EVIDENCE BASED ADVISORY IN THE TIME OF COVID-19
(Screening, Diagnosis & Management of Mucormycosis)

**Mucormycosis - if uncare for - may turn fatal**

Mucormycosis is a fungal infection that mainly affects people who are on medication for other health problems that reduces their ability to fight environmental pathogens.

- Sinuses or lungs of such individuals get affected after fungal spores are inhaled from the air.

This can lead to serious disease with warning signs and symptoms as follows:
- Pain and redness around eyes and/or nose
- Fever
- Headache
- Coughing
- Shortness of breath
- Bloody vomiting
- Altered mental status

**What predisposes**

- Uncontrolled diabetes mellitus
- Immunosuppression by steroids
- Prolonged ICU stay
- Co-morbidities – post transplant/malignancy
- Voriconazole therapy

**How to prevent**

- Use masks if you are visiting dusty construction sites
- Wear shoes, long trousers, long sleeve shirts and gloves while handling soil (gardening), moss or manure
- Maintain personal hygiene including thorough scrub bath

**When to Suspect**

| Sinusitis – nasal blockade or congestion, nasal discharge (bloody/bloody), local pain on the cheek bone |
| One sided facial pain, numbness or swelling |
| Blackish discoloration over bridge of nose/palate |
| Toothache, loosening of teeth, jaw involvement |
| Blurred or double vision with pain; fever, skin lesion; thrombosis & necrosis (eschar) |
| Chest pain, pleural effusion, haemoptysis, worsening of respiratory symptoms |

**Dos**

- Control hyperglycemia
- Monitor blood glucose level post COVID-19 discharge and also in diabetics
- Use steroid judiciously – correct timing, correct dose and duration
- Use clean, sterile water for humidifiers during oxygen therapy
- Use antibiotics/antifungals judiciously

**Don’ts**

- Do not miss warning signs and symptoms
- Do not consider all the cases with blocked nose as cases of bacterial sinusitis, particularly in the context of immunosuppression and/or COVID-19 patients on immunomodulators
- Do not hesitate to seek aggressive investigations, as appropriate (KOH staining & microscopy, culture, MALDI-TOF), for detecting fungal etiology
- Do not lose crucial time to initiate treatment for mucormycosis

**How to manage**

- Control diabetes and diabetic ketoacidosis
- Reduce steroids (if patient is still on) with aim to discontinue rapidly
- Discontinue immunomodulating drugs
- No antifungal prophylaxis needed
- Extensive Surgical Debridement - to remove all necrotic materials
- Medical treatment
  - Install peripherally inserted central catheter (PICC line)
  - Maintain adequate systemic hydration
  - Infuse Normal saline IV before Amphotericin B infusion
  - Antifungal Therapy, for at least 4-6 weeks (see the guidelines below)
  - Monitor patients clinically and with radio-imaging for response and to detect disease progression

**Team Approach Works Best**

- Microbiologist
- Internal Medicine Specialist
- Intensivist
- Neurologist
- ENT Specialist
- Ophthalmologist
- Dentist
- Surgeon (maxillofacial/plastic)
- Biochemist

**Detailed management guideline & information available on the following**


**Advisory developed by the following experts & National Task Force for COVID-19**

- Dr. Arunaikke Chakrabarti, Professor & Head, Department of Medical Microbiology, PGIMER, Chandigarh
- Dr. Alok Paliwal, Infectious Disease Specialist, Ahmedabad
- Dr. Rajeev Suman, Consultant Infectious Disease Physician, Pune
- Dr. Prakash Shastri, Vice Chairman, Critical Care, Sir Ganga Ram Hospital, New Delhi
- Dr. J P Modi, Medical Superintendent, Dr. K J Upadhay, Head, Dept. of Internal Medicine, and Multi-disciplinary Clinical Management Group, BJ Medical College & Hospital, Ahmedabad
- Dr. Girish Parmar, Dean, Government Dental College & Hospital, Ahmedabad
- Dr. Girish Parmar, Dean, Government Dental College & Hospital, Ahmedabad
- Dr. Anand Khambalia, Professor, Dept. of Internal Medicine, Smt. NHM, Municipal Medical College, Ahmedabad
- Dr. Hemang Parmar, Medical Microbiologist, Smt. NHM, Municipal Medical College, Ahmedabad
- Dr. R S Trivedi, Medical Superintendent, Pt. Dindayal Upaday Medical College, Rajkot
- Dr. Pankaj Buch, Professor, Dept. of Pediatrics, Pt. Dindayal Upaday Medical College, Rajkot
- Dr. Sejal Mistry, Associate Professor, Dept. of ENT, Pt. Dindayal Upaday Medical College, Rajkot
- Dr. Deepakshitha Bhatnari, Assistant Professor, Dept. of Internal Medicine, Pt. Dindayal Upaday Medical College, Rajkot
- Dr. Saniram Panda, Head, Epidemiology & Communicable Diseases (ECD), ICMR, New Delhi
- Dr. Pranay Awasthi, Scientist E, Clinical Trial & Health Systems Research Unit, ICMR, New Delhi
- Dr. Madhuchanda Das, Scientist D, Clinical Trial & Health Systems Research Unit, ICMR, New Delhi
- Dr. Tanus Avard, Scientist D, Clinical Trial & Health Systems Research Unit, ICMR, New Delhi
- Dr. Gunjan Kumar, Biochemist

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