT SHORTER ACTING FREQUENCY MAY NEED TO BE REVIEWED

THERE IS NO DIRECT CONVERSION OF PD DRUGS TO PATCH – IF PATIENT ON A TINY, SMALL, MEDIUM OR LARGE DOSE OF PD DRUGS, GIVE 2MG 4MG 6MG OR 8MG ACCORDINGLY. MAXIMUM DOSE 16MG/PER DAY

INCREASED STIFFNESS/SLOWNESS INCREASE DOSE - Review daily

INCREASED CONFUSION HALLUCINATION DROWSINESS REDUCE DOSE – Review daily

ONCE PATIENT CAN SWALLOW MEDICATION SAFELY CONVERT BACK TO USUAL PD DRUG REGIME

PD MEDICATIONS

SINEMET = CO-CARELEDOPA (tablet) MADOPAR = CO-BENELDOPA (capsule)
SINEMET 62.5MG equiv to MADOPAR 62.5MG RASAGILINE = AZILECT
SINEMET PLUS 25/100mg equiv to MADOPAR 125MG
HALF SINEMET CR 25/100mg = MADOPAR CR
SINEMET CR 50/200mg = MADOPAR CR X 2
MADOPAR DISPENSABLE (QUICK ACTING BUT SHORTER ACTING) 62.5mg or 125mg TABLETS
STALEVO (SINEMET AND ENTACAPONE) STRENGTH 50MG UP TO 200MG (should not be crushed)

DOPAMINE AGONISTS
ROPINIRELO x TDS or ROPINIRELO XL (REQUIP) x OD - MAX DOSE 24MG
PRAMIPEXOLE x TDS or PRAMIPEXOLE PR (MIRAPEXIN) x OD - MAX DOSE 4.5MG
ROTIGOTINE (NEUPRO) PATCH - MAX DOSE 16MG/24HOURS

PLEASE INFORM PARKINSON’S DISEASE NURSE SPECIALIST OF ADMISSION ON BLEEP 376 OR EXT 65861 OR DR KESSEL, CONSULTANT GERIATRICIAN/ CONSULTANT NEUROLOGIST’S VIA USUAL REFERRAL ROUTES REFER TO FULL EMERGENCY GUIDELINES ON THE INTRANET UNDER NEUROLOGY, FOR FURTHER INFORMATION

Lynne Walter PDNS 2011
Conclusion

PD patients present often and are eminently treatable but remember:

Get their drugs right
Get their drugs on time
Make them better not worse
Thank you
Any Questions?