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EDITORIAL

COVID-19: The Novel and Lethal Culprit

The Extrapulmonary Manifestations of SARS-CoV-2 (COVID-19)

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During December 2019 at Wuhan the SARS-CoV-2 epidemic emerged and rapidly occupies the entire world, present as pandemic responsible for pulmonary dysfunction like acute respiratory distress syndrome and pneumonia but with time clinicians and researchers have been found some extrapulmonary features of COVID-19 which may reflect either replication or dissemination of SARS-CoV-2 infection as widespread immunopathological sequelae[1]. The knowledge regarding extrapulmonary complexities in the hospitalized COVID-19 patients should be addressed to prevent and decrease the coincidental exposure[2]. The spike protein and ACE2 receptors through S protein and MPRSS2 play role in pathogenesis of SARS-CoV-2 infection[3]. ACE2 receptors are situated in heart, GI epithelium, alveolar II cells, vessels, renal and smooth muscles of entire body responsible for COVID-19 induced injury[4,5]. SARS-COV-2 actuates T lymphocytes via cytokines: interleukin (IL-1 and 6), GM-CSF, and interferon-γ (IFN-γ) and tumor necrosis factor-α (TNF-α) known as cytokine storm bringing about tissue injury[6].

Heart: There are positive connections between the degrees of heart biomarkers and the COVID-19 infection reflects the prognostic worth of these biomarkers. It has been accounted for that 11.8% of COVID-19 patients without IHD present to have heart injury with raised degrees of troponin or heart failure during hospitalization.[7]During hospitalization; patients with raised troponin T (TnT) levels are at risk for ARDS, ventricular arrhythmias, intense coagulopathy and kidney injury[8].

Vascular system: Venous thromboembolism (VTE) is a lethal cardiovascular or respiratory issue among hospitalized old age and immobile COVID-19 patients[9]. As of now, the occurrence of coagulopathy is assessed at around 25% of hospitalized patients for COVID-19 in ICU[10]. Lymphopenia and expanded levels of specific cytokines, for example, IL-6, have been firmly connected with the disease[11]. Patients with extreme COVID-19 showed a lower PLT. Thrombocytopenia is common in sick patients and as a rule indicates organ dysfunction or physiologic decompensation. According to a study, the D-dimer levels were altogether higher in patients with intense COVID19 infection[12].

Digestive system: Gastrointestinal manifestations might be the primary proof of COVID-19 in a specific subgroup of COVID-19 cases.[13]The common features observed were loose bowels, loss of appetite, retching, pain in abdomen, and GI bleed during the beginning of the illness and ensuing hospitalization. It is reasoned that anorexia is the most regular stomach related feature among adults, though loose motions is the most well-known feature in pediatric and adult population consolidated while the vomiting is more commonly seen in children[14]. As indicated by the Chinese populace by Tian Y et al[15] anorexia was the most incessant feature in adults though the pervasiveness of diarrhea has also been reported. Studies have shown raised serum level of aspartate aminotransferase (AST), alanine aminotransferase and bilirubin in majority of COVID-19 patients. Raised degrees of gamma-glutamyl transferase (GGT) and phosphatase have also been seen[16]. However, even in extreme cases, huge liver injury is exceptional and liver dysfunction is gentle with just only microvesicular steatosis on biopsy[17]. Wang F et al 54 reported 52 COVID-19 patients with 17% has pancreatic injury[18].

Nervous system: Few studies have featured CNS features including migraine, which is the most widely recognized CNS entanglements (6.5% to 25%)[19]. The CNS sign incorporates headache, dizziness, seizures, multiple cerebral infarctions, acute ischemic stroke, encephalitis, confusion and encephalopathy. Clinical research on COVID-19 patients has shown the event of abrupt anosmia and tiredness without constitutional symptoms in the early stages.[20] Lechien JR, et al observed olfactory and gustatory dysfunction. Some uncommon instances of COVID-19 patients including Guillain-Barre and Miller Fisher disorder have also reported[21].

Reproductive system: According to a report COVID-19 male patients have lower level of serum testosterone while serum luteinizing hormone (LH) was altogether higher than that of control. The serum T: LH proportion was likewise altogether lower in COVID-19 patients in relation to illness severity[22].

Renal system: Persistent kidney impairment and AKI are seen in COVID-19 hospitalized patients along with alkalosis and acidosis[23].

Endocrine: The thyroid abnormalities have also been seen in patients with COVID-19 112 while the report recommends that SARS-CoV-2 disease can cause ketosis essentially in non-diabetic people and may build the chance of ketoacidosis in patients with diabetes[24]. The pancreatic injury and hyperglycemia hypothesized to be expected to β-cell injury or because of systemic illness[25].

Skin: As indicated by research on COVID-19 patients in Italy, few patients has cutaneous manifestations[26]. These signs generally comprise of papulovesicular rash, maculopapular exanthema, and acral red purple papules. Infrequently livedo reticularis, urticaria and petechiae have been observed[27]. The COVID-19 patients present these signs after the beginning of respiratory features while fewer them at the beginning of COVID-19 symptoms.

Musculoskeletal: Given the aftereffects of clinical preliminaries, COVID-19 patients show pain in limbs and muscular problems and myopathy.[28] Myalgias commonly seen in SARS-CoV-2 infection while the serum CK level heights rely upon the severity, going from mild to severe rhabdomyolysis.

Eye: As per a review article by Loffredo L, et al conjunctivitis in affirmed COVID-19 patients on average was 1.1% all while the redness and excessive tearing were also identified[29].

Neuropsychiatric: Notwithstanding exposure of disease, during a flare-up people with prior mental illness may encounter nervousness, depression, anxiety, delirium, psychosis, posttraumatic stress issue and suicidal thoughts[30].

Hence, these extrapulmonary features are of specific significance to carry out legitimate treatment methodologies with customized ways to deal with limit the chance of decompensation. In this way, explanation of inadequately comprehended parts of the disease would assist with making progress against this lethal pandemic.

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