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**GUIDELINES TO DOCTORS OF THE  
BRAZILIAN SOCIETY OF HANSEN'S DISEASE (SBH)  
ON THE POSSIBILITY OF COINFECTION LEPROSY AND COVID-19**

- Considering the emergency that was installed due to PANDEMIC caused by NEW CORONAVIRUS (COVID-19);
- Considering the progress of studies and papers on the theme day after day, which allow the identification of population subgroups with greater vulnerability to the development of severe forms of the COVID-19;
- Considering that there are patients undergoing treatment for leprosy who meet these same criteria and, consequently, need more attention, especially the significant number of elderly patients with leprosy, the Brazilian Society of Hansen's Disease clarifies and recommends that:

1. Some risk factors for the development of the severe form of COVID-19 infection, represented by the acute respiratory distress syndrome, have been identified. Among them, stand age and comorbidities such as diabetes mellitus (DM) and systemic arterial hypertension (SAH) <sup>(1)</sup>, with the latter especially on those patients who are being treated using angiotensin-converting enzyme inhibitors <sup>(2)</sup>. In addition, patients with other laboratory alterations, such as neutrophilia and elevated levels of lactate dehydrogenase (LDH), also showed a greater risk for the development of severe forms of COVID-19 <sup>(3)</sup>.

2. Patients with borderline-borderline, borderline-lepromatous or lepromatous leprosy may have high levels of LDH and can develop neutrophilia on a type 2, erythema nodosum leprosum, leprosy reaction <sup>(4,5)</sup>. Therefore, they should be advised to redouble the precautionary measures regarding the possibility of infection by COVID-19. These precautions are the same as those directed at the general population, including isolation by the pandemic itself (and not by leprosy), until otherwise provided.

3. For patients who are under treatment for leprosy using only antibiotics related to multidrug therapy (MDT), or other alternative treatments/substitutes, guidelines for prevention of COVID-19 are also set to the same population in general. Nothing



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changes regarding the treatment of leprosy which should normally be maintained. Health units should evaluate possibilities to provide prescriptions for MDT and anti-reactive drugs for more than a month, avoiding monthly returns of “controlled” patients. However, for the feasibility of this recommendation, articulation by the municipal coordinations with the state coordinators or even with the Ministry of Health is essential, in order to make an extra quantity of medicines available, avoiding any shortage.

4. For leprosy patients who are undergoing treatment for REACTIONS (reversal reaction, erythema nodosum leprosum, erythema multiforme-like and neuritis), for which drugs that can lead to immunosuppression are used (see figure on immunosuppression criteria), it should be considered that:

- 4.1 - Prednisone is immunosuppressive from the dosage  $>$  or  $=$  10 mg per day or total cumulative dose  $>$  or  $=$  700mg. Consequently, considering that most patients in leprosy reactions require long periods of treatment with varying doses of prednisone, they should be considered immunosuppressed and, therefore, more vulnerable to any infections <sup>(6)</sup>.
- 4.2 - Thalidomide is an immunomodulatory drug with several known effects described, the main one being the inhibition of the expression of tumor necrosis factor alpha (TNF- $\alpha$ ). In addition to TNF- $\alpha$ , thalidomide also affects the expression of interferon- $\gamma$  (IFN- $\gamma$ ), interleukins 10 and 12, cyclooxygenase 2 and possibly the proinflammatory transcription of nuclear factor Kappa B (NF- $\kappa$ B) <sup>(7)</sup>. All these actions on the immune system lead to well-described and not yet fully elucidated immunosuppressive effects. There are cases described of hypersensitivity pneumonitis syndrome associated with the use of lenalidomide, a thalidomide analogue, and cases of greater pulmonary toxicity when lenalidomide was associated with dexamethasone, leading to acute respiratory distress syndrome <sup>(8,9)</sup>. The consequences of the association of COVID-19 infection and the use of thalidomide are unknown. Patients treated with

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thalidomide, regardless of the dose, especially in combination with corticosteroids should therefore be considered as high-risk patients to develop severe forms of COVID-19.

Therefore, it should always be given the benefit-risk assessment in adjusting the dosage of the drug or to even discontinue antireactional treatment, within the multidisciplinary context that the situation of each case requires.

5. The studies published so far, including one with more than 1000 cases of COVID-19 infection, have not detected patients co-infected with leprosy in the severe forms of the disease. There is still no specific data on COVID-19 in patients with autoimmune diseases or **immunosuppression\*** (see immunosuppression conditions highlighted in Figure 1). Thus, **GREATER ATTENTION** should be provided to these patients <sup>(3,10,11)</sup>.

6. Leprosy patients can present liver injuries, either due to the disease itself or the action of drugs used in its treatment. Patients with the severe form of COVID-19 also develop severe liver damage. Thus, attention must also be doubled in case of concomitant infection <sup>(12)</sup>.

7. Special situations, such as leprosy co-infection with tuberculosis or HIV, as well as leprosy and pregnancy in suspected superposition with COVID-19 should be analyzed carefully, because the consequences are unpredictable and may turn out to be serious.

8. In relation to outpatient consultations during the COVID-19 pandemic, the Brazilian Society of Hansen's Disease advises that elective consultations shall be reduced to the minimum necessary, directed to protect especially patients with reactions, who need specialized care, avoiding suffering and the installation of physical disabilities. The service must follow the guidelines of the Ministry of Health, with the use of personal protective equipment (PPE), such as masks, by health professionals, and the constant use of water and soap or alcohol gel for hand asepsis and to disinfect surfaces of service locations.

9. Reactions are acute events that require specialized care, and **under no circumstances** should the **provision of medical care be interrupted to patients**, who may need assistance and will culminate in seeking emergency services, which should be reserved for those victims of the COVID-19 pandemic.

#### Immunosuppression criteria

1. Neutropenia - decrease in the total neutrophil count.
2. Haematological malignancies with or without chemotherapy.
3. HIV infection with CD4 count cells  $<200/\text{mm}^3$ .
4. Splenic disorders (anatomic or functional disorders).
5. Patients transplanted on immunosuppressive therapy.
6. Antineoplastic treatment in the last 30 days.
7. Patient on corticosteroids: prednisone, dexamethasone, hydrocortisone and others.
8. Patient being treated with any other immunosuppressive medication.
9. Patients with autoimmune diseases.
10. Patients with congenital immunodeficiencies.

Figure 1. Immunosuppression criteria.

**Brazilian Society of Hansen's Disease**

Brazil, March 19, 2020

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