PAID Syndrome:
(Paroxysmal Autonomic Instability and Dystonia)
Life threatening to functional recovery

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Why is PAID important?

1. Life threatening (life saving)
2. Confused with similar disorders
3. Symptomatic Treatment
4. Underlying Pathophysiology
5. Variable Prognosis of the patients
6. Under-recognised
Case Presentation 1

- Low awareness state i.e. VS to MCS
- CT Brain … DAI and Focal.
- Tracheostomy, PEG, Urethral catheter.
- Associated injuries - multiple fractures, #SOF and External Fixator frame in-situ
- Recurrent DVT… IVC filter insertion.
- 3 days after the admission… PAID FEATURES including AGITATION and DYSTONIC POSTURING.
Case Presentation 2

- **PAROXYSMS:** 1 to 3 episodes per day, average ½ hour per episode

- Profuse Sweating

- Hypertension up to 190/100

- Tachycardia up to 120/min

- Hyperthermia up to 38.5 C

- Tachypnoea up to 24/min
Clinical Presentation 3

- Agitation
- Dystonia
- Decerebrate posturing
- Opisthotonus

- Lasted for 14 days. Quick onset but more gradual reduction in symptoms
Management

1. Excluded **similar disorders** (Infection - which is relatively easier to treat)

2. **CT brain scan** to exclude any new abnormalities (such as Hydrocephalus), ECG, Blood tests.

3. **Medication** – Propranolol
   Lorazepam
   Morphine sulphate
   Baclofen
   Tramadol prn.

4. Supportive measures, including **reducing nociceptive stimuli**, discuss with staff and therapists about diagnosis and how to approach him for care.
Diseases mimicking PAID syndrome

1. Infection (can be present at the same time) CRP, Neutrophil leucocytosis

2. Neuroleptic Malignant syndrome Antipsychotics or Withdrawal, Typical or Atypical Antipsychotics, raised CK (acute dystonic reaction)

3. Serotonin syndrome SSRIs and Triptans

4. Autonomic Dysreflexia SCI T6 and above

5. ITB withdrawal syndrome Loss of Drug effect, Full-blown syndrome

6. Malignant Hyperthermia during GA, family h/o, Myoglobinemia
2 Models

Disconnection
Symp – Parasymp
Dissociation

Excitatory – Inhibitory Ratio EIR
Allodynia
Medication use in PAID syndrome

1. MORPHINE (Ref: 1,2) - Most symptoms
2. PROPRANOLOL/LABETOLOL (Ref: 2,3) - Most symptoms
3. LORAZEPAM (Ref: 2, 4) Agitation,
4. CLONIDINE (Ref: 2, 3) Resistant Hypertension
5. GABAPENTIN (Ref: 2, 5) Most symptoms
6. DANTROLENE ..... (In cases Dystonia and Posturing continue). (Ref: 4)
7. BOTULINUM TOXIN INJECTION (Ref: 2, 6) Only single case study.
Rehabilitation and Functional improvement

MCS to Functional state

Communication and Cognitive ability

ADLs (Activities of Daily Living).. Improved but difficult due to tremors

Mobilising in a wheelchair

Travelling with parents in the car

Lower limb recovery and Standing; Walking with assistance

Recovered well mostly except **Intention Tremors** in the hands – Became a major barrier for most ADLs

**Deep Brain Stimulation** for the tremors – better for ADLs and hope more QOL.
Thank you – any questions?
References


