Government of Western Australia
North Metropolitan Health Service
Mental Health, Public Health and Dental Services

CASE STUDY: PHARMACOLOGICAL MANAGEMENT OF AGGRESSION AND IMPULSE CONTROL IN HUNTINGTON'S DISEASE

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Case

SL is a 37 year old female with:

- Huntington's disease
- Panic disorder with agoraphobia
- Past trauma history
- Multiple suicide attempts
- History of alcohol and amphetamine use

This phenotype Huntington's disease typically presents with:

- Well controlled chorea
- Severe psychiatric and behavioural symptoms e.g.
  - Anxiety
  - Obsessive compulsive behaviour
  - Depressive cognition
  - Irritability
  - Aggression (reactive and sustained)
  - Impulsivity
  - Emotional dysregulation
  - Cyclical pattern of anger dyscontrol

After the failure of multiple medications to manage aggression and impulsivity, the initiation of lamotrigine, amantadine and clonidine in conjunction with a behavioural management plan was associated with success as shown by a significant decrease in *pro re nata* (prn) medication use for aggression and agitation and a significant decrease in seclusion rate (see Figure 1 and Figure 2).

Discussion

- Treatment goal of chronic aggression is to reduce aggression without causing significant sedation or side effects.
- The limbic-dorsolateral prefrontal and orbital frontal of the brain is believed to be involved in aggression and impulse dyscontrol but the mechanism is not well understood.
- Neuronal hyperexcitability and dysregulation of the noradrenergic (NA), serotonin (5HT), dopamine (DA) and glutaminergic (Glu) system are potentially involved.
- See Table 1 for rational of treatment

Pharmacist Intervention

Clinical pharmacists are heavily involved in

- Medication review and selection
- Carers' education
- Monitoring for response and side effects from medications
- Setting medication treatment goals and review frequently

Outcome

SL's current settled mental state is most likely a result of a combination of medications, good behavioural management by staff and low stimulus environment.

Conclusion

Management of aggression and impulsivity is complex.
Treatment should be tailored to individuals.
Anticonvulsants, clonidine and amantadine are alternatives that should be considered for chronic aggression.

Acknowledgement

Darren Schwartz and Liana Shymko for reviewing this poster

Figure 1. Number of PRN administered

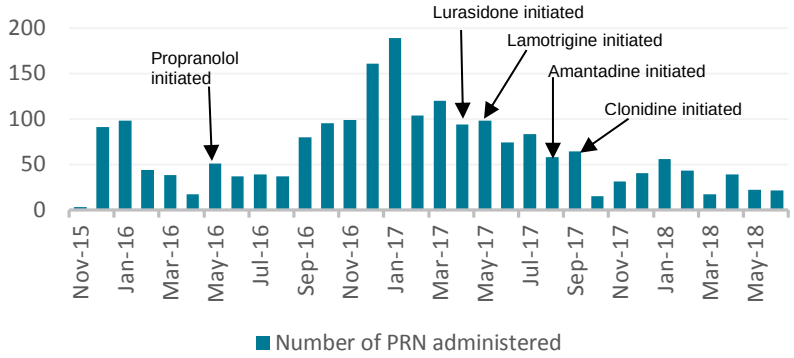

Figure 2. Seclusion Events

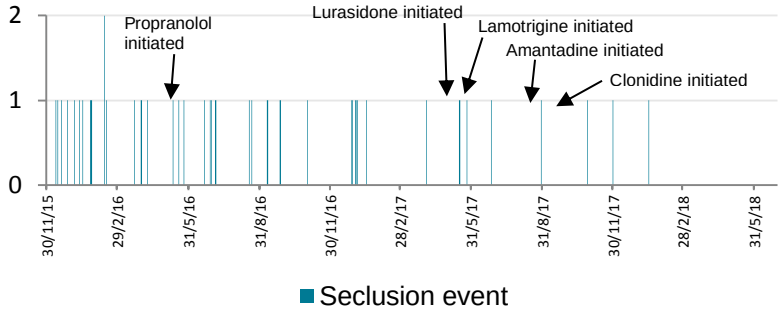

Table 1. Rationale of Current Pharmacotherapy

Drug	Rationale of use
Paroxetine 20mg mane	Selective serotonin reuptake inhibitor increases extracellular 5HT which reduces impulsivity, improves emotional regulation and obsessionality
Clonidine 50microg bd	α_2-agonist for reduction in NA which reduces drive and aggression
Lamotrigine 300mg nocte	Inhibition of voltage gated sodium channels is believed to have anti-glutaminergic effects which may reduce impulsivity, cyclical agitation and obsessionality
Amantadine 100mg tds	Dopamine agonist and, anti-glutaminergic effects can reduce impulsivity and aggression, helps with chorea and improve general alertness.
Clonazepam 1mg bd	Gamma-aminobutyric acid (GABA) receptor agonist enhances GABA which reduces aggression and anxiety
Olanzapine 5mg m 20mg n	Dopamine, $5HT_{1A}$ antagonism reduces psychotic symptoms, chorea, emotional dysregulation, impulsivity and anger dyscontrol
Quetiapine 50mg bd	At 100mg dose, quetiapine is used for its anti-histaminergic effect which causes sedation and reduces anxiety

References available on request