Physiotherapist, physiotherapy and liver transplantation

Fisioterapeuta, fisioterapia e transplante hepático

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Physiotherapy is part of a range of procedures to which patients candidates for orthotopic liver transplantation are submitted. Within this scenario, the initial evaluation in the preoperative phase is essential for detecting musculoskeletal changes and mainly respiratory changes that are a major concern in the postoperative period.

The majority of patients candidates for liver transplantation come to the clinic for inclusion in the list and multidisciplinary team evaluation, with a certain impairment of respiratory and peripheral muscles due to the advancement of liver cirrhosis, but the point of greatest relevance during this period is the weakness of respiratory muscles.

Patients with cirrhosis often have an adverse clinical outcome and limited survival, and liver transplantation is their only supposedly curative and effective treatment for improving their quality of life.[1] Lung abnormalities are found in chronic liver disease, such as hypoxemia and/or ventilatory restriction which may be due to ascites, pleural effusion, respiratory muscle weakness, diffuse lung disease and/or massive hepatomegaly.[2]

Since pulmonary complications are common in liver disease and during the postoperative period after a liver transplant, preoperative evaluation is required.[2] Tests such as the measurement of maximal inspiratory pressure (MIP) and maximal expiratory pressure (MEP) may determine lung function and outline the lung risk present before a liver transplant.[3] The measurement of maximal respiratory (aqui faltou algo: capacity?) quantifies the degree of respiratory muscle weakness in patients with dyspnea, respiratory failure, malnutrition, and neuromuscular disease, among others, and can predict the success of removal of the patients from mechanical ventilation (MIP) in the intensive care unit, or the patient's ability to cough and to remove secretions (MEP).[4] (Figure 1). Early detection of these changes using a manometer can determine an appropriate program of rehabilitation, such as strengthening the respiratory muscles, in order to minimize possible complications that occur during the postoperative period.

Also during the preoperative period, the patient is instructed to perform walking in order to improve physical conditioning and is taught some breathing exercises as a way of breathing retraining, and strengthening the breathing muscles for patients who were previously indicated (sugiro retirar ets aparta, que não está muito clara). All guidelines provided during this phase depend on the patient's condition and discussion with the multidiciplinary team (Figure 2).

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Figure 1: Patient undergoing noninvasive mechanical ventilation.

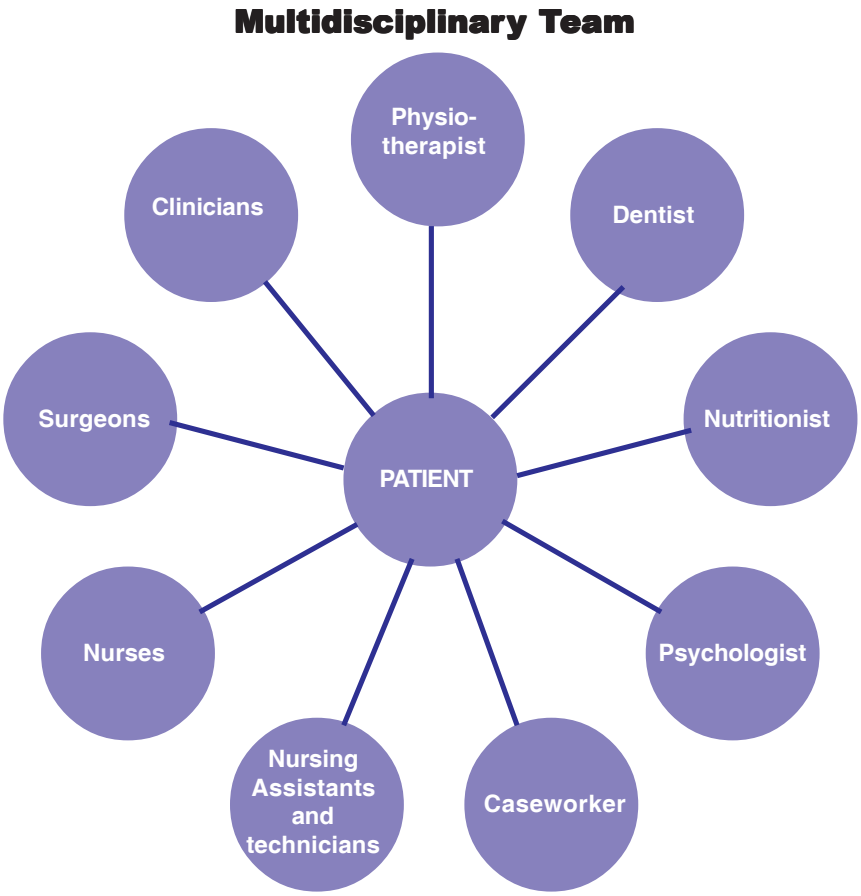

Figure 2: Flowchart of the multidisciplinary team composing the Liver Transplantation Integrated Group.

During the immediate postoperative period, reduced respiratory muscle strength may impair the weaning process.[5] Patients who stay for more than 24 hours on mechanical ventilation or require reintubation have lower survival rates.[6,7] Dysfunction of respiratory muscles may cause a reduction in vital capacity, total volume and total lung capacity.[8] In patients with decreased activity of expiratory muscles, coughing may become ineffective, impairing the independent completion of appropriate bronchial hygiene. Moreover, the decrease in inspiratory muscle strength impairs lung expansion, favoring the formation of small atelectasis, common in surgical patients. The presence of atelectasis may represent a risk factor for lung infections,[8] a situation aggravated in patients taking immunosuppressive drugs to combat rejection of the graft, which is the case of liver transplant recipients. The use of steroids can also contribute to a worse performance of respiratory muscles.[9]

The major complications experienced by these patients are pneumonia, pulmonary congestion, pleural effusion and atelectasis. In conjunction with the use of drugs to treat infections and water retention when necessary, motor and respiratory physiotherapy is used to treat these complications. The practice of physical therapy to be adopted depends on a good evaluation of the patient. The use of ventilatory patterns, incentive spirometry, positive pressure applied in a non-invasive way and active or active-assisted kinesiotherapy, and the withdrawal of the patient from bed and early deambulation optimize clinical improvement and a faster recovery by shortening the length of hospitalization.

The perfect integration of the multidisciplinary team is of the utmost importance when dealing with highly complex patients, such as liver transplant recipients. All team members have their importance in the recovery of these patients and their good performance during the period of hospitalization before and after transplantation.

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