Management of Parkinson’s in patients with swallowing difficulties or requiring administration via enteral tube

BACKGROUND
Parkinson’s is a progressive degenerative neurological disorder associated with loss of dopamine producing neurones in the substantia nigra.

The cardinal features of Parkinson’s are:
1. Slowness of movement
2. Muscle rigidity
3. Tremor
4. Postural instability (not in early stages)

Parkinson’s is a condition which affects movement and motor function but it is also a condition which causes many non motor symptoms including depression, anxiety and pain.

Medication is crucial in optimising management of Parkinson’s and patient’s condition will deteriorate significantly if medication cannot be given. This guideline provides information on alternative treatment options and method of administration when a solid oral dosage form cannot be administered via the oral route.

PURPOSE
The information included in this guideline is adapted from a Hull and East Yorkshire Hospital clinical guideline, and may help with queries arising on transfer of care. It may also be used by non-specialists to support prescribing, dispensing and administration of medicines for Parkinson’s in patients with swallowing difficulties, whilst awaiting specialist review.

Contact details for further advice
Refer to Speech and Language Therapy service for review of swallowing difficulties (GP referral)
- ERY: Speech and Language Therapy Service, Hessle Primary Care Centre, 11 Hull Road, Hessle, HU13 9LZ, Tel. 01482 335165
- Hull: Hull Rehabilitation Service, Highlands Health Centre, Tel. 01482 335165

Neurology specialist team
Parkinson’s Specialist Nurse : 01482 676438
Consultant Neurologist – as per clinic letter for previous treatment advice
OPTIONS FOR ADMINISTRATION OF MEDICINES FOR PARKINSON’S IN PATIENTS WITH SWALLOWING DIFFICULTIES OR FOR ADMINISTRATION VIA ENTERAL ROUTE

The options listed below give alternative formulations or method of administration for patients already prescribed specified treatment for Parkinson’s.

Crushing of tablets, dispersal of tablets in water (except Madopar dispersible) and administration via enteral tube are all unlicensed indications.

**Levodopa**

- **Co-careldopa (Sinemet / Caramet / generic)** – standard release preparations will disperse in water in 1-5 minutes for administration down enteral tubes, this must be given immediately as will degrade in the air and settling occurs which can reduce dose administered. Alternatively Sinemet can be converted to Madopar dispersible (as per the table below). See below for CR preparations
- **Co-beneldopa (Madopar)** – use the dispersible tablets. The capsules should not be opened and must be converted to dispersible tablets. See below for CR preparations.

**Points to Note when prescribing:**

- Levodopa is mainly absorbed in the jejunum, so effect may be unpredictable when administered NJ (time to onset may be quicker and may need to adjust the dose)
- Controlled release (CR) preparations cannot be crushed and must be converted to the appropriate standard release preparation (see table below). Dispersed tablets have a quicker onset, higher bioavailability and shorter duration of action so will need to give in two divided doses spaced out evenly. Due higher bioavailability multiply total daily CR levodopa dose by 0.7 and round to nearest available dispersible preparation
- Absorption may be altered by enteral feeds, particularly those with higher protein concentration. If poor control consider…
  - Reducing protein content in enteral feed (diets containing ≤ 0.8g/kg protein are reported to eliminate the problem
  - Increasing dose of levodopa medication
  - Withholding feed 1-2 hours either side of levodopa medication administration
- It may be appropriate to prescribe a small PRN dose of Co-beneldopa dispersible to cover any “on-off” effects

<table>
<thead>
<tr>
<th>Co-careldopa (Sinemet)</th>
<th>Co-beneldopa (Madopar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sinemet 50/12.5 (62.5) tablet</td>
<td>Madopar 50/12.5 (62.5) dispersible tablet</td>
</tr>
<tr>
<td>Sinemet 100/10 (110) tablet</td>
<td>Madopar 100/25 (125) dispersible tablet</td>
</tr>
<tr>
<td>Sinemet Plus 100/25 (125) tablet</td>
<td>Madopar 100/25 (125) dispersible tablet</td>
</tr>
<tr>
<td>Sinemet 250/25 (275) tablet</td>
<td>2 x Madopar 100/25 (125) dispersible tablet</td>
</tr>
<tr>
<td>Half Sinemet CR 100/25 (125) tablet</td>
<td>See text above</td>
</tr>
<tr>
<td>Sinemet CR 200/50 (250mg) tablet</td>
<td></td>
</tr>
</tbody>
</table>

**Table 1 – Converting from co-careldopa to co-beneldopa**

**Entacapone**

*this is not an essential medication in the acute situation*

- Must be given at the same time of day as levodopa containing medication
- **Enteral feeding tubes:** The tablet can be dispersed in water for administration in 1-5 minutes. Dispersal may not be complete, so will need to flush the tube well. Note this may stain the feeding tube orange. Crushing may produce a red dust which may stain.
- **Swallowing difficulties:** Tablet can be crushed but has bitter taste, mixing with jam, honey or orange juice may help
Stalevo®
- Combination product containing levodopa, carbidopa and entacapone
- **Enteral feeding tubes:** First line: convert to co-beneldopa dispersible tablets plus entacapone and give as described above. See table below for advice on dose conversion on co-beneldopa. Second line: crush the tablet, although this is from anecdotal information, dosage adjustment may be required.
- **Swallowing difficulties:** First line: convert to co-beneldopa dispersible tablets plus entacapone and give as described above. Second line: Tablet can be crushed but has bitter taste, mixing with jam, honey or orange juice may help

<table>
<thead>
<tr>
<th>Stalevo strength</th>
<th>Levodopa</th>
<th>Carbidopa</th>
<th>Entacapone</th>
<th>Conversion doses</th>
</tr>
</thead>
<tbody>
<tr>
<td>50/12.5/200</td>
<td>50</td>
<td>12.5</td>
<td>200</td>
<td>1x62.5 200</td>
</tr>
<tr>
<td>75/18.75/200</td>
<td>75</td>
<td>18.75</td>
<td>200</td>
<td>1.5x62.5 200</td>
</tr>
<tr>
<td>100/25/200</td>
<td>100</td>
<td>25</td>
<td>200</td>
<td>1x125 200</td>
</tr>
<tr>
<td>125/31.25/200</td>
<td>125</td>
<td>31.25</td>
<td>200</td>
<td>1x125 0.5x62.5 200</td>
</tr>
<tr>
<td>150/37.5/200</td>
<td>150</td>
<td>37.5</td>
<td>200</td>
<td>1x125 plus 1x62.5 200</td>
</tr>
<tr>
<td>200/50/200</td>
<td>200</td>
<td>50</td>
<td>200</td>
<td>2x125 200</td>
</tr>
</tbody>
</table>

Table 2: Stalevo to co-beneldopa plus entacapone

Ropinirole and pramiprexole
- **Enteral feeding tubes:** ropinirole tablets disperse in 10ml water, best with food/NG feed to improve tolerability. Pramiprexole tablets can be crushed and mixed with water.
- **Swallowing difficulties:** ropinirole tablets can be crushed and mixed with soft food (ensure food is eaten). Pramiprexole tablets can be crushed and mixed with water.
- Both agents come as modified release (MR) preparations which cannot go down enteral feeding tubes or be crushed for patients with swallowing difficulties. If the patient is usually on an MR preparation the daily dose must be divided by three and given every 8 hours (eg ropinirole MR 6mg OD should be converted to standard release 2mg TDS)
- Pramiprexole can be prescribed both in terms of salt or base. Please ensure prescribed clearly. See below for clarification.
  - 88 micrograms base ≡ 125 micrograms salt;
  - 180 micrograms base ≡ 250 micrograms salt;
  - 350 micrograms base ≡ 500 micrograms salt;
  - 700 micrograms base ≡ 1 mg salt

Selegiline and rasagiline
*Not clinically urgent in acute situation*
- **Enteral feeding tubes:** first line: selegiline use liquid and dilute with equal volume of water, second line crush tablets and disperse in water. Rasagline crush tablets and disperse in water. Selegiline oral lyophilisate is not suitable for crushing via enteral feeding tubes 1.25mg is equivalent to 10mg oral selegiline therefore convert to oral selegiline until safe to use.
- **Swallowing difficulties:** first line: selegiline oral lyophilisate 1.25mg if patient able (tablet placed on tongue and disperses within 10 seconds – patient cannot drink, eat or rinse mouth out for 5 minutes after taking). If unable to use oral lyophilisate selegiline liquid. Rasagline crush tablet and disperse in water.
**Amantadine**
*Not clinically urgent in acute situation*
- First line: Use the syrup (50mg/5ml). This contains sorbitol, so must be diluted with water prior to administration and can cause diarrhoea.
- Second line: The capsules can be opened and the contents mixed with water, the drug is very water soluble and this would be an option if diarrhoea becomes a problem.
REFERENCES

- Anon (Updated 2013) Summary of Product Characteristics: Neupro Transdermal Patch. UCB Pharma Limited, Slough
- Morgan, Jane (2011) Personal communication: MI pharmacist Hull & E Yorkshire Hospitals
- Smyth, J (2010) TheNEWT guidelines for administration of medication to patients with enteral feeding tubes or swallowing difficulties. Betsi Cadwaladr University local health board, Wrexham

APPROVAL PROCESS

| Written by: | Adapted from HEY in-patient guidance by Marie Miller, Interface Pharmacist |
| Consultation process: | In-patient guidance written by Neurology Specialist Pharmacist and approved by HEY D&T |
| Approved by: | MMIG, Hull PSC |
| Ratified by: | HERPC Nov 14 |
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