03/29/21 Morning Report with @CPSolvers

***Case Presenter**: Dhruv Srinivasan (@TheRealDSrini) **Case Discussants**: Mario Suito (@mariosuitofmd) and Sonia Krupnikova*

CC: hyperthermia
HPI: 20 year old M w/ autism and seizure disorder, presented for nausea, vomiting, decreased appetite for 2 days. Cough several days + watery diarrhea. Hypoxic on RA, hemodynamically stable, COVID + (given Remdesiver, dexamethasone) Ultimately intubated for safety concerns. On several sedatives, antibiotics (Ceftriaxone, cefepime, vanc, Flagyl), & Lasix started in hospital, admitted to PICU Hyperthermia (up to 38.5) 5 days after admission

PMH:
Autism, ADHD
Class 3 obesity
Intractable tonic clonic epilepsy
Meds:
Adderall
Clonazepam
Haloperidol
Lamotrigine
Lurasidone
Olanzapine
Trazodone
Valproic acid
In hospital started:
Clonidine, Precedex, Vecuronium, Fentanyl, Ceftriaxone, Lasix

Fam Hx: N/A

Soc Hx: lives with father and sister (w/ recent COVID infection)

Health-Related Behaviors: No alcohol use, tobacco, or recreational drugs

Allergies: NKDA

Vitals: **T**: 39.9 C **HR**: 128 **BP**:166/87 **RR**: 25 **(set at 4)** **SpO_2**: 92% on FIO2 of 50%, PEEP 11, pressure support 12
Exam (few weeks into hospitalization):
Gen: intubated
HEENT: no abnormalities
CV: tachycardic, regular rhythm, distant heart sounds, no r/m/g
Pulm: lung sounds distant, no crackles/wheezing
Abd: protuberant, soft, active bowel sounds
Neuro: sedated & unresponsive
Extremities/Skin: no pitting edema initially
Pressure ulcer in sacrum

Notable Labs & Imaging:
Hematology:
WBC: 11 (61% N, 27% L, 10.7% M, 0.5 E & B) Hgb: 8.4 MCV 95.1 Plt:229
Chemistry:
Na: 150 K: 4.6 Cl: 110 CO2: 33 BUN: 62 Cr: 1.31 glucose: 200 Ca: 8 CK 1100 TSH: 2.5 Free T4: 0.5
CRP 8.6, ESR 46, lactate 1.1
Imaging:
CT chest: Right lower lobe dense consolidation and left lower lobe consolidation. Subtle bilateral ground glass opacities

BAL: MRSA, Platelia (enzyme immunoassay for Aspergillus): positive at 2.71
beta-D glucan: negative

Final Diagnosis: MRSA + Aspergillus

Problem Representation: 20 year old M hospitalized with COVID develops hyperthermia 5 days into admission; found to be tachycardic, elevated CK, and CT showing bilateral lower lobe lung consolidations w/ ground glass opacities.

Teaching Points (Rafa):

- **APPROACHING YOUNG MALE PATIENT WITH FEVER**

Fever: IMADE
Environmental factors (heat stroke)
4 questions : who (any congenital / acquired immunodeficiency)? What? (clinical syndrome) When? (time course) Where? (epidemiological factors)

- **DRUG-INDUCED HYPERTHERMIA**

Malignant neuroleptic syndrome - seen w/ muscle relaxants (succinylcholine), inhaled anesthetic - hyperthermia + severe muscle contractions s - tx: dantrolene
Neuroleptic malignant syndrome - antipsychotics like haloperidol - muscle rigidity ("lead pipe") - tx: dantrolene
Serotonin syndrome - increased clonus, hyperreflexia, hypertonia tremor, seizure - seen with antidepressants like SSRIS and SNRIs -tx: cyproheptadine

- **HOSPITAL ACQUIRED INFECTIONS**

Ventilator-associated pneumonia, UTI, surgical site infection, hepatobiliary infection, central access infections
Enterococcus, S. aureus, S. epidermidis, Klebsiella, Aspergillus-post covid, Pseudomonas

- **TACHYCARDIA**

Sinus x pathological tachycardia? - Use ECG to differentiate both
Systemic inflammatory response, response to shock (hypovolemic, obstructive, distributive)

- **↑ SYMPATHETIC TONE**

Hypertension even with clonidine + ↑ respiratory rate
Drugs use / withdrawal + endocrinopathy like hyperthyroidism / hypercortisolism