

## ORIGINAL ARTICLE

# Nursing diagnoses for the immediate postoperative period of patients submitted to liver transplantation

Diagnósticos de enfermagem para o pós-operatório imediato de pacientes submetidos a transplante hepático

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## ABSTRACT

**Objective:** The objective of this study was to identify the nursing diagnoses in the immediate postoperative period of patients submitted to liver transplantation. **Methods:** Retrospective study carried out by examination of the digitalized medical charts of patients submitted to liver transplantation from July 1<sup>st</sup> to December 31<sup>st</sup>, 2002. **Results:** Twenty-three patients had undergone liver transplantation in the period determined for the study. Three-hundred and eleven nursing diagnoses classified in 27 categories were found. **Conclusion:** Incidence of 100% of the following diagnosis was observed: bathing/hygiene self-care deficit, impaired tissue integrity, impaired bed mobility, risk for aspiration, risk for infection, risk for impaired skin integrity, and risk for falls.

**Keywords:** Liver transplantation; Nursing diagnoses; Postoperative care; Intensive Care; Transplantation; Liver diseases

## RESUMO

**Objetivo:** O objetivo deste estudo foi identificar os diagnósticos de enfermagem no período pós-operatório imediato de pacientes submetidos a transplante hepático. **Métodos:** Análise retrospectiva, por meio do acesso ao prontuário digitalizado de pacientes submetidos a transplante hepático, no período de 1º de julho a 31 de dezembro de 2002. **Resultados:** 23 pacientes foram submetidos ao transplante hepático no período determinado para o estudo. Identificamos 311 diagnósticos de enfermagem em 27 categorias. **Conclusão:** Verificou-se incidência de 100% dos seguintes diagnósticos: déficit no autocuidado para banho/higiene, integridade tissular prejudicada, mobilidade no leito prejudicada, risco para aspiração, risco para infecção, risco para integridade da pele prejudicada e risco para quedas.

**Descritores:** Transplante de fígado; Diagnósticos de enfermagem; Cuidados pós-operatórios; Cuidados intensivos; Transplante; Hepatopatias

## INTRODUCTION

Since the most ancient civilizations, man wondered about changes to the morphology and structure of his body. "To ensure the life of a human being by replacing one of his unhealthy organs by a healthy organ from another person represents the greatest advance in medical science with a huge impact on knowledge of the biological universe. Therefore a new chapter in Man's history is opened, that of chimera man, the Homo Novus, in which his original structure is changed in order to tolerate an organ that is foreign to him"<sup>(1)</sup>.

The era of liver transplantation in human beings is recent. It started approximately 40 years ago with the pioneering work of Starzl who performed the first human liver transplantation in 1963<sup>(2)</sup>. Since then, studies regarding transplantation have increased achieving better and better results owing to the development of new immunosuppressants, especially the discovery of cyclosporine, and knowledge of the immune system and the factors related to rejection<sup>(1)</sup>.

Liver transplantation is currently considered the most complex therapeutical procedure in the surgical scenario because the liver, one of the largest organs of the body, is responsible for several functions that affect different systems of the body<sup>(3-4)</sup>.

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The goal of liver transplantation is basically to prolong the life of the patient, providing a satisfactory quality of life and recovery of his capacity to work<sup>(5)</sup>.

After liver transplantation, the recipients are admitted to the Intensive Care Unit (ICU) where they stay an average of 24 to 48 hours demanding the same care required by any severely-ill patient submitted to extensive abdominal surgery; however, multisystemic changes must be taken into consideration owing to liver diseases and the absence of liver function in the intraoperative period<sup>(3)</sup>. In the immediate postoperative period (IPP), the first 24 hours after liver transplantation, patients are intubated, monitored, receive immunosuppressor therapy and require several care procedures. At this point significant postoperative complications are common, and they can be classified as:

- technical complications: in the surgical wound, bleeding, vascular, biliary, nutritional, gastrointestinal complications and primary dysfunction of the graft.
- clinical complications: immunological, infectious, pulmonary, cardiovascular, renal, neurological, and metabolic complications<sup>(3,6)</sup>.

This demonstrates the importance of a differentiated approach to transplanted patients, focusing on details and customization of procedures because the success of liver transplantation is closely related to the care provided by the multiprofessional team. Nurses should plan full assistance for these patients in a organized and scientific manner by using the Nursing Process so that the customized needs of clients, family members, and the community can be met and fully applied to the nursing practice, therefore reporting the needs of nursing care of the patient in order to attain their goals<sup>(7)</sup>. In order to make continuous nursing assistance easier over the several shifts, language standardization is required. This need can be met by using the nursing diagnoses that describe real or potential health problems. Owing to their background and experience, nurses are skilled and authorized to provide treatment<sup>(8)</sup>.

“Nursing diagnoses represent a structured way of reporting the problems encountered by the nurse. Care procedures provided by nursing intervention become visible. These procedures help to reestablish the affected balance in the health-disease process thereby attaining the desired professional autonomy and the due value of services provided”<sup>(9)</sup>.

Based on the complexity of care procedures required by these patients, this study was designed because we believe that the identification of nursing diagnosis of a group of clients allow us to know the human responses that have changed, contributing to the development of focused and customized nursing interventions. We

believe that the use of nursing diagnoses allows us to define the profile of needs of this group of patients and thus make the global focus of nursing interventions easy.

## OBJECTIVES

The objective of this study was to identify nursing diagnoses in the immediate postoperative period of patients submitted to liver transplantation.

## METHODS

### Sample

The sample of this study was made up of all patients submitted to orthotopic liver transplantation regardless of sex, from July 1<sup>st</sup> to December 31<sup>st</sup>, 2002. The inclusion criteria were: to be adult and to have been submitted to orthotopic liver transplantation with cadaveric donor in that period of time.

### Setting

The study was carried out at the Hospital Israelita Albert Einstein, a large private institution in the city of São Paulo, Brazil, where most transplantations performed are funded by the [public] Unified Healthcare System (SUS) with an average of 7.5 liver transplantations per month. Sixty percent are orthotopic cadaver donor liver transplantations.

### Instrument

Data was gathered in two steps: first information regarding the patient's identification data such as age, birthplace, schooling, sex, race, religion, associated diseases, previous surgeries, medical diagnosis and waiting time in the transplantation list was collected. Then data regarding nursing diagnoses and their defining characteristics based on the Taxonomy II of the North American Nursing Diagnosis Association (NANDA)<sup>(10)</sup> related to the immediate postoperative period following liver transplantation was collected. Thirty nursing diagnoses were found: 21 real diagnoses and 9 risk diagnoses.

### Data Collection

Data was gathered after the project was approved by the Scientific Committee of the School of Nursing of Hospital Israelita Albert Einstein (FEHIAE) and the Research Ethics Committee of Hospital Israelita Albert Einstein, and after authorization from the Service of Patient's Medical Records. The use of retrospective

digitalized medical records of patients submitted to orthotopic cadaver donor liver transplantation took place in the second semester of 2003 through the instrument. Data was gathered using intensive direct observation technique associating the records of the multiprofessional team to the defining characteristics that determined the nursing diagnoses.

### Data Examination

After being collected, the data were assessed by descriptive statistics: comparison of frequency, determining the percentage of nursing diagnoses<sup>(11)</sup>.

### RESULTS

During the period of time studied, 23 patients underwent cadaver-donor liver transplantation. Seventy-four percent of these patients (17) were male, the mean age was 44 years and 26% (6 patients) were from outside the state of São Paulo. Figure 1 displays the clinical diagnoses that indicated liver transplantation.

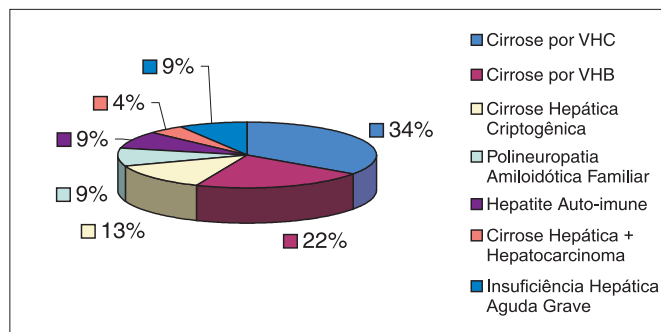


Figura 1. Clinical diagnoses that indicated liver transplantation. São Paulo, 2003

The mean waiting time on the transplantation list was 27 months. Forty-eight percent of patients of this sample (11 patients) presented conditions related to liver diseases such as esophageal varices, encephalopathy and ascitis. Retransplantation rate was 22% (5 patients), and 1 patient (4%) required re-retransplantation. The main cause of retransplantation was primary dysfunction of the graft, which happened in 67% of the sample (4 patients), followed by hepatic artery thrombosis (33%). Thirteen percent of the sample (3 patients) eventually died, and all death causes were related to retransplantation.

After studying the characteristics of the sample and the records registered in the medical charts, nursing diagnosis were identified. Three-hundred and eleven diagnoses were found and classified in 27 categories (table 1); 661 defining characteristics, in 22 categories; 200 factors related, in 19 categories, and 385 risk factors, in 7 categories.

**Table 1.** Nursing diagnoses identified in the immediate postoperative period following liver transplantation. São Paulo, 2003

Nursing Diagnoses	N	%
Bathing/Hygiene Self-Care Deficit	23	100
Impaired Tissue Integrity	23	100
Impaired Bed Mobility	23	100
Risk for Aspiration	23	100
Risk for Infection	23	100
Risk for Impaired Skin Integrity	23	100
Risk for Falls	23	100
Ineffective protection	22	96
Risk for Constipation	20	87
Imbalanced Nutrition: Less Than Body Requirements	16	70
Excess fluid volume	15	65
Risk for imbalanced fluid volume	14	61
Impaired verbal communication	8	35
Acute Pain	8	35
Risk for Peripheral Neurovascular Dysfunction	7	30
Ineffective Airway Clearance	5	22
Nausea	5	22
Impaired Spontaneous Ventilation	5	22
Decreased Cardiac Output	4	17
Risk for Situational Low Self-Esteem	4	17
Acute Confusion	3	13
Fatigue	3	13
Ineffective Tissue Perfusion	3	13
Risk for Imbalanced Body Temperature	3	13
Impaired Oral Mucous Membrane	2	9
Impaired Gas Exchange	2	9
Ineffective Thermoregulation	1	4.35

### DISCUSSION

The data collected confirmed the high incidence of liver transplantation performed owing to cirrhosis caused by hepatitis C virus (HCV), which is currently the main indication for liver transplantation in Brazil, Europe and the USA, followed by cirrhosis caused by hepatitis B virus (HBV). Because of the clinical severity that results from the liver disease and because of the length of time on the waiting list, many patients presented other conditions related to hepatic disease, such as esophageal varices, encephalopathy and ascitis. According to a study, hepatic artery thrombosis is considered the most common vascular complication after liver transplantation because of the vascular differences between donor and recipient and also because of difficulty regarding anastomosis<sup>(12)</sup>.

In this study, we will examine only the nursing diagnoses identified in at least 15 patients, that is, those that affected more than 64% of the sample, although we have described all diagnoses in table 1.

**Bathing/Hygiene Self-Care Deficit**, present in 100% of the sample, is impaired skill in fully or partially performing activities related to bathing/hygiene by the patients themselves<sup>(10)</sup>. All patients presented this diagnosis, mainly because of an environmental barrier since in the immediate postoperative period all patients

remain in the intensive care unit (ICU); therefore depending on the nursing staff to carry out this activity for them.

**Impaired Tissue Integrity** also affected 100% of the patients. It is considered present when there is damage to the mucous membranes, cornea, skin or subcutaneous tissues<sup>(10)</sup> associated to mechanical injury caused by the surgical procedure, to the presence of biliary drainage catheter in the flank and to impaired physical mobility.

**Impaired Bed Mobility**, present in 100% of patients, is the limitation of movements, regardless of the position in bed<sup>(10)</sup>. Because of the size of the surgical incision, and because many patients are still sedated in the immediate postoperative period, the nursing staff must provide the required care procedures to avoid injuries and complications resulting from this impaired mobility capability.

**Risk for aspiration**, present in 100% of patients, is to be at risk of having gastrointestinal and oropharyngeal secretions, solids or fluids, entering the tracheobronchial airways<sup>(10)</sup>. Ninety-six percent of patients were sent to the ICU with a high output open nasogastric tube, in addition to increased risk because of decreased consciousness level and decreased or absent gastrointestinal motility.

**Risk for infection**, present in 100% of patients, is to present an increased risk of pathogenic organisms invading the body<sup>(10)</sup>. In addition to being present because these patients underwent a large surgical procedure, the defining features most commonly present are related to immunosuppression and to inadequate secondary defenses. All patients presented anemia in the IPP, mainly because of bleeding in the intraoperative period aggravated by blood coagulation disorders. Infection is the most common complication in early postoperative period. It usually takes place at the surgical site, including the liver, biliary tract, peritoneal cavity and the surgical wound<sup>(12)</sup>.

**Risk for Impaired Skin Integrity**, present in 100% of patients, is the risk of having the skin adversely affected<sup>(10)</sup> because of mechanical factors, mainly by tapes used in catheters and in the incision site because the patient receives a great amount of fluids in the immediate postoperative period and eventually gains weight, which leads to the weakening and changes in the skin turgor, and changes in skin integrity. There are also immunological, pigmentation and metabolism changes.

**Risk for falls**, present in 100% of patients, is the risk to present an increased susceptibility to falls that may cause physical harm<sup>(10)</sup>. The defining features most commonly present are related to postoperative conditions, to impaired physical mobility and to the presence of anemia. In some cases this risk is increased because of mental confusion caused by hepatic

encephalopathy, especially in patients that presented primary dysfunction of the graft in the IPP.

**Ineffective Protection**, present in 96% of patients, is a reduction in the capability to protect against internal or external threats such as diseases or injuries<sup>(10)</sup> related to a deficient immune system caused by immunosuppression, impaired wound healing and blood coagulation disorders.

**Risk for constipation**, present in 87% of patients, is to present the risk of decreased stool frequency associated with difficulty or incomplete passage of feces<sup>(10)</sup> because patients fast during this period. The situation is worsened because of inadequate physical activity and decreased gastrointestinal motility.

**Imbalanced nutrition**: less than body requirements, present in 70% of patients, occurs when there is inadequate intake of food to meet the metabolic needs<sup>(10)</sup>. The main characteristics that define this diagnosis are related to the previous condition of the patient, long fasting period in the IPP and to the presence of abdominal pain in the region of the surgical wound.

**Excess of fluid volume**, present in 65% of patients, takes place when there is an increased retention of isotonic fluids<sup>(10)</sup>, which is shown by weight gain in the short period of time, intake higher than output, anasarca, and reduction of hemoglobin and hematocrit values. For most patients, this results from an excessive intake of fluids, mainly blood products. It is also related to impairment of the regulation mechanism.

## CONCLUSION

The study of the data collected from medical charts of patients that underwent liver transplantation showed 311 nursing diagnoses classified in 27 categories with 661 defining characteristics classified in 22 categories, 200 related factors classified in 19 categories and 385 risk factors classified in 7 categories in the immediate postoperative period. A 100% incidence of the following diagnosis was observed: bathing/hygiene self-care deficit, impaired tissue integrity, impaired bed mobility, risk for aspiration, risk for infection, risk for impaired skin integrity, risk for falls.

The characteristics of this sample of patients that underwent such complex procedure allowed us to see more clearly the main changes that take place in the immediate postoperative period, an extremely important factor, since this is considered the most critical period of the entire transplant process. In addition to that, we believe that future analysis of these findings will provide the preparation of nursing interventions for patients submitted to liver transplantation in the immediate postoperative period;

therefore marking a starting point to new studies that aim to validate these interventions, and thus contributing to provide a better nursing care for these patients, as well as benefits for their family members, the community and the health team involved in the entire process of liver transplantation.

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