Mucormycosis at a tertiary care center in Gujarat, INDIA

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Background

Mucormycosis is a serious, life-threatening invasive fungal infection associated with high mortality and morbidity (20-58%).

The epidemiology of mucormycosis in India is intriguing, and varies significantly from the developed nations.

Risk factors include uncontrolled diabetes mellitus with/without ketoacidosis, corticosteroids use, hematological malignancies, solid organ or hematopoietic stem cell transplantation, intravenous drug abuse, prematurity and advanced age.

It has also been described in immunocompetent host and the most representative clinical form is the cutaneous/subcutaneous.

The rhino-orbital-cerebral (ROC) form of presentation is the most frequently reported, followed by pulmonary, cutaneous, gastrointestinal and disseminated infection in India.

We report our experience with mucormycosis at a tertiary care center in India.

Methods

Study design: Retrospective chart review of the patients with proven mucormycosis.

Study site: Infectious disease clinic and Sterling hospital, Ahmedabad, Gujarat, India.

Study period: January 1, 2013 through April 30, 2015.

Data related to demography, sites and outcome of infection, co-morbidities and underlying diseases were collected from hospital records.

Diagnosis of mucormycosis was made by demonstration of aseptate ribbon like hyphal invasion of tissue and/or positive tissue culture for Mucorace.

Patient received treatment according to affordability and as suggested by treating physician.

Data were tabulated and analyzed using Microsoft excel 2013.

Outcome was reported as patients survived (alive at 6 weeks of treatment), died or lost to follow up.

Results

A total of 27 patients were included for the analysis during study period.

19 (70.37%) patients were male and 8 (29.63%) were female.

Median age was 50 (16-65) years.

The median (range) duration of symptoms before presentation was 28 (1 -90) days.

21 patients had positive both HPE & culture, 2 patients with pulmonary mucormycosis had positive HPE and sterile BAL culture, culture was not sent in 1 patient with renal mucormycosis had positive HPE, while 5 patient had negative HPE (2 with pulmonary mucor and 1 with nasal septal involvement in acute lymphoblastic leukemia) and positive culture.

Nearly 40% of patients with diabetes were unaware of their diabetic status at the time of mucormycosis diagnosis.

Results contd.

Risk factors and site of involvement are shown in figure 1 & 2.

Seven immunocompetent previously healthy patients developed mucormycosis, of which 6 had road traffic accidents/trauma/crash injury leading to cutaneous/subcutaneous mucormycosis while one 50/M patient presented with fever, loin pain had spontaneous isolated renal mucormycosis.

Two patient died, one lost to follow up in cutaneous and sub cutaneous group.

Out of 27 patients, 13 survived, 7 died and 7 lost to follow-up at the end of 6 weeks follow up.

Various antifungal treatment and surgical treatment done are shown in table below.

<table>
<thead>
<tr>
<th>Antifungal treatment used</th>
<th>Surgical treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABCD*</td>
<td>Radicle resection</td>
</tr>
<tr>
<td>LAmb**</td>
<td>Debridement</td>
</tr>
<tr>
<td>Posaconazole</td>
<td>No surgery</td>
</tr>
</tbody>
</table>

Discussion

There is an increase in mucormycosis cases worldwide including India.

High incidence of mucormycosis in India is due to increasing numbers of uncontrolled diabetic patients, environmental factors providing optimal set-up for survival of fungi, and improved diagnostic facilities in healthcare centers.

The exact prevalence of mucormycosis in India remains difficult to elucidate, however, available data suggest that prevalence appears to be nearly 0.16% in diabetics and 1.2% in renal transplant recipients, with most of these cases manifesting as the ROC form.

In our study also ROC form was the most common manifestation and diabetes mellitus was the commonest predisposing factor other than reported from other studies from India, which in contrast to developed nations where haematological malignancies and transplants are designated as the key risk factors for mucormycosis with pulmonary involvement.

Conclusion

Uncontrolled Diabetes is commonest risk factor followed by immunosuppression.

Sino-orbital is commonest form while in immunocompetent patients cutaneous/subcutaneous form is more common.

Isolated renal mucormycosis is distinct clinical entity in immunocompetent host has been reported from India.

25.92% of patients were lost in follow up possibly due to high cost of medication.

Patients completing six weeks of amphotericin B treatment were major survivors.

Surgical resection/debridement is critical for better outcome in patients with mucormycosis.

References


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