LITERATURE REVIEW SARS-CoV 2 Clinical Presentation

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TYPICAL PRESENTATION

SYMPTOMS

fever (more likely in adults), cough, dyspnea, myalgias, fatigue, anorexia, anosmia, dysguesia, diarrhea, nausea/ vomiting, abdominal pain

LABS

lymphocytopenia, decreased albumin, elevated CRP, elevated LDH, elevated ESR, normal procalcitonin

IMAGING

bilateral ground glass opacities on CT

KEY GROUPS FOR ATYPICAL PRESENTATION

IMMUNOCOMPROMISED

- ON LONG TERM GLUCOCORTICOIDS: longer incubation and viral shedding periods
- ORGAN TRANSPLANTS: may present with more severe symptoms of COVIS-19 pneumonia, and also have longer incubation and viral shedding periods
- HIV+ PATIENTS: longer course and slower seroconversion, CT with high density patchy shadows and unclear boundaries in peripheral lung involving interlobar fissures

CHILDREN

- Less likely to present with fever, shortness of breath or cough
- Less severe than adults
- Most common radiologic finding is bilateral ground glass opacities

PREGNANT WOMEN

- Most are asymptomatic or mild.

ELDERLY

- Can be asymptomatic
- ICU patients are more likely to be elderly
- Common symptoms are fever, cough, dyspnea, with lymphocytopenia

RISK FACTORS FOR SEVERE DISEASE, MORBIDITY, AND MORTALITY

SEVERE DISEASE

- older age, HTN, elevated cytokines (IL-2R, IL-6, IL-10, TNF-a), high LDH, DM, COPD, cardiovascular disease, cerebrovascular disease

MORBIDITY

- elevated neutrophil count,
- increased BUN and LDH related to renal failure, hearth failure or multi-organ failure
- acute cardiac injury 13 times more common in ICU-COVID patients than in non-ICU COVID patients

MORTALITY

- >65yrs, male sex, CV disease, DM, chronic respiratory disease, dyspnea, ARDS, HTN, cancer, cerebrovascular disease, high SOFA score, leukocytosis, high LDH level, cardiac injury, hyperglycemia, high-dose corticosteroid use, kidney disease, prolonged PT
- cardiac troponin I >/= 0.05ng/mL
- D-dimer >1microgram/mL
- High neutrophil:lymphocyte ratio (especially in males)
- CD3+ CD8+ T cells </= 75 cell/microliter, decreased CD4+ count
- increased markers for myocardial injury, inflammation and bacterial infections
- AKI during hospitalization

COMMON COMPLICATIONS

LUNGS	• ARDS: 15-33% of cases (8 days after sx onset); increased risk in older age, neutrophilia, increased LDH, increased D-Dimer, age >65yrs, DM, HTN • Acute respiratory failure: 8% of cases; leading cause of mortality • Pneumonia	**THROMBOTIC**	• 31% incidence of thrombotic complications in one study of 184 pts • predisposes to venous and arterial thromboembolic events due to excessive inflammation, hypoxia, immobilization and DIC • PE is most frequent thrombotic complication • Age and coagulopathy (PT>3s, APTT>5s) are independent predictors
CARDIO-VASCULAR	• Reported in 7-20% of cases. Prevalence high among patients who are severely ill • Vascular inflammation cardiac arrhythmias, myocarditis, cardiomyopathy, acute onset heart failure, MI, cardiac arrest • Less common: myocarditis, cardiac tamponade, fulminant myocarditis	**KIDNEY**	• Low prevalence, but is a marker of multi organ failure and severe disease • 40% pts with proteinuria and 26% with hematuria on admission • 5% pts developed AKI and increased hospital mortality • Stage 3 AKI in 50% of pts; rhabdomyolysis, metabolic acidosis, and hyperkalemia • Old age, DM, severe illness, and positive fluid balance are associated factors
LIVER	• Reported in 14-53% of cases • Abnormal aminotransferase levels in patients with severe illness (AST and ALT >40) • Clinically significant liver injury is uncommon	**NEUROLOGIC**	• Viral invasion of CNS in patients with severe illness • Observed in 36% of 214 patients in one study • Acute CVA disease, impairment of consciousness, ataxia, seizures, and encephalopathy; prognosis is poor for these patients
INFECTION	• Sepsis and septic shock reported in 4-8% of cases • Secondary infection reported in 6-10% of cases; staph and strep are common • DIC: cytokine release syndrome with persistent fevers, increased ferritin, D-dimer, and proinflammatory cytokines	**PREGNANCY**	• Fetal distress, premature labor, newborn thrombocytopenia, elevated liver enzymes, respiratory distress • Miscarriage, IUGR, and preterm birth • 1 case of stillbirth

For details and references please visit **https://oume.uthscsa.edu/longco/**