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Short Communication

Treatment Modalities for Mucormycosis: A Brief Insight

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The COVID-19 pandemic has seen a major upsurge in the cases of Mucormycosis and has led to increased morbidity and mortality worldwide [1]. Indiscriminate use of steroids in patients with uncontrolled diabetes and also use of humidifiers has further worsened the situation [2,3]. The treatment of mucormycosis is done taking into consideration a number of factors and includes the rectification of all the affecting and associated conditions, prompt administration of specific therapy and elimination of all affected tissue by surgery. India being the diabetic capital of the world, harbours a very susceptible population for the development of Mucormycosis. This makes it mandatory on our part to implement rapid correction of metabolic abnormalities in patients with uncontrolled diabetes mellitus [4]. Various studies have postulated the use of sodium bicarbonate with insulin to correct ketoacidosis be it mild or severe in such patients.

In order to initiate the treatment at the earliest, it is imperative on our part to have the diagnosis at the outset. Direct microscopy with KOH mount plays a pivotal role in identifying the characteristic broad, aseptate ribbon shaped hyphae and informing the clinician about the possibility of a mucorales infection [5]. Immediate treatment with prompt intervention is required in order to prevent any tissue invasion and its consequent devastating sequelae. Thus, early initiation of treatment is strongly recommended in order to minimize the need for any required disfigurement surgery. Most of the mucoraceous fungi are resistant to most anti-fungals including voriconazole. The drug which is most effective in such conditions is Amphotericin B except in some particular cases. All types of mucormycosis can be treated with liposomal amphotericin-B as the first drug of choice with doses ranging from 1 mg/kg/day to 10 mg/kg/day. In some cases, where the patients develop deranged kidney function, the dose can be reduced whenever required. Whenever we have available options besides amphotericin, those alternatives are used in place in suspected cases of renal toxicity. Isavuconazole and Posaconazole are also active drugs and have been used in various cases of mucormycosis in moderate strengths. These two drugs are less hepatotoxic as compared to the others but have been associated with shortening of QTc interval. Out of the above two, Posaconazole tablets have been supported for use [6]. There are no definitive data to guide the use of antifungal combination therapy.

Another option for treatment is combination therapy, which can be judiciously administered due to absence of proven toxicity. The most preferred combination is the use of lipid amphotericin B and caspofungin or posaconazole [7]. Usually the treatment is given for weeks and continued upto months. A lot of studies have been conducted on the duration of treatment for Posaconazole and the mean time was six months.

Surgery whenever required must be very aggressive. It not only involves the removal of the necrotic tissues but also the surrounding infected healthy-looking tissues. It is mainly owing to the high speed at which the hyphae lead to extension into the surrounding tissues and regions. It is very useful in rhino-orbito-cerebral cases and also in localised pulmonary lesions. In contrast, there is no role of surgery in disseminated mucormycosis or in cases where the infection has already spread to difficult to reach organs. Hyperbaric oxygen also has been used in order to provide an oxygen enriched environment and with the simultaneous administration of antifungal therapy along with cytokines [8]. Lastly an investigational drug VT-1161 which is an inhibitor against the fungal CYP51, has selective activity to some selective mucorales. Further studies are required to establish the efficacy of this drug so that it can be added to our armamentarium against this deadly disease [9].

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