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## CASE REPORT ARTICLE

### DRUG MEMBERSHIP ASSESSMENT INSTRUMENT AND ADJUSTING THE IMMUNOSUPPRESSANTS CONCENTRATION: EXPERIENCE REPORT INSTRUMENTO DE AVALIAÇÃO DA ADESÃO MEDICAMENTOSA E AFERIÇÃO DA CONCENTRAÇÃO DE IMUNOSSUPRESSORES: RELATO DE EXPERIÊNCIA INSTRUMENTO DE EVALUACIÓN DE ADHRENCIA MEDICAMENTOSA Y COMPARACIÓN DE LA CONCENTRACIÓN DE INMONOSUPRESORES: RELATO DE EXPERIENCIA

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#### ABSTRACT

**Objective:** to report the experience in building an evaluation tool of medication adherence and measuring the concentration of immune-suppressants. **Method:** a descriptive study type experience report on the preparation and instrument deployment in the University Hospital of Transplant Center of Brasília, conducted by academic nursing at the University of Brasília. **Result:** the instrument can assist in observation of adherence to immunosuppressive therapy. It is the right of every individual to receive health care quality, and health services should provide the care that is effective, efficient, safe with patient satisfaction in the process. **Conclusion:** experience has shown the importance of managing health services in quality care and maintenance of patient safety. **Descriptors:** Patient Safety; Renal transplant; immunosuppressives; Nursing Care.

#### RESUMO

**Objetivo:** relatar a experiência na construção de um instrumento de avaliação da adesão medicamentosa e aferição da concentração de imunossupressores. **Método:** estudo descritivo, tipo relato de experiência, sobre a elaboração e a implantação de um instrumento no Centro de Transplantes do Hospital Universitário de Brasília, realizado por acadêmicas de enfermagem da Universidade de Brasília. **Resultado:** o instrumento pode auxiliar na observação quanto à adesão à terapia imunossupressora. É direito de todo indivíduo receber assistência à saúde de qualidade, e os serviços de saúde devem oferecer uma atenção que seja efetiva, eficiente, segura, com satisfação do paciente em todo o processo. **Conclusão:** a experiência demonstrou a importância do gerenciamento dos serviços de saúde na assistência de qualidade e na manutenção da segurança do paciente. **Descritores:** Segurança do Paciente; Transplante Renal; Imunossupressores; Cuidados de Enfermagem.

#### RESUMEN

**Objetivo:** relatar la experiencia en la construcción de un instrumento de evaluación de la adherencia medicamentosa y medir la concentración de inmunosupresores. **Método:** estudio descriptivo, tipo relato de experiencia sobre la elaboración e implantación de instrumento en el Centro de Trasplante del Hospital Universitario de Brasília, realizado por académicas de enfermería de la Universidad de Brasília. **Resultado:** el instrumento puede auxiliar en la observación sobre la adherencia a la terapia inmunosupresora. É derecho de todo individuo recibir asistencia a la salud de calidad y los servicios de salud deben ofrecer la atención que sea efectiva, eficiente, segura, con satisfacción del paciente en todo el proceso. **Conclusión:** la experiencia demostró la importancia del gerenciamento de los servicios de salud en la asistencia de calidad y mantenimiento de la seguridad del paciente. **Descriptores:** Seguridad del Paciente; Trasplante Renal; Inmunosupresores; Cuidados de Enfermería.

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## INTRODUCTION

Chronic Kidney Disease (CKD) is a slow loss, gradual and irreversible kidney function. The causes of CKD are different. However, diabetes and hypertension are the main causes in Brazil and abroad and glomerulonephritis are the third cause in order.<sup>1</sup>

The CKD considered the great epidemic of this millennium<sup>2</sup> causes stressful situations to patients<sup>3</sup> and, like dialysis, it brings limitations to the life of the physical, sexual, psychological, social and family aspect, affecting thus their quality life.<sup>4</sup>

When kidney function is about 10 to 15% of its normal function, the treatment commonly consists of the administration of drugs and dietary embodiment. When the function is below this value, it is necessary to take other methods of treatment such as dialysis or renal transplantation.<sup>1</sup>

Dialysis and kidney transplantation are considered renal replacement therapies,<sup>2</sup> but the kidney transplantation provides a better quality of life, as it frees the dialysis machine of the patient but require to adopt a different way of life on power, medicines, hygiene and health care.<sup>5</sup>

Due to the risks involved in kidney transplantation, it is essential outpatient follow-up and guidance on diet, medications, exercise, infection prevention and identification of rejection signs and symptoms to assist in the success of THE surgery.<sup>6</sup> Surgery - Kidney transplantation - despite being an important therapeutic resource, it does not mean healing but the possibility of a new perspective of life and treatment that will include, among others, the use of immunosuppressive medication.<sup>7</sup>

The Brazilian program transplantation is an advanced and organized system, and it is considered an international reference of the Brazilian public health.<sup>8</sup> Kidney transplants, according to the Brazilian Registry of Transplant Year XX No. 2<sup>9</sup> increased by 1.0% (28.8 per million population - pmp) in Brazil, with the growth of 0.8% in transplants with the deceased donor (21.5 pmp) and 1.4% with living donor (7.3%). There were 2750 kidney transplants between January and June carried out, and of this total, there were 2049 from deceased donors. In the same period, the Federal District conducted 66 transplants, 9 with living donors and 57 deceased donors, thus occupying the 9<sup>th</sup> position in the order of states that perform a kidney transplant. This semester, the Federal District, as well as São Paulo, performed more than 50 transplants

pmp.<sup>9</sup> At the University Hospital of Brasilia, until March 2014, there were 14 kidney transplants performed.

The performance observed in the collection of organs in the Federal District, as well as in São Paulo; Rio Grande do Sul and Santa Catarina, approaches of countries with well transplantation programs.<sup>8</sup>

Immunosuppressive therapy is one of care and routines that the patient should follow without fail, essential to the success of transplantation. The survival rate of the transplanted graft has increased thanks to the development of this therapy, because they enhance the benefits of transplantation, since the use of immunosuppressive drugs limits or prevents rejection.<sup>10</sup>

For the maintenance of renal transplantation, clinical guidelines recommend the adoption of cyclosporine scheme + + azathioprine corticosteroids. It is permissible, alternatively, replacement of cyclosporine tacrolimus; azathioprine promofetil or sirolimus micro enolate also consisting another possibility.<sup>11</sup>

The University Hospital of Transplant Center of Brasília use three medications for transplantation in patients: Tacrolimus, Sirolimus and everolimus and may be used alone or in combination, considering that after the renal transplantation, the immunosuppressive dosages should be a safe range for transplant recipients that poor adherence to immunosuppressive therapy of these patients and can cause negative impacts and also that the patient should receive quality care. Because of this, it was necessary to draw up an instrument enabling measuring the serum levels of these medicines hospital and assist in the evaluation of adherence to drug therapy for transplant patients at the University Hospital of Brasilia, contributing to the management of a secure care with quality.

## OBJECTIVE

- To report the experience in building an evaluation tool of medication adherence and measuring the concentration of immunosuppressants.

## METHOD

The study was conducted during the “Experiences Integrators 7” subject, which is part of the curriculum of the nursing course at the University of Brasília and aims to discuss the main system management tools and management of health services in their various forms application in practice of nursing professionals. As an evaluation

product, the students were experiencing in practice the management processes, identifying a sector demand and, from there, using the theoretical knowledge management for the development of an intervention that would meet the demands of service hospital and assist in improving the management of the sector process.

This article is an experience report on the establishment of the instrument by the Nursing course students of the eighth period, in the Transplant Center at the University Hospital of Brasília (HUB), Brasília, Federal District, in the first half of 2014. The Centre transplants of HUB started its service in 2006 and since its foundation, the service is transplanting kidneys and corneas. By the end of this study, in mid-June 2014, there were 183 kidney transplantations. On this occasion, a tool to assess medication adherence and the concentration of immunosuppressive drugs have been developed.

The construction of the instrument began from a conversation with the nurse responsible for the transplantation area in HUB. He reported the lack of protocols for immunosuppressive regimen and the need to create a tool that would help control and evaluation of doses of immunosuppressants of patients enrolled in the service, aiming at a higher quality of care provided and therefore greater safety for the patient.

The second step was the discussion of the data that would be relevant to the content, the practicality of use, as well as better meet demand. From this, they have created models of instruments, and these were evaluated until it reaches its final version.

The final instrument aimed to record the results of the values of immunosuppressant concentrations in the blood of the transplanted patient, thus allowing checking and greater control of dosages, as well as the assessment of medication adherence.

Each patient had a single form containing personal data and notes of immunosuppressant concentrations in a table. The record had three tables: each for a type of immunosuppressant. The table with personal data was: Number of the record (in this case, the patient's record in the HUB), name, date of birth, date of transplant and donor type, with the options: "dead" or "alive".

The first instrument page had two tables in each; it should be filled with the medication and the columns of these records with the values of each test result. The professional responsible for the annotation should put the date of the examination and the result; the

note would be closed with the signature or rubric of the professional.

It is known that several factors interfere with the immunosuppressive action: clinical status of the patient, transplant time, association with other medications, among other factors. Thus, a small table with this observation to alert the professional was placed, which carries out the notes in serum levels of immunosuppressants, if the value is not as expected.

The second page of the instrument contained another table noting the serum levels of immunosuppressant drugs and a space dedicated to observations made by the team, such as the change in drug therapy or kidney loss.

From the information provided by the instrument, it was expected that the team assisting the patient evaluate whether the concentrations were within acceptable values, and to evaluate whether the immunosuppressant nephrotoxicity was causing or was immunosuppressed the patient beyond the intended.

Since there was a record of the dates on which the test was performed, the time display space in which the tests were made was possible; allowing the instrument, then that would help in assessing adherence to immunosuppressive therapy.

This control is aimed at increasing the survival of the transplanted kidney - reducing the risk of rejection - contributing to patient safety and quality of life and greater effectiveness thus causing less financial impact to SUS, which do not need to pay for new surgical procedures or own hemodialysis, and to facilitate communication between team members and the organization of the service.

RESULTS AND DISCUSSION

♦ The instrument and adherence to immunosuppressive treatment

The instrument can assist in observation of adherence to immunosuppressive therapy. Discontinuation of the prescribed regimen and quality of compliance with the involvement of this regime are basic components involved in non-adherence to immunosuppressants because both are related to the involvement of the patient with the treatment in the correct frequency and intake of medications.<sup>10</sup>

Data shows public investment in transplantation. Therefore, non-adherence to drug therapy generates, in a sense, investment waste, since it can increase the cost due to the need for other interventions

to treat complications arising from not-adherence.<sup>10</sup>

Evaluation of adherence to immunosuppressants was divided into direct and indirect methods, and should be considered that each method has disadvantages and advantages.<sup>10</sup> A very useful method to measure objectively adherence to these medicines through tests that check their concentrations is monitoring drug levels and its metabolites in blood or urine,<sup>12</sup> and blood levels more used.<sup>10</sup> However, it is necessary to combine other measures to increase the accuracy of diagnosis, since the use of the dosage by measuring by laboratory exams tends to overestimate non-adherence.<sup>10</sup>

Non-medication adherence generates, in a sense, investment waste, since it can increase the cost by the need for other interventions to treat possible complications, such as increased number of hospital admissions and laboratory tests, more graft biopsies and specific treatments for rejection; that is, when the patient does not adhere to immunosuppressants, the economic impact is negative and clinical outcomes are unfavorable.<sup>10</sup>

Transplant units are usually concentrated in the educational process and interventions on adherence at the beginning of treatment, and this approach decreases over time; knowing that adherence tends to decrease with time, there is the need for continuous interventions,<sup>10</sup> being the dosage serum levels of immunosuppressive an instrument to assist in the evaluation of adherence to this therapy.

◆ **The instrument and patient safety**

It is the right of every individual to receive health care quality, and the health services should offer an effective, efficient, safe care, with patient satisfaction in the process. According to the Institute of Medicine (IOM), the United States of America (USA), quality of care is defined as the degree to which health services increase the probability of obtaining the desired results with the current level of knowledge.<sup>13</sup>

The dosage of immunosuppressive drugs in biological fluids was possible due to the development of more sensitive and specific laboratory techniques; through therapeutic drug monitoring, allows the individualization of drug dose and also the identification of cases of non-adherence to medicine therapeutic.<sup>14</sup>

The professionals who provide assistance to transplant patients recognized that low dosages, which prevent the drug perform

immunosuppression, or high dosages, which may result in nephrotoxicity, situations that may result in the loss of the transplanted graft, so it takes care and rigorous control of immunosuppressive serum values used by these patients. The instrument set may then be useful to view and control serum levels of these drugs and dosage is then adjusted to be realized that the levels are not in a safe range for the patient.

Patient safety, essential item for the quality of care, has gained prominence in the context of research because of the need to improve nursing care and minimize possible damage to the client's health from his practice.<sup>15</sup> The control serum immunosuppressants are grounded on patient safety since their goal is to reduce the damage.

◆ **Instrument implementation results**

Due to the closure of the subject in the period attended the graduation students of nursing, it was not possible to assess the effectiveness and acceptance of the created instrument. However, the Transplant Center of the HUB staff proved to be receptive to adhere it.

**FINAL CONSIDERATIONS**

The instrument created by the graduation students of the nursing course has become an example of good management of the process of care in hospital care results in a quality assistance and consequently reflected in patient safety. The work showed seemingly simple actions - such as the creation of this instrument - that can bring benefits to the service, organizing it and giving it greater credibility, and the patient, reducing the risk of rejection and contributing to greater survival with quality. It is noteworthy also that the instrument alone cannot assess whether the patient is or not adhering to drug therapy, but assists in the evaluation. Thus, there is an effective control; it is necessary for staff and patient become co-responsible for the maintenance of this therapy.

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