Rapid Tranquillisation
for adolescent, adults and older people
Medicines management team July 2014
A definition of rapid tranquillisation (RT)

“The use of medicines to quickly control extreme agitation, aggression and potentially violent behaviour that puts the individual or those around them at risk of physical harm. The aim is to sedate the person to minimise the risk without the person losing consciousness”
Aims of RT

- To reduce suffering to patient
- To reduce risk of harm to others
- To do no harm
Our RT guidelines

CP 36 & NCP 53 - Rapid Tranquilisation Policy, Version 3

3 sets of guidelines covering different age groups

- Adolescents 12-18
- Adults 18-65
- Older adults >65

Available on the trust internet site under clinical guidelines (search for rapid tranq)
Before giving medication

- Consider non-drug approaches
  - De-escalation
  - Time out
- Check medication given in last 24 hours to ensure that BNF limits are not exceeded
- Consider other medical conditions
- Always offer oral first
Trust medicines policy (MCAPP)

41 - Medicines Control, Administration & Prescribing Policy (MCAPP)

Oral and IM medications should always be prescribed separately.

Abbreviation O/IM should never be used

Minimum time intervals should be prescribed

Maximum number of doses / daily dose should be recorded
Medication used and recommended by the trust in RT

- Haloperidol
- Olanzapine
- Lorazepam
- Clonazepam IM
- Promethazine
Maximum daily doses of haloperidol

Adults

- Haloperidol oral  20mg in 24 hours
- Haloperidol IM  12mg in 24 hours
- 3mg IM = 5mg oral
- 1/2 to 1/4 the adult dose in elderly
Potential complications of haloperidol in RT

- Subjective experience of restlessness (akathisia) – can worsen agitation
- Acute muscular rigidity (dystonia)
- Involuntary movements (dyskinesia)
- Parkinsonism
- Excessive sedation
- QTc prolongation
- Neuroleptic Malignant Syndrome - NMS
Neuroleptic malignant syndrome

- Diarrhoea
- Profuse Sweating
- High fever
- Unstable BP & Pulse
- Ataxia

- Muscular rigidity
- Incontinence
- Confusion & altered consciousness
- Convulsions

Mild

Severe
Ideally avoid haloperidol if

- Known cardiac problems
- Known ECG abnormalities
- On medicines which prolong QT duration or cause pharmacokinetic interactions
- Previous severe adverse reaction
- Neuroleptic naive
When using haloperidol

Consider

– Has this patient had haloperidol before?
– Will they tolerate it?
– What is the lowest dose I can use?

IM procyclidine should be immediately available to treat a life threatening dystonia

The manufacture recommends a pre-treatment ECG (association with QTc prolongation)
Olanzapine

- Adults maximum dose 20mg in 24 hours
- Elderly same maximum dose as adults but consider a lower initial dose
- Same maximum for oral and IM i.e. 20mg in 24 hours
Dose of olanzapine IM

- Adult usual dose 5-10mg
- Second injection of 5mg-10mg may be given 2 hours after the 1st injection
- Elderly 2.5-5mg
- Maximum 3 injections in 24 hours
Olanzapine IM: administration

- Reconstitute with 2.1 ml water for injection and rotate vial gently.
- Vial now contains olanzapine as a solution:
  - 10mg in 2mls
  - 5mg in 1mls
- A small amount is retained in the vial.
- Use solution within 1 hour of reconstitution.
Pharmacokinetics

A dose of 5mg IM olanzapine produced a maximum plasma concentration five times higher than 5mg orally.

Peak concentrations
- IM in 15-45 minutes
- Oral 5-8 hours (tablets AND velotabs)
Calculations practice

1) If olanzapine injection is 5mg in 1ml, how many mg in 2mls

2) How many mls are needed to give a dose of 7.5mg?
Olanzapine IM and benzodiazepines IM

Severe bradycardia (and a couple of deaths) associated with giving both IM olanzapine and IM lorazepam

IM benzodiazepines should not be given until at least one hour after IM olanzapine

Or IM olanzapine not until at least 2 hours after IM lorazepam
Lorazepam

- Maximum is 4mg in 24 hours
  - oral and IM are the same dose
  - BUT should be written separately
- Elderly half adult dose
- On rare occasions higher doses may be required
- Must consult with a senior Dr first if above 4mg / day
- Have flumazenil (antidote) immediately available
Administration of IM lorazepam

Mix lorazepam 1:1 with water for injections before injecting
Alternatives to IM lorazepam

Extensive supply problems with IM lorazepam

Alternatives include

– Olanzapine IM
– Promethazine IM
– Clonazepam IM (unlicensed in the UK)
Clonazepam IM

- Unlicensed in the UK but available as a IV preparation
- Licensed in New Zealand and Canada as IM
- IM dose similar to oral 500 micrograms—2mg
- Maximum 4mg in 24 hours
- Takes longer to work and lasts longer than lorazepam IM
- In injection cupboard
Administration of IM clonazepam

- Each pack contains 5 ampoules of clonazepam IM and 5 ampoules of the solvent (water for injection)
- Mix the clonazepam 1:1 with the water for injections before injecting
- Gives a concentration of 500micrograms /ml
- Inject immediately
Potential complications of all benzodiazepines in RT

- Loss of consciousness
- If respiratory rate falls below
  - <10 breaths / min
  - <90% oxygen saturation (but beware of baseline)
- Medical emergency, call for help (use flumazenil – IV only or phone for ambulance)
- Excessive sedation
- Falls in the elderly
Promethazine

- Use in benzodiazepine-tolerant patients
- 25-50mg po or IM repeated if necessary after 1-2 hours
- Maximum dose 100mg in 24 hours
- Slow onset of action peak 2-3 hours
- Can be given with IM haloperidol
Potential complications of antihistamines in RT

- Excessive sedation
- Additional antimuscarinic effects
- Long time to peak so do not expect an immediate effect
Zuclopenthixol acetate (Clopizol acuphase) may be considered only if

- Past history of repeated parenteral administration
- Past history of good and timely response
- Advance directive indicating treatment of choice
- Clearly expected that patient will be disturbed/violent over extended period of time

**MUST:** consider the additional side effects from any other antipsychotics given over the next 3 days.

**NOTE:** It is NOT rapid
Onset and duration of action of acuphase
Acuphase should *never* be used for:

- Patients who accept oral medication
- Patients who are neuroleptic-naïve
- Patients who are sensitive to EPSE
- Patients who are unconscious
- Patients who are pregnant
- Patients with hepatic or renal impairment
- Patients with cardiac disease
- As a punishment for bad behaviour
- As an alternative to good nursing care
Monitoring using Track and Trigger tool (after IM in adults/elderly but after oral and IM in adolescents)

● Baseline
  – Temp, Pulse, BP, RR

● After IM (or oral high dose / any adolescent use)
  – EVERY 15 mins for 1st hour then hourly for 4 hours
  – Temp, Pulse, BP, RR
  – Depending on clinical status may need to monitor 4 hourly for next 12 hours

● Use fluid monitoring sheet to ensure adequate hydration and do U and Es if clinically appropriate
## Audit results: a cause of concern

<table>
<thead>
<tr>
<th>Parameter</th>
<th>15 minutes for the 1\textsuperscript{st} hour</th>
<th>Every hour for 4 hours</th>
<th>Every 4 hours for 48 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>38%</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>Pulse</td>
<td>38%</td>
<td>50%</td>
<td>n/a</td>
</tr>
<tr>
<td>BP</td>
<td>38%</td>
<td>63%</td>
<td>50%</td>
</tr>
<tr>
<td>Resp. Rate</td>
<td>33%</td>
<td>33%</td>
<td>n/a</td>
</tr>
</tbody>
</table>
Why do we need to monitor physical health

- Died under restraint 1998
- Independent enquiry 2003
- He had no known physical health concerns
- Died within 20 minutes of restraint
- During restraint they took his BP once nothing else was measured!
- No-one was observing his head or respiratory rate

David ‘Rocky’ Bennett
1960 - 1998
Why do we need to monitor physical health

Geoffrey Hodgkins
Died within 25 minutes under restraint 2004
Independent enquiry 2006
Previous physical health concerns not investigated
No physical observations done until he turned blue!
Monitoring reminder (after IM in adults/elderly but after oral and IM in adolescents)

🌱 Baseline
  - Temp, Pulse, BP, RR

🎉 After IM (or oral high dose / any adolescent use)
  - EVERY 15 mins for 1st hour then hourly for 4 hours
  - Temp, Pulse, BP, RR
  - Depending on clinical status may need to monitor 4 hourly for next 12 hours

ログistic
Use fluid monitoring sheet to ensure adequate hydration and do U and Es if clinically appropriate

⚠️ Make sure PRN has minimum interval between doses
Acuphase monitoring

- Extended monitoring to fit extended release of drug
- Separate monitoring form
- EVERY 4 hours for 72 hours
  - Temp, Pulse, BP, RR
- Ensure adequate hydration after i.e. 3L of fluid / 24 hours for 72 hours
- MUST: consider the additional side effects from any other antipsychotics given over the next 3 days.
In adolescents

- Be aware of unlicensed use and dosage regimes (see guideline)
- Adolescents and young adults more sensitive to EPSEs
- Disinhibition may occur with benzodiazepines
- Oral chlorpromazine useful in adolescents with PTSD
In older adults

- Consider other medical conditions
  - Parkinson’s disease
  - Delirium
  - Physical cause
  - Alcohol withdrawal

- Dose usually lower than in adults

- Increased risk of falls

- Increased risk of adverse reactions
1) I’ve just administered IM lorazepam, how long should I wait before giving IM olanzapine?
2) What does flumazenil do?
3) How long does zuclopentixol acetate take to peak after administration?
4) What is the maximum daily dose of IM haloperidol?
5) What is the monitoring required following IM clonazepam?
6) How do you reconstitute IM olanzapine?
7) Describe the symptoms of NMS.
Conclusions

- Exhaust non-drug treatments first
- Check what other medication has been given in the last 24hrs
- **Always offer oral first**
- Use minimum effective doses
- Consider if the patient has tolerated the medication before
- If unsure seek advice
- Refer to the SHFT guidelines
- Monitor and record required parameters
References
