Information for Ayurveda Practitioners for Prophylactic, Symptomatic Management of Suspected and Diagnosed cases of Mucormycosis

Government of India
Ministry of Ayush
Drug Policy Section
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Preamble

India has been battling with a significant rise in COVID-19 cases in the second wave. A severe and rare fungal illness, Mucormycosis also known as “black fungus”, affecting some coronavirus patients is causing a double blow to the country. Mucormycosis infections are more severe in people with comorbid conditions like Diabetes, Hypertension etc. and immune-compromised state. Because of the increase in the number of patients with this deadly infection, many states have declared Mucormycosis as an epidemic and has become a matter of huge concern.

Mucormycosis is classified mainly into five types depending on the part of the body affected. The clinical features described of Rhinoorbito-cerebral Mucor mycosis are similar to Raktaja Pratishyaya and Krimija Shiroroga (unilateral facial swelling, Headaches, Nasal congestion, Nasal discharge, Fever etc). Presentation of Pulmonary Mucor mycosis are very much similar to Kshayaja Kasa, (Cough with pericardial chest pain, foul smelling, greenish, purulent, mucoid and blood stained/ haemoptysis sputum and cough associated with fever (Jvaro-mishrakriti) or chest pain (Parshvaruka) or recurrent coryza (Pinasa) are the clinical features found in Pulmonary Mucourmycosis. The Gastrointestinal Mucormycosis can be included under the spectrum of Udara roga especially Sannipatika udara roga and pathogenesis of Disseminated mucormycosis in later phase can be compared with Dushtavrana where as Cutaneous mucormycosis can be correlated with Kushtha and Visarpa.

Breaking the cycle of infection, boosting an individual’s immune system, detecting the infection early, and providing proper medical care are the best ways to avoid Mucormycosis. The Ayurvedic principle of management includes Kledahara, Pramehahara, Agnivardhaka, Aampachaka, Krimihara, Ojovardhaka, Rasayan and Balya chikits. Therefore, to deal with the Mucormycosis infection, Ayurvedic Immuno-modulatory supplements coupled with Covid-19 management regimen may be started at earliest as prophylaxis.

All the standing instructions issued by Health authorities (Ministry of Health & Family Welfare, World Health Organization and state and local health authorities) are to be adhered completely and Ayurveda Management may stand as ‘ADD ON’ to the present contemporary line of management of Mucormycosis. The medicines recommended here are based on discussion in National level meeting conducted by AIIA New Delhi with various national institutes, like Institute of Teaching and Research in Ayurveda-Jamnagar, National Institute of Ayurveda –Jaipur, Faculty of Ayurveda Banaras Hindu University (BHU), Varanasi., Govt. Ayu College Ahmedabad, Govt. Ayu. College Trivandrum including the subject experts from all over the India.
**General disclaimer**

- Physicians have their own discretion to select drugs based upon the stage of the disease, complexity of symptoms, availability of the medicines in their locality and dose/duration has to be decided according to condition/stage of disease.
- Patients need to have a general consultation/advice of qualified physicians before starting any intervention.
- Patients in whom already some medications are going on for health issues such as hypertension, diabetes, cancer chemotherapy etc. are to be continued.
- This is for the use of physicians only and strictly not intended for self-medication by patients. Use the medicines under the prescription of registered medical practitioners only.
- It is the responsibility of the practitioner, lying on his or her own experience and knowledge of the patient, to make a diagnosis, to determine combinations, dosages and best treatment for each patient, and to take all appropriate safety precautions. List provided gives an idea about the different drugs of choice available for the said condition. Physician may select medicines from the list provided above or other than the list as per the complaints and availability.
- This document contains the collective views of a group of experts. Use these medicines is subject to Epidemic Disease Act and Disaster Management Act, if at all applicable. It is the physician’s responsibility to check with local applicable laws. Contributors are no-way held responsible for the same.

**How to prevent**

Dos ☑

1. Proper nutrition is to be ensured through freshly cooked, warm, light diet like green vegetables, Moonga dala, Masoora Daal, Daliya, Soup etc. considering individual’s Agni (digestive power).
2. Intake of Herbal tea (Ayush kaada)/ Medicinal water should be used as a regular drink to maintain hydration (As per AYUSH COVID -19 guidelines.).
3. Adequate sleep of 7-8 hours at night is essential and should be encouraged.
5. COVID appropriate behaviour and general protective measures advised by health authorities such as social distancing, using appropriate mask properly, hand washing and sanitization, vaccination etc. for Covid-19 must be followed.
6. Control hyperglycaemia and consult the physician accordingly if required.
7. Use clean sterile water for humidifiers during oxygen therapy.
8. Follow the guidelines published time to time by Ministry of AYUSH & MoHFW, ICMR.

Don’ts  ❌

1. Do not miss warning signs like facial swelling, headache, blackish lesions in oral/ nasal cavity, bulging out of eyeballs, difficulty in breathing, fever etc particularly in the context of immunosuppression and/or COVID-19 patients on steroid and oxygen support.
2. Avoid fermented food items, refrigerated items, cold drinks, packed food, junk food etc
3. Do not lose crucial time to initiate treatment for Mucor mycosis.
5. Do not sleep during the daytime.
**Prophylactic Measures**

**Daily regimen**

1. Daily practice of **Yogasana, Pranayama** and meditation for at least 30 minutes as advised by Ministry of AYUSH.

2. **Kavala/Gandusha** (Gargling) with lukewarm water along with an added pinch of turmeric/Triphala/Panchavalkala or Sphatika.

3. **Nasya** (Nasal instillation/application of medicated oil) - *(Anu taila or Shadbhinda Taila)* or cow ghee *(Goghrita)*, once or twice a day, especially before going out and after coming back home.

4. Steam inhalation with **Karpur** (Camphor) or Eucalyptus oil (1-5 drops) or Ajwain *(Trachyspermum ammi)*, Pudina *(Mentha spicata)* once a day.

5. **Dhumapana** with **Guggulu** *(commiphora mukul)*, **Nimba** *(Azadirachta indica)*, **Haridra** *(Curcuma longa)*, **Agar** *(Aquilaria agallocha)*, **Devadaru** *(Citrus devdar)* or **Aparajita** *(Clitoria ternatea)* mixed with ghee/Oil.

6. Frequent intake of water prepared with **Shunthi** *(Zingiber officinale)*, **Dhanyaka** *(Coriandrum sativum)*, **Musta** *(Cyperus rotundum)*, **Tulasi** *(Ocimum sanctum)*, **Lavanga** *(Syzyium aromaticum)* or **Jeera** *(Cuminum cyminum)* seeds.

7. Drinking of Golden Milk (Half tea spoon Haldi *(Curcuma longa)* powder in 150 ml hot milk) once at night, but should be avoided in case of indigestion.

The medicines listed in the below table as prophylactic can be used alone or along with the other medicines listed in different types of Mucormycosis accordingly.

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Stage/Condition</th>
<th>Medicine</th>
</tr>
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</table>
| 01     | Post-COVID-19 regimen for preventing opportunistic infections/Prophylactic | • Dashmoola kwatha, Manjishthadi Kashaya, Aaragvadhadi Kashaya  
• Sanshamani Vati, Arogyavardhini vati, Chandraprabha vati  
• Kaishor Guggulu, Triphala Guggulu, Laxmi Vilas Rasa  
• Krimikuthar Rasa, Gandhak Rasayana  
• Amritarishta, Vindargarishta / Vindagasa, Kumari Aasava  
• Chyavanaprasah Avaleha, Chitraka Haritaki Avaleha  
• Nisha-Amalaki Churna, Sitopaladi Churna, Avipattikar Churna, Sudarshana churna  
• Guggulutikta ghrita, Jeevantyadi Ghrita |
**Management of Symptomatic, Suspected and Diagnosed cases of Mucormycosis:**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Types of Mucormycosis</th>
<th>Clinical features</th>
<th>Medicine</th>
</tr>
</thead>
</table>
| 1.      | Rhino-orbito-cerebral Mucormycosis | Facial swelling, headache, visual loss, proptosis, and/or palatal ulcer, black lesions on nasal bridge or upper inside of mouth, double vision | • Amritadi guggulu  
• Saptamrita lauh  
• Haridra Khanda  
• Triphala Ghrita  
• Kasisadi tail Pratimarsha Nasya |
| 2.      | Pulmonary Mucormycosis | Fever, difficult breathing, cough, chest pain, pleural effusion. | • Gandhaka Rasayana along with decoction of Neem Patra+ Triphala+ Giloy+ Madhuyasti churna.  
• Kantkari ghrita / Dadimadi ghrita along with Trikatu churna/Mallasindura/Rasasindura /Yavakshara |
| 3.      | Cutaneous Mucormycosis | Necrotic scar surrounded by an erythematous and indurated region of skin | • Nimbadi Kashaya  
• Khadirarishta  
• Kalyanaka Guda |
| 4.      | Gastrointestinal mucormycosis | Nonspecific abdominal pain and distention associated with nausea and vomiting, GI Bleeding | • Sankha Vati  
• Arka Ajamoda  
• Narayana Churna  
• Bolbadha Ras  
• Kaharava pisti  
• Mauktikyukta Kamdudha Ras |
| 5.      | Disseminated Mucormycosis | typically occurs in people who are already sick from other medical conditions, so it can be difficult to know which symptoms are related to mucormycosis. Patients with disseminated infection in the brain can develop mental status changes or coma | • Rasamaikya,  
• Vyadhiharan Rasayan,  
For local application  
• Jatyadi taila  
• Jatyadighrita  
• Panchatiktaghrita |
Annexure 1:
Bibliography/Articles reviewed

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10. Awadhesh Kumar Singh, Ritu Singh, Shashank R. Joshi, Anoop Misra, Mucormycosis in COVID-19: A systematic review of cases reported worldwide and in India, Diabetes & Metabolic Syndrome: Clinical Research & Reviews, 2021
Annexure 2:

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