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Clinical profile, etiology, outcome and new-onset diabetes: A SARI case series

Introduction: The world is currently facing the SARS-CoV-2 pandemic with evolving 2nd wave. The COVID-19 patients present most commonly with Severe Acute Respiratory Illness (SARI) in an emergency room with acute onset fever, cough, and breathlessness. However, not all SARI cases as per definition are due to COVID-19 infection, which is well proven in this case series of 113 cases of SARI. This is just the opposite of the other SARI series done in the pre-COVID-19 era. Also, no previous SARI case series data has shown significant association with Diabetes Mellitus, including new-onset diabetes thus figuring out the major Pathophysiological association of COVID-19 with glucose metabolism and has a bearing on the pathogenesis, treatment, and outcome of COVID-19 infection and perpetuity of pandemic of this magnitude. Here we raise concern for the first time about the growing association of an infectious pandemic with the lifestyle disorders which are non-communicable diseases but carry with them the potential of fertile soil for rapidly spreading epidemics.

Aim and objective: To find out the etiology, clinical profile, treatment outcome, and mortality rate in different sub-groups of SARI cases in a tertiary care hospital and the incidence of new-onset Diabetes Mellitus in them and to investigate theoretically the hypothesis that maintaining normal glucose metabolism could prevent progression of a mild Flu-like illness (FLI) to a severe form of Severe Acute Respiratory Illness (SARI) and consequent complications such as Cytokine Storm Syndrome and Multi-Organ failure.

Design: Retrospective, single-center case series of 113 SARI patients at a tertiary care hospital in Agra India between 1 March- 30 October 2020.

Main outcome: The demographics, clinical, pathological, imaging, and treatment outcome data were collected. The SARI cases analyzed were defined as “Severe acute respiratory infections (SARIs) an acute respiratory illness of recent onset (within seven days) manifested by fever (?38°C), cough and shortness of breath or difficulty in breathing requiring hospitalization and were sub-classified according to the primary etiology producing SARI in them. The findings were compiled and compared.

Conclusion: Of the 113 patients of SARI – 32.7 %were associated with Diabetes, with 9.74% new-onset Diabetes and 26 % previously known Diabetes. This was mainly due to SARS-CoV-2 (24 Diabetics out of 52 COVID-19 cases- 46.1 %).

The Average hospitalization stay of SARI cases was 10 days with a maximum in SARS-CoV-2 and a minimum stay of 5.22 days in Bacterial Pneumonia and 5.66 days in Koch’s Lungs.

The death rate was maximum (4 out of 26) 15.3%. Hospitalized TB/Koch’s Lung patients who presented as SARI and 3.8% in Bacterial Pneumonia, 2.43% in SARS-CoV-2, and <1% in Sepsis.

Those SARI cases who were euglycemic at the time of initial presentation recovered early and carried a good prognosis with less mortality as compared to those who were hyperglycemic on presentation. Also, those FLI cases who maintained euglycemia or did not have any other risk factor which predisposes them to stress (Diabetes, Prolonged fasting, Obesity, major organ disorder, Psychological disorder, and Cancer) did not progress to SARI as the endogenous steroid secretion and sympathetic activation did not occur, the intracellular pH levels remained in the alkaline range.

10.18% of cases developed new-onset diabetes (a total of 11 cases) out of which 10 were in COVID-19. Thus 19.2% incidence of new-onset diabetes in SARS-CoV-2 and a prevalence of 26.9% in SARS-CoV-2, making total diabetes 46.1% in SARS-CoV-2, and out of all SARI cases, 26 % of patients developed pulmonary fibrosis with consequent long-term complications. In COVID-19 patients, it was seen only in diabetics SARS CoV-2 male patients, thus no death in non-diabetic females in COVID-19 in this case series.

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Spinal cord involvement in tuberculous meningitis: a case report and brief review of literature

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Introduction: Tuberculosis (TB) continues to pose a significant public health problem worldwide. Tuberculous meningitis (TBM) is the most devastating form of extrapulmonary TB however other forms of central nervous system (CNS) disease include tuberculoma and spinal arachnoiditis. TBM carries high mortality even for a patient who is already receiving treatment. The difficulty in diagnosis often leads to a delay in treatment and subsequent mortality. The emergence of Xpert ultra has improved the rapid detection of MTB and rifampicin resistance in CSF and is the preferred diagnostic tool in TBM.
Case: In this case report we present a 33 years patient of concern who presented with progressive lower limb weakness associated with pain and paresthesia for 4 months, admitted via the Orthopedic unit with a diagnosis of spinal mass (meningioma, neurofibroma, or nerve sheath tumor) for which biopsy was done and revealed a chronic inflammatory process, necrotic bone lesions with no granulomas and no malignancy, he was later diagnosed with tuberculous meningitis and promptly started anti-tuberculous therapy with a dramatic recovery and improvement in neurological function.
Conclusion: Tuberculous meningitis conditions have high morbidity and mortality yet diagnosis and start of treatment continue to experience an important delay. Clinicians should keep in mind the limitations of clinical presentation due to pleiotropy and current diagnostics and should employ a combination of diagnostic modalities in addition to a high index of suspicion to prevent morbidity in patients with TBM.