Palliative care presentation

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Patient

- RS 74 yo gentleman with Parkinson’s disease
- Previous admission to the hospital for a pneumonia → discharged to SAR → readmission to the hospital 3 days later with significant mental status changes, dystonia and myoclonic activity.
Parkinson’s disease

- Neuromuscular disorder which effects the central nervous system
- Characterized by muscle rigidity, tremor, postural abnormalities, gait abnormalities and bradykinesia
- Caused by a decrease stimulation of the motor cortex by the basal ganglia; insufficient formation and action of dopamine on the midbrain-substantia nigra.
Medical treatment

- **MOA-B inhibitors; Selegiline and Rasagiline**
  - Block the metabolism of dopamine in the midbrain
  - Selegiline available in oral form or transdermal patch (mainly used for depression)
  - Rasagiline is only available in oral form

- **Levodopa**
  - Most widely used treatment for last 30 years. L-Dopa is often metabolized to dopamine by dopa-decarboxylase.
  - Usually combined with Carbidopa to decrease peripheral dopamine symptoms.

- **Dopamine agonists; bromocriptine, pergolide, prampexole, ropinirole, piribedil, cabergoline, apomorphine and lisuride**
  - Similar effects to levadopa since this binds to dopaminergic post-synaptic receptors
End stage Parkinson’s disease

- PD is a chronic progressive disease whose course spans years to decades.
- Unfortunately it is not considered a terminal illness/life-threatening illness despite the fact that more people will die from complications of the disease when compared to ALS.
- A study was done comparing symptoms of patients Parkinson's disease and ALS at the end of life (based on caregivers opinion). They found that the severity of suffering was identical between the two groups and the median length of hospice enrollment was significantly shorter for PD when compared to ALS.
The most problematic symptoms are difficulty eating and communication. These are both central determinates of quality of life and meaningful contributors to suffering. More clinical attention should be given to developing alternative approaches and treatments to PD patients before they are hampered with dysarthria, dementia, etc.
Swallowing at end of life

- Swallowing is a complex process that involves the coordination of > 50 muscles
- 3 phases:
  - Mouth: voluntary phase involving the tongue and preparing the food to be pushed to the back of the mouth
  - Throat: swallowing reflex is initiated and Larynx is closed
  - Esophagus: involuntary phase in which food moves down the esophagus (approx 3 sec)
- Dysphagia is becoming an increasingly common problem; estimated that by the year 2020, 16.4% of the population > age 65 will have symptoms of dysphagia.
- Dysphagia is difficult to diagnose since it is usually multifactorial and swallowing disorders are often insidious thus taking years to decades to manifest. Over that time period patient usually develop self-learned compensatory strategies.
Parkinson’s disease and dysphagia

- In Parkinson's disease studies have shown that 15-20% of patients with PD, without overt dysphagia, have radiological evidence of aspiration.

- Dysphagia often presents >1 year after diagnosis unlike other parkinsonian diseases (multiple system atrophy, progressive supranuclear palsy, corticobasal degeneration and Lewy body dementia) which may present with dysphagia.

- Once dysphagia is present mean survival is 2 years.

- Very difficult to treat since patients are asymptomatic because even with optimal treatment disorders in swallowing are noted.
Malignant syndrome in Parkinson’s disease

- Similar to neuroleptic malignant syndrome
- Most likely a result of sudden levodopa withdrawal
- The syndrome consists of
  - High fever
  - Altered levels of consciousness
  - Increased muscle tone
  - Autonomic disturbances
  - Elevation in CK
- Complications include: aspiration pneumonia, massive rhabdomyolysis, DIC and acute renal failure. Epilepsy and vocal cord dysfunction have also been seen but are rare complications.
Prevention of MS

- Patients on anti-parkinsonian medications should not have their medications discontinued abruptly even if the patient develops side effects such as hallucinations and psychosis.
- Levodopa is the main medication however discontinuing any anti-parkinsonian medication can trigger MS
- Other triggering events include
  - Poor drug compliance
  - Hot weather
  - Dehydration
  - Infection
Treatment

- Intravenous fluids
  - Suggest adding glucose and Vit B1
- Cooling
  - Ice bags to the forehead, neck, axilla and inguinal region.
    - Anti-pyretic medications are not recommended since they may initiate hypotension and shock.
- Anti-Parkinson medications
Anti-Parkinson medications

- **Dopamine agonists:**
  - **Bromocriptine:** 5-10 mg TID
  - Should be given with domperidone
- **If NG feeding is contraindicated**
  - **IV levodopa:** 50-100mg pump over 3 hours. TID or QID
  - **Apomorphine** injections can also be used however limited case studies on its use in MS
- **Dantrolene:** Used in the treatment of malignant hyperthermia. Inhibits calcium release from sacroplasmic reticulum thus decreasing muscle rigidity
  - 80mg IV injection TID
Apomorphine

- A potent short acting D1/D2 dopamine agonist which is administered subcutaneously
- Onset is within 20 min and lasts about 100 min. Therapeutic doses are 2-6mg
- Side effects: nausea and vomiting, orthostatic hypotension, dyskinesia, drowsiness and dizziness
- A 10 year retrospective audit on the long-term use of apomorphine concluded that this was easy to use and well tolerated.
- Apomorphine’s equivalent potency to levodopa and formulation make it ideal to use in advanced stages of PD when patients are unable to swallow.
Case study

- Case study of a patient with PD for the last 14 years
- Disease had progressed through selegeline and pergolide
- Admitted to the hospital with urinary sepsis and nausea prevented oral medication use. Repeated attempts at NG tube placement
- Tried transdermal rotigotine—this was ineffective despite upward titration
- Patient was made comfort measure (at the end of his PD) however was not comfortable with regular palliative medications (increased bradykinesia-unable to close his eyes or swallow and persistent tachypnea and tachycardia)
- Started on SQ Apomorphine and perceived relief of symptoms was noted in about 20 min after the administration of 2 mg.
  - Rectal domperidone was used to control side effects such as vomiting.
- The patient died peacefully 4 days later with his family by his side.
References