



ORIGINAL ARTICLE

CHARACTERISTICS OF SURGICAL PROCEDURES PERFORMED IN THE ELDERLY

CARACTERIZAÇÃO DOS PROCEDIMENTOS CIRÚRGICOS REALIZADOS EM IDOSOS

CARACTERIZACIÓN DE LOS PROCEDIMIENTOS QUIRÚRGICOS REALIZADOS EN ANCIANOS

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ABSTRACT

Objective: to investigate the types of surgical procedures that older people assisted in a university hospital underwent. **Method:** this was a cross-sectional study, documentary and descriptive type, conducted from January to December 2012, with 580 elderly. Data collection was performed in books of records of surgery scheduling sectors. The project was approved by the Research Ethics Committee, under CAAE no. 19610913.8.0000.5183. **Results:** the most prevalent procedures were cataract correction, in the Ophthalmology Reference Center and cholecystectomy, performed in surgical ward; 16% of users with scheduled surgeries were suspended. Additionally, 42% of suspensions did not have their reasons registered. **Conclusion:** the elderly seek the university hospital surgical service for procedures of cataract corrections and cholecystectomy; although this hospital is a reference university hospital in the state of Paraíba, it was evident weaknesses in the structure and human resources. **Descriptors:** Elderly; Surgery; Hospital Care.

RESUMO

Objetivo: investigar os tipos de procedimentos cirúrgicos a que foram submetidos os idosos assistidos em um hospital universitário. **Método:** estudo transversal, de natureza documental e descritiva, realizado entre janeiro a dezembro de 2012, com 580 idosos. A coleta de dados foi realizada em livros de registros dos setores de agendamento de cirurgias. O projeto foi aprovado pelo Comitê de Ética em Pesquisa, sob o CAAE nº 19610913.8.0000.5183. **Resultados:** as cirurgias mais prevalentes foram as correções de catarata, no Centro de Referência Oftalmológica e colecistectomia, realizadas no Bloco Cirúrgico; 16% dos usuários com cirurgias programadas foram suspensas. Além disso, 42% das suspensões não tiveram seus motivos registrados. **Conclusão:** os idosos procuram o serviço de cirurgia do hospital-escola para procedimentos de correções de catarata e colecistectomia; apesar desse hospital-Escola ser referência no Estado da Paraíba, evidenciou-se fragilidades quanto à estrutura e recursos humanos. **Descritores:** Idoso; Cirurgia; Assistência Hospitalar.

RESUMEN

Objetivo: investigar los tipos de procedimientos quirúrgicos que fueron sometidos los ancianos asistidos en un hospital universitario. **Método:** estudio transversal, de naturaleza documental y descriptiva, realizado entre enero a diciembre de 2012, con 580 ancianos. La recolección de datos fue realizada en libros de registros de los sectores de agendamento de cirugías. El proyecto fue aprobado por el Comité de Ética en Investigación, CAAE n. 19610913.8.0000.5183. **Resultados:** las cirugías más prevalentes fueron las correcciones de catarata, en el Centro de Referencia Oftalmológica y colecistectomía realizadas en la sala de operaciones; 16% de los usuarios con cirugías programadas fueron suspensas. Además de eso, 42% de las suspensiones no tuvieron sus motivos registrados. **Conclusión:** los ancianos buscan el servicio de cirugía del hospital escuela para procedimientos de correcciones de catarata y colecistectomía; a pesar de ese Hospital-Escuela ser referencia en el Estado de Paraíba, se notaron fragilidades en la estructura y recursos humanos. **Descriptores:** Anciano; Cirugía; Asistencia Hospitalaria.

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INTRODUCTION

Population aging was before considered a growing phenomenon in the first world countries, but now has reached the third world countries. The number of people aged over 60 years old has grown rapidly globally, due to increased life expectancy, resulting from changes in the social, political and economic context over the years. So, all these changes require new adaptation scenarios to accommodate the challenges of aging. This change in population structure is called demographic transition.

Developing countries have shown in recent decades, a progressive decline in death rates and, more recently, in fertility. These two factors promote the demographic basis for a real aging of these populations, such as that currently observed in Brazil, which is translated into high life expectancy and therefore the increase in the elderly population. This speed in the demographic and epidemiological transition experienced by the country in recent decades causes a number of crucial issues for managers and researchers of health systems, with implications for society as a whole, especially in a context of great social inequality, poverty and fragile institutions.¹

Regarding the developed countries, like France, the increase in the elderly population from 7% to 14% of the total occurred in more than a century. In Brazil, this same demographic shift will occur in the next two decades (between 2011 and 2031).² This country currently has a contingent of about 21 million elderly. It is estimated that in 2025 the amount of elderly will be approximately 32 million, when the country will occupy the sixth in the world in terms of elderly population.³ The state of Paraíba is among the leading states in number of elderly. According to the *Instituto de Desenvolvimento Municipal e Estadual da Paraíba* (Municipal and State Development Institute of Paraíba), the state of Paraíba presented an increase in the population pyramid in 2010, concentrating 11.98% of seniors in its population.⁴

Parallel to the change in the demographic pattern, there is the transition in the epidemiological profile in both the morbidity and mortality due to the increase of chronic degenerative events (noncommunicable diseases) and reduction of infectious and parasitic diseases. These profound changes tend to bring consequences such as benefit expenses related to the health sector, the need for skilled human resources to meet this

part of the population and preparation of society.

The elderly are more prone to suffer changes from the environment in which they live, as well as other changes inherent to their very age. The aging is a multifaceted process that occurs since the individual is born, and it is gradual and continuous, and naturally associated with the decline of physiological, cognitive, functional, social, economic, philosophical, legal, political, intellectual and psychological functions. As the body ages, it becomes more vulnerable to onset of diseases which, if not adequately cared for, may lead to hospitalization. This population group tends to look more for health services; consequently, their hospitalization rates are higher. Successful aging is more than the absence of disease and maintenance of functional status, and involves this combination along with active engagement with life and society.⁵

The high rates of hospitalization of elderly exemplifies the impact of the Brazilian population aging in the health sector and represent a major challenge for health systems, which are at risk of having their beds blocked without providing the necessary assistance to the demands of this group.⁶ In general, older people have multiple illnesses that last for several years and require constant monitoring, often leading to increased length of hospital stay.

Hospitalization often requires an invasive care, which ends injuring the patient's privacy and therefore develops stress, discomfort and insecurity.⁷ Hospitalized elderly carries an added burden of sensitivity inherent to their own life, health and culture. In hospitals, it is observed that hospitalized elderly often lose the ability to make decisions as a patient and therefore their autonomy.⁸ In many cases, these people undergo surgery, as the only way of treatment, which generates a greater emotional burden both for the client and for their family.

Surgery in elderly patients have become increasingly frequent, since this population is showing a growth in significant numbers in recent decades and thus exposing themselves more to morbidities of surgical resolution.⁹ This is also due to changes in health care that have been changing and qualifying throughout history, and surgical interventions are part of the health care process.¹⁰

Some surgeries are responsible for pre and postoperative hospitalization. With apparatuses and technological resources, surgical treatments have become safer over time, presenting a lower risk of death,

including in the elderly population. These advances, combined with increased life expectancy and the growing contingent of elderly, have resulted in the increase in the number of surgical procedures performed in people over 60 years old.¹¹

The mere announcement of a surgical procedure triggers feelings of anxiety, fear and stress. However, these feelings can be exacerbated and mixed with disappointment and discouragement front of the health team and their own condition, when such procedure is suspended due to any factor. The high rates of procedures cancellation generate losses both for patients and for the institutions. Not only it makes the surgical program be with spare time, but also increases the patient's hospital stay, thus causing additional costs to the hospital. In this sense, a study on cost management caused by surgical suspensions shows that the suspension of 58 procedures will result in R\$ 1,713.66 cost to each institution. This expense is related to consumables (R\$ 333.05), to sterilization process (R\$ 201.22), medication (R\$ 149.77) and human resources (R\$ 1,029.62). In this study, it was found that most suspensions could be avoided.¹²

Based on the above, the present study sought answers to some questions, namely: what is the characteristic of surgeries undergone by elderly assisted in the teaching hospital in the city of Joao Pessoa, Paraiba, Brazil? What is the gender that demands more surgery? What is the expense this entails in health? And why, despite technological advances, many procedures are still suspended?

Therefore, this study aims to:

- Investigate the types of surgical procedures that assisted elderly were submitted in a university hospital (HU).

METHOD

This is a study of quantitative and qualitative approach, cross cut, documentary and descriptive type, conducted in a university hospital of high complexity in the city of Joao Pessoa, Paraiba, Northeast Brazil.

The University Hospital Lauro Wanderley (HULW) belongs to the Federal University of Paraiba. This is a large teaching hospital with approximately 44,000 m², of which lack completing 9,000 m². Besides having qualified professionals, it offers a multitude of services to the population. It is located in the Campus I of Federal University of Paraiba (UFPB), at the Castelo Branco neighborhood, Joao Pessoa/PB. It constitutes a public health unit,

therefore, non-profit. Like other HUs, it performs health care services and education, research and assistance.

In the case of Surgical Ward and the Ophthalmology Reference Center (CEROF) - setting collection of this research - are characterized as reference units to treat elective and eye surgery and therefore appears as a specialized medium and highly complex service, barely existing in the state of Paraiba.

Data collection occurred from January to December 2012. The survey data were collected through surgery scheduling books in a sector dedicated for this service, ambulatory; through records of surgical procedures performed, stored in the Surgical Ward and in the Ophthalmology Reference Center; and through records of suspended proceedings and books of statistical data of the institution under study.

Data about the study population were properly recorded in appropriate sheets for later tabulation in statistical program. All procedures were carried out with the permission and written consent from each principle responsible for the sector.

Collected sample included 580 elderly, SUS (Health System) users from 60 years of age, of both genders, who underwent scheduling and /or surgical procedures in the hospital under study. During this study, we excluded the minor surgery performed on an outpatient basis.

Surgical procedures surveyed for this study were those registered in specific books for each specialty: amputations, biopsies, blepharoplasty, bronchoscopy, cauterization of condylomas, cataracts, Whipple surgery, cholecystectomy, colposcopy, biliary-enteric bypass, debridement, esophagectomy, excisions, carotid stenosis, gastrectomy, hernioplasty, herniorraphy, hysterectomy, injection of Lucentis®, intravitreal injection, laparotomy, mastectomy, prostatectomy, pterygium, Sling and thyroidectomy.

Data were exported to the Statistical Package for Social Sciences, version 18, in which tables were generated.

The statistical analysis was descriptive, from the frequency distributions, measures of central tendency and dispersion of the variables (gender, age, surgical procedures and suspensions).

Concerning ethics, this research has met the requirements of Resolution 466/12 of the National Health Council, which deals with research involving human subjects. Therefore, we designed a research project that was

submitted to the Research Ethics Committee of the University Hospital Lauro Wanderley, Federal University of Paraiba, which was approved and obtained the CAAE No. 19610913.8.0000.5183.

RESULTS AND DISCUSSION

Classified as teaching hospital in the areas of Health Sciences and other sciences, the HULW serves the city of Joao Pessoa, Paraiba, other municipalities, as well as surrounding states, through the Unified Health System (SUS). Currently, the services provided are primarily of middle and high complexity. In the hospital complex, there are 71 medical offices, 240 hospital beds, 12 dental offices, 16 beds in the ICU (adult, pediatric and neonatal) and 11 operating rooms.

In 2009, public investment and spending on hospital treatment of the elderly population consumed 29.4% of hospitalizations resources in SUS. Therefore, prolonged hospitalization (PHP) increases costs and reduces the opportunity for other patients to receive hospital care. With regard to surgical procedures, considering the inherent characteristics of the aging process, they therefore also require greater cost.¹³

Table 1 shows the gender and age profile of the elderly who underwent surgery during the study period. Approximately 60% (347) of the surgical procedures were performed in older women, while 40% (233) were in elderly men. The age stratum that demanded more surgical procedures in both genders was the young elderly (60-69 years old).

Table 1. Gender and Age Profile of the elderly undergoing surgery from January to December 2012, in HULW.

Age(years)	Female		Male		Total	
	N	%	N	%	N	%
60-69	195	33.6	116	20	311	53.6
70-79	105	18.2	92	15.8	197	34
≥80	47	8.2	25	4.2	72	12.4
TOTAL	347	60	233	40	580	100

Source: Record book of surgery schedule, the Surgical Ward and CEROF, 2012.

Aging has a strong gender component, women have longer life expectancy. It is evident that the morbidity indicators, measured by the demand for services and by population surveys, highlight, in general, more frequency to women; they live longer, but they are subject to disease, due to physiological issues and extrinsic factors.¹⁴

The increased demand of women for health services has cultural roots in Brazil. The figure of the man as the provider, strong and sturdy, is still separated from the idea of caring for one's own body and mind. Thus, various health strategies are launched to attract the male part of the population to health services through information and alerts in national campaigns as well as increased investment

and encouragement in studies of the main diseases surrounding men's health.

Regarding the hospital infrastructure in question, the property comprises 11 operating rooms. However, at the time of data collection, only seven rooms were in operation, of which five were designed for elective surgeries, one for obstetric procedures and another for emergency surgeries.

The reasons that led to the deactivation of operating rooms were insufficient quantitative human resources, inadequate infrastructure and lack of material and equipment.

Table 2, below, shows the amount of nursing professionals working at Surgical Ward.

Table 2. Quantity of nursing professionals working at Surgical Ward.

Professionals	n
Nurses	8
Nursing technicians	21

Resolution No. 293/2004 of the Federal Nursing Council (COFEN)¹⁵ sets the parameters for the design of nursing professionals in care units of health institutions. According to this resolution, the amount of nurses in the Surgical Ward of the hospital under study is insufficient. It is recommended in this case a total of about 89 nursing professionals from different levels (22 nurses and 67 nursing

technicians). This reminds us of the immediate need of hiring health workforce and greater investment directed to health.

This is not a reality only of Paraiba, as a study at the university hospital of Brasília states that the lack of effective workers are in the basis of university hospitals problem, though it is not the last, because the resources that should be applied in patient

care are intended to pay staff: "When they are civil servants, the Union itself pays them. Every month we have R\$1.4 million deficit, which is supplied in part by the university. But this situation is unsustainable and puts hospitals in condition of extreme vulnerability".¹⁶

Some authors have reported the dereliction of the university hospitals. According to this, of the 46 Brazilian HUs, there were 10,340 active beds, where 1,124 were disabled. This fact is due to the lack of staff and investments. Of these, 10,109 correspond to the beds of SUS and 231, in some hospitals, correspond to privatized beds.¹⁷

Another service studied was Ophthalmology Reference Center (CEROF), which provides specialized care to patients with eye problems in the following care modalities: prevention, early detection, diagnosis and treatment.

Currently, CEROF has three rooms, two for surgery and one for anesthesia. The health team also had personal deficit and, therefore, was not performing strabismus surgery.

In general, the institution under study conducted about 1,925 surgeries in the period from January to December of 2012, including elective, emergency and small surgery. Of this total, 722 (37.51%) were intended for elderly patients. These data confirm the importance of the hospital to the state of Paraiba, since it currently serves a broad health demand.

Concerning the most prevalent surgical procedure, we can mention the surgeries for cataracts and pterygium, in CEROF, and cholecystectomy in the Surgical Ward, as explained in Table 2.

Table 2. Most prevalent surgical procedures among elderly assisted in HULW from January to December 2012.

Procedure	Procedure Location	n	%
Cataract	CEROF	275	38
Pterygium	CEROF	79	11
Cholecystectomy	Surgical Ward	29	4
Herniorraphy	Surgical Ward	22	3
Prostatectomy	Surgical Ward	22	3
Others		295	41
Total		722	100

Source: Record books of Surgical Ward and CEROF, 2012.

Cataract is one of the most prevalent eye diseases in the elderly and leads to a decrease in visual acuity, contrast sensitivity and color perception.¹⁸ It is responsible for the largest number of reversible blindness in the world, given that approximately 47.8% of total cases come from this disease.¹⁹ About 350,000 Brazilians are affected by cataracts, with an estimated incidence of 120,000 new cases per year, with senile cataract the most common form among the population.²⁰

Cataract surgery is the most sought by SUS users, being registered in 2011, 426,567 surgeries, which was considered a 22% increase compared to 2010. However, this large number is still low to meet annual demand of new cases, which added to the deficit accumulated for years, allow us to consider cataract as a major public health problem.²¹

The non-effectuation of the rules for SUS and accelerated aging process of the country bring on a number of health problems for the population, which contributes to the prevalence of this disease. Therefore, it is important to highlight the poor management of services network, which contributes to the disruption of services, lack of universal care, long lines, among other inconveniences, thus

creating a social demand in abundance that will need a new direction of health system to supply it.

The HULW has performed heart surgery in partnership with the state Department of Health, however, due to lack of financial resources allocated to this service, that is, after the end of this partnership, surgeries were discontinued in 2010, and by December 2013, were still disabled, harming the poor population in the city of Joao Pessoa and the state of Paraiba, since the HULW is a referral and high complexity hospital.

In addition, cardiovascular disease (CVD) remains the leading cause of death and disability in the elderly, even after reduction of smoking, and increased access of this population to primary care,²² so this part of the population is the most prone to coronary surgical procedures.

With regard to the quantitative deaths in the elderly during or resulting from surgical procedures, in 2010, there were only three elderly deaths in the state of Paraiba arising from possible surgical complications, with one death in Joao Pessoa city.²³ In this study, there were no reported deaths of elderly directly related to surgeries.

Table 3 shows the reasons for the suspension of surgeries at the hospital in question. Of the 861 surgeries scheduled for elderly patients during the study period, 16%

were not carried out, mainly due to organic complications from the patients themselves or because of their absence in the Surgical Ward.

Table 3. Reasons of suspensions

Reasons of suspension	n	%
Physiological reasons	35	25.0
Patient did not attend	15	10.8
Lack of adequate physical structure	6	4.3
Absence of the doctor in charge	6	4.3
Patient did not follow the preoperative recommendations	5	3.5
Organizational failures of sectors in charge	4	2.8
Reasons not registered	59	42.0
Other reasons	9	7.3
Total	139	100

Source: Record books of Surgical Ward and CEROF, 2012.

Of surgeries, 35 (25%) were suspended by the fact that patients did not have appropriate physiological conditions, the main causal factor to the increase in blood pressure.

In a study on the surgery cancellation rate in a university hospital, it was found that in a period of three months, there was a 19.91% cancellation rate, a total of 1,191 surgeries.²⁴ Despite the HULW suspension rate is lower than that found in the literature, it can be inferred that this inferiority is illusory if we look at the proportionality of the demand for surgeries. Obviously, the HULW carries out few surgeries in relation to the demand of users who expect an opportunity to perform the procedure. However, studies about the suspension of surgery in elderly patients are scarce.

Thus, underreporting and omission of surgical suspension are common practices in health institutions. These practices undermine productivity indicators, making the rates are falsely interpreted. However, some studies report the possible occurrence of underreporting. In our institution, it is observed in some cases that the physician guides the surgical preparation to the patient, but does not deliver the surgery notice to Surgical Ward, thereby making the clinic has lower suspension rates than the actual ones.²⁵

The lack of registration for the reasons of suspension is also an obstacle to meticulous understanding of faults that cause the postponement/cancellation of surgery, which complicates the decision-making to solve the real impediments. When compared with other age groups, the elderly frequent health services more often, have a higher incidence of hospitalization and have longer hospital stay time, because of the multiplicity of conditions.

Surgical suspension negatively influences the health institution due to the increase in

operational and financial costs, reducing the efficiency of the service offered. Likewise, it influences the patient and their family in a devastating way, resulting in physical, emotional and socio-economic losses.²⁶

Each scheduled and performed surgery generates health expenditure. The cost of hospitalization per capita tends to increase as the age increases, from R\$ 93.05 per individual, aged from 60 to 69 years old, to R\$ 178.95 in the elderly who are 80 years old or more.²⁷ This makes the population aging a major challenge for public policies and social sectors, generating a major impact on health care costs.²⁸ In a study aimed at comparing which age structure demands more spending on health system in Curitiba, the elderly were at the top of the expenses, together with children under one year of age.²⁹

In the year 2012, approximately R\$ 436,265.24 were spent with surgical procedures in the elderly in hospital under study. According to the *Instituto de Estudos de Saúde Suplementar* (Institute of Supplementary Health Studies), both in outpatient or hospital level, projections of spending on Brazilian population health from 2010 to 2030, will have a significant rise with the elderly population. In the outpatient panorama, it will increase from 31.2% of expenditures in 2010 to 42.8% in 2030; and in the hospital environment, spending will increase from 28.5% in 2010 to 41.9% in 2030. These projections expose the increase in medical and hospital expenses in older age groups (over 60 years old), which confirms the great impact of aging on the public purse, requiring special attention.³⁰

Considering the results, it is understood that, for better provision of the service, it is necessary to hire human resources to match the demand and current legislation. Furthermore, there was a finding of precarious registration system in HULW as

scheduling and surgical procedures, being restricted to handwritten books and comprising large heap. In this scenario, we can highlight the need for a restructuring in registration system in order to avoid underreporting that compromise the accuracy of the data.

CONCLUSION

It was found that surgical procedures were more prevalent in females, confirming other studies that showed an increased demand for women in the search for health treatments. The prevailing surgery was cataract, pathology that affects the aging of the lens and is one of the most frequent eye diseases in elderly, followed by correction of pterygium and cholecystectomy.

There were still a very small number of deaths. Thus, while the elderly are more vulnerable to complications with regard to elective surgery, this risk decreases, since there is a more systematic preparation to the surgical procedure. Another important factor in this reduction is the incorporation of modern machinery. Underreporting also stood out, especially on the use of manual record books, which contributes to the precariousness of information.

There were also a significant number of suspension surgeries, caused by reasons related to the health of patients. However, the hospital reporting system is very precarious, and the risk of data omission may underreport this result. The suspension of surgical procedures in elderly patients causes not only financial damage to the health system, since there is a whole preparation of professionals, materials and rooms, but also frustration regarding the health system and the very condition in which the individual is, without expectations and perspective of recovery from the problem faced.

University hospitals are responsible for the training of numerous health professionals and for preventing and promoting health of the Brazilian population. For this purpose, they operate with numerous equipment, professional experts and infrastructure, but these hospitals are facing serious and numerous obstacles in the face of sharp dereliction process that permeates the Social Policies, which affects greatly in the management of these establishments. The HULW is also at this juncture.

The HULW surgery service points weaknesses in the structure and human resources incompatible with its reference in the state of Paraíba. During this study, the

Surgical Ward was interdicted by the Regional Council of Medicine, because of various irregularities.

Finally, it is noteworthy that the epidemiological profile of the elderly shows a prevalence of chronic degenerative diseases, however acute and sub-acute diseases that often lead this population to surgical procedures is still a scarce theme in the literature. As a result, this study revealed situations that characterize the network of university hospitals in Brazil, in the hope that authorities responsible for public health management may develop policies and strategies to improve the services offered by reference hospitals.

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