Cerebrovascular Complications of COVID-19

Key Findings
- Increased stroke severity
- Outcomes worse than non-COVID-19 strokes

Management
- No increase in risk of hemorrhage with thrombolysis in AIS
- Mechanical thrombectomy should be performed in eligible candidates with large vessel occlusion
- No differences in management of ICH, SAH, and CSVT as compared with patients without COVID-19

HEMORRHAGIC STROKES

INTRACEREBRAL HEMORRHAGE (ICH)
- Less common than AIS
- <20% of strokes in patients with COVID-19
- Characteristics and Outcomes
  - Frequent lobar location, multifocality, history of anticoagulation
  - Longer length of stay and higher mortality than patients with ICH and without COVID-19

SUBARACHNOID HEMORRHAGE (SAH)
- Rare; risk similar as compared with general population
- Longer length of stay and higher mortality than patients without COVID-19

CEREBRAL SINUS VENOUS THROMBOSIS (CSVT)
- Not very common
- 0.08% of all patients with COVID-19
- Very rarely may CSVT be seen in patients post vaccination (vaccine-induced thrombocytopenia)

ACUTE ISCHEMIC STROKE (AIS)
- Mechanisms
  - Endotheliopathy and microvascular injury
  - Cardioembolism from cardiac injury, arrhythmias, bacterial endocarditis
  - Atherosclerotic plaque rupture from inflammation
  - Vessel dissection from inflammation
  - Paradoxical embolism from VTE
- Incidence and Risk Factors
  - 1.4% of all patients with COVID-19
  - Higher comorbidity burden
  - Males more than females