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Understanding the COVID 19 Conundrum and Decluttering the scientific literature on COVID 19

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ABSTRACT

As COVID 19 continues to over burden the healthcare system globally, the scientists are relentlessly pursuing research and publishing copious data on relevant managements strategies for the infection. This short communication has attempted to simplify the available information on the subject in a manner that is easy to understand and implement in clinical setting. COVID 19 is not a single disease but a spectrum and should be classified based on clinical, radiological and laboratory parameters. A simple yet powerful way is to classify COVID 19 as COVIN — COVID Infection but no disease; COVIRI — COVID infection with predominant respiratory symptoms; COVID1 — COVID infection leading to an abnormal immune response and COVID S- referring to the sequelae of an acute COVID Infection. A clinical subtype specific approach may result in easier communication between healthcare providers which in turn may improve patient outcomes by providing targeted therapy.

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It is an old saying that ‘As one goes too close to the tree, one stands losing the sight of the forest’ Today researchers are continually providing newer and valuable insight on COVID19. Sadly, the world is becoming increasingly cluttered with unorganized and unconfirmed data. We believe that it is time to take a pause and look at what we have learned so far and organize it in an orchestrated manner. (see Figs. 1 and 2)

COVID 19 is not a single disease but a spectrum. Patient condition specific management is key to successful outcome. COVID can be classified into 4 main types based on type of presentation. These may further be sub-classified based on predominant organ affliction (Table 1).

1. COVID classification

1.1. COVIN

COVID infection but no disease: these are the people who have tested positive on a screening test but never reported any major symptoms beyond a low-grade fever and myalgia. These people from a medical standpoint just warrant close observation in a home

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https://doi.org/10.1016/j.dsx.2021.05.010
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quarantine setting. They should be given wearables that monitor their temperature and Oxygen saturation [1].

1.2. COVID -RI

COVID infection resulting in Respiratory infection URTI or LRTI. These occur in early stage of disease and persists for longer duration only in elderly or immunocompromised people. In them the disease behaves as typical pneumonia affecting the respiratory system. In these people ensuring that early institution of antivirals (e.g., Remdesivir), broad spectrum antibiotics (e.g., Amoxiclav) to prevent secondary infection, saturations are maintained, aggressive chest physiotherapy and good nursing care are key to successful outcomes. Assisted Ventilation where possible should be the last resort as weaning them away from the ventilators may prove difficult [2].

1.3. COVID -I

COVID infection resulting in Immunological condition. This subset consists of relatively young people with a strong immune system who have responded to COVID infection in an unusually strong and atypical fashion much like an autoimmune disease — Systemic Lupus Erythematosus (SLE). Just like SLE, the manifestation can be varied and organ-specific [3]. The subtypes depending on the predominant organ affliction are described below. Just like any other autoimmune disorder, the focus will be on lowering the inciting agent load by giving antivirals early on along with disease-modifying agents/biologicals that limit inflammation for e.g., Tocilizumab.

1.4. COVID -S

COVID sequlae — No active infection but COVID has resulted in residual damages. These appear between 4 weeks and 3 months of the COVID infection [8]. Depending on the primary subtype, it may affect different organs.

Table 1

| Type | Nomenclature | Description |
|------|--------------|-------------|
| I    | COVID- IN    | COVID Infection but No disease |
| II   | COVID- RI    | COVID confined to Respiratory Tract |
| III  | COVID- I     | COVID leading to Immunological malfunction |
|      | Subtype      | Predominant Affliction |
|      | H [4]        | Hematological Affliction |
|      | M [5]        | Myocardial |
|      | N [6]        | Neurological |
|      | O [3]        | Orthopedics |
|      | T [7]        | Thrombotic |
|      | V [3]        | Vasculitis |
|      | D [3]        | Dermatological |
| IV   | COVID- S     | Clinical Impact |
|      | Subtype      | Predominant |
|      | Pulmonary Fibrosis | Low Sp02; COVID lung; Antifibrotics like Pirfenidone and nintedanib. |
|      | Diabetes     | HbA1c Monitoring; OHA |
|      | Persistent Arthralgia/Myalgia | Require NSAID, Physio, Targeted manual therapy, Vit D and Mineral replenishment |
|      | Secondary Infections/abscess | Diagnosed on US/MRI; Antibiotics; Incision and drainage; Beware of Joint Sepsis |
|      | Bone Necrosis/Infarcts | Primary and secondary to steroid use; May require Core decompression/Alendronate |
|      | Neuro weakness | Self-limiting with rapid recovery; Physiotherapy |
|      | Others (Unclassified) | Surgical Site Infections; Conjunctivitis; Dermatological conditions, Mucormycosis |

Fig. 2. Distribution of two major COVID 19 pattern changes with Age and co morbidities. An intermediary group will have features of both the patterns. Younger patients are more likely to have strong immune response components and older patient predominant respiratory affliction resulting in respiratory failures.
Declaration of competing interest

Authors declare no conflict of interest pertaining to the manuscript.

No external funding

No financial and personal relationships with other people or organizations that could inappropriately influence (bias) their work.

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