SUSPENSION OF SURGERY AT A UNIVERSITY HOSPITAL

Suspensão de cirurgias em um hospital universitário

Suspensión de la cirugía en un hospital universitario

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ABSTRACT: Objectives: To analyze the incidence of surgery suspension, to categorize surgical cancellations into medical specialties, and to identify its main causes. **Method:** Quantitative, descriptive, and retrospective study carried out in a teaching hospital in the Northeast region of Brazil. The population was composed of 1,600 elective surgeries scheduled from January to September in 2013. Data analysis was performed through descriptive statistics. **Results:** The overall rate of surgical procedure cancellation was 19.5%. The most frequent suspensions occurred in pediatric, oncology, and general surgeries. Twenty-three causes for surgery cancellation were found in the institution, amongst them patients' absence and institutional conditions represented mainly by problems with material, human, and organization service-related resources. **Conclusion:** The rate of surgery cancellation refers to the need of reducing it; for such, it is necessary to monitor this indicator continuously and to implement strategies for its reduction.

Keywords: Surgery department, hospital. General surgery. Perioperative nursing. Quality indicators, health care.

RESUMO: Objetivos: Analisar a incidência de suspensão de cirurgias, categorizar os cancelamentos cirúrgicos por especialidades médicas e identificar as suas principais causas. **Método:** Estudo quantitativo, descritivo, retrospectivo, realizado em um hospital de ensino do nordeste brasileiro. A população foi constituída por 1.600 cirurgias eletivas programadas no período de janeiro a setembro de 2013. A análise dos dados foi realizada através de estatística descritiva. **Resultados:** A taxa global de cancelamento de procedimento cirúrgico foi de 19,5%. As maiores frequências de suspensão ocorreram nas cirurgias pediátricas, oncológicas e gerais. Foram identificadas 23 causas para o cancelamento de cirurgias na instituição, dentre elas destacaram-se o absenteísmo do paciente e as condições institucionais, representadas principalmente por problemas com recursos materiais, humanos e organização do serviço. **Conclusão:** A taxa de cancelamento de cirurgia remete à necessidade de reduzi-la; para tal, faz-se mister o monitoramento contínuo desse indicador e a implementação de estratégias para sua redução

Palavras-chave: Centro cirúrgico hospitalar. Cirurgia geral. Enfermagem perioperatória. Indicadores de qualidade em assistência à saúde.

RESUMEN: Objetivos: Analizar la incidencia para suspensión de cirugías, categorizar las cancelaciones quirúrgicas por especialidades médicas e identificar sus principales causas. **Método:** Estudio cuantitativo, descriptivo, retrospectivo realizado en un hospital universitario del noreste del Brasil. La población constituida por 1.600 cirugías programadas de enero a septiembre de 2013. El análisis de datos se realizó utilizando estadística descriptiva. **Resultados:** La tasa global para cancelación de cirugías fue de 19,5%. Los mayores porcentajes de suspensión fueron encontrados en las cirugias pediatricas, oncologícas y las generales. Se identificaron 23 causas para cancelación de cirugías en la institución, entre ellas se destacaron la ausencia del paciente y las condiciones institucionales, representadas principalmente por problemas con recursos materiales, humanos y organizacionales. **Conclusión:** Es necesario controlar e implementar estrategias para reducir la taxa de suspension encontrada.

Palabras clave: Servicio de cirugía en hospital. Cirugía general. Enfermería perioperatoria. Indicadores de calidad de la atención de salud.

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INTRODUCTION

A surgical procedure performance involves extensive use of human, material, and technological resources, and promotes alterations in the psychological profile and in the financial resources of patients and their relatives[1].

Costs of these procedures correspond to 40.0% of the total expenses of a hospital[2]; therefore, inappropriate management of the operative block has a significant impact on health services units, mainly on public institutions where resources are scarce[3].

Thus, the surgical unit performance should be measured in order to subsidize managers' decisions and to provide a good care with professional excellence, effective use of resources, low risk for the patient/client, and high level of user's satisfaction[4].

One of the indicators applied for assessing the efficiency of a surgery service is the rate of procedures suspension, which considers all reasons for interruption, whether related to the patient or to the hospital[5].

In the last decade, the theme has received great attention from health-related investigators in all the world[6]. However, we need to open our eyes in order to understand the perspectives of all factors involved in this process and to identify its causes, for improving the quality of the provided service and relieving the patient and family's suffering[7].

We found diverging rates of surgery suspension in the international literature, which vary between 0.37% (found in a Taiwanese hospital[8]) and 28.0% (found in a Nigerian study[6]).

In Brazil, a review study that assessed publications from the years of 1990 to 2010 identified surgery suspension rates that varied between 5.1 and 33.0%, and their main causes referred to clients, due to their lack of clinical conditions or non-attendance to hospitalization[9]. A subsequent investigation, which assessed the reasons for surgery suspension, using the root-cause analysis method, showed as main reasons: improper material (42.0%), dirty material (29.0%), lack of operation room (12.9%), lack of anesthetist (9.7%), and patient's conditions (6.4%)[10]. Due to the repercussions of surgery cancellation to users and hospitals and to the importance of this indicator for managing the operative block, the following questioning was raised: "What is the frequency and main causes of surgery suspension in a university hospital of the Northeast Region of Brazil"?

OBJECTIVE

Therefore, this study aimed at analyzing the incidence of surgery suspension at a university hospital of the northeast region of Brazil, at categorizing the most predominant surgical cancellations into medical specialties, and at identifying the main causes of surgery cancellations in a university hospital.

METHOD

A retrospective study of descriptive nature and quantitative approach was carried out in a medium-sized teaching hospital that provides medical-hospital care of medium complexity, which is a reference in the Brazilian Unified Health System (SUS, acronym in Portuguese).

The institution is composed of 123 beds, including 5 beds in the Intensive Care Unit (ICU). The surgical center includes 4 operation rooms for elective procedures, working from Mondays to Fridays, since 07 a.m. to 07 p.m. It performs 200 surgical procedures, on average, per month. The surgical specialties are maxillofacial, head and neck, general, digestive system, oncology, pediatric, plastics, breast, gynecology, urology, intestine, rectum, and anus.

The population was composed of elective surgeries, including outpatient surgeries performed in the surgical center, which were scheduled in the period from January to September in 2013. The choice for such time period was made because a systematized printed instrument was implemented in the institution in January of that year, with the purpose of registering information related to surgery suspension.

Medical records whose surgical procedures had been conducted in the surgical outpatient clinic (located therefore out of the surgical center) were excluded.

Every scheduled surgery that by any reasons did not happen in the scheduled date was established as a suspended surgery.

A nursing undergraduate student collected data every week by using an instrument prepared for such purpose, which includes records of performed and suspended surgeries.

Data regarding suspended surgeries are divided into groups of cancellation causes, as follows:

- personal conditions: patient's non-attendance, delay, or abandonment;

- clinical conditions: exams alterations, change or no clinical condition, improvement of clinical situation, respiratory infections, other infections, cardiovascular problems, high systemic blood pressure;
- institutional conditions: surgeon's non-attendance, no anesthetist, problems with material resources, no blood components, no ICU space, no exams, no ward space, scheduling errors, date alteration, hospitalization difficulty, no team communication, no patient's proper preparation;
- other causes and non-mentioned causes.

They are also divided into surgical specialties: pediatric, general, digestive system, oncology, plastic, mammary, colon and rectal, otolaryngology, gynecology, urology, head and neck, among others.

The descriptive statistics of simple frequencies was performed for data analysis. The surgery suspension rate was calculated through the number of suspended surgeries divided by the total amount of surgeries that had been scheduled in a certain period and multiplied by one hundred.

The guidelines of the Health National Council Resolution no. 466/2012 were followed. The University Hospital Ethics Committee from *Universidade Federal de Sergipe* approved the study under CAAE no. 24871014.1.0000.5546, through platform "Brasil".

RESULTS

During the studied period, 1,287 surgeries were performed and 13 were suspended among the 1,600 scheduled surgeries, with a 19.50% surgical cancelation rate.

The surgical specialties presenting the highest frequencies of surgery suspensions were pediatric surgeries (26.8%), followed by oncology surgeries (14.4%), and general surgeries (13.4%). The specialties with the lowest rates were head and neck (1.9%) and urology (1.0%) (Table 1).

After analysis of surgery suspensions causes, we found that 50.8% of the occurrences were associated with institutional conditions and 43.5% with the patient, due to personal (22.4%) or clinical conditions (20.8%) (Table 2).

Among the most frequent reasons due to personal conditions is patient's non-attendance or delay. The causes regarding the patient's clinical conditions mainly include respiratory system infections, followed by systemic blood pressure raise and change or no clinical conditions.

Among the causes related to institutional conditions, the highest and with similar percentages were problems with material resources, no ward space, and surgeon's non-attendance. And the less frequent included no anesthetist, no ICU space, no examinations, and surgery suspension by the anesthetist.

DISCUSSION

The rate of surgery cancellation used for hospital management in this study – this datum translates the efficacy of operation rooms and it is considered a service quality indicator – was similar to those found in national investigations conducted in teaching hospitals of the states of São Paulo, Minas Gerais and Paraná, which identified 17.3, 17.0, and 14.1% rates, respectively[11-13].

Nevertheless, when compared to international research, these rates are quite above those found in foreign university hospitals. We can quote 8.80% in Korea, 4.40% in Lebanon, 0.37% in Taiwan, and 0.21% in China[8,14-16]. This is an unfortunate finding, since it is partially translated by low quality of the provided health services. This happens

Table 1. Frequency distribution of suspended surgeries according to surgical specialties in Aracaju, Sergipe, Brazil, 2013.

Surgical specialty	n	%
Pediatric	84	26.8
Oncology	45	14.4
General	42	13.4
Digestive system	31	9.9
Plastic	28	8.9
Mammary	22	7.0
Colon and rectal	18	5.8
Gynecology	12	3.8
Otolaryngology	11	3.5
Non-mentioned surgery	11	3.5
Head and neck	6	1.9
Urology	3	1.0
Total	313	100.0

because cancellations immediate consequence include non-optimization of operation rooms use, among many other factors.

Table 2. Distribution of surgical suspensions causes according to personal, clinical, and institutional conditions in Aracaju, Sergipe, Brazil, 2013.

Causes of surgery suspension	n	%
Personal conditions		
Patient's non-attendance or delay	70	22.4
Abandonment	1	0.3
Subtotal	71	22.7
Clinical conditions		
Respiratory system infections	24	7.7
High systemic blood pressure	17	5.4
Change or lack of clinical conditions	10	3.2
Other infections	6	1.9
Clinical condition Improvement	4	1.3
Alterations in exams	3	1.0
Cardiovascular problems	1	0.3
Subtotal	65	20.8
Institutional conditions		
Material resources-related problems	27	8.6
Lack of ward spaces	21	6.8
Surgeon's non-attendance	20	6.3
Scheduling errors	18	5.8
Surgery suspension by surgeon	17	5.4
Lack of patient's proper preparation	14	4.5
Hospitalization difficulty	11	3.5
Date alteration	10	3.2
Lack of blood components	7	2.2
Lack of anesthetist	4	1.3
Lack of ICU space	4	1.3
Lack of exams	3	1.0
Surgery suspension by anesthesiologist	2	0.6
Lack of team communication	1	0.3
Subtotal	159	50.8
Other causes	11	3.5
Non-mentioned causes	7	2.2
Total	313	100.0

With regard to surgical specialties, pediatric procedures presented the highest suspension rate, which is four times higher than studies conducted in the southeast region of the country; for instance, studies of the State of São Paulo presented rates of 14.4 and 6.4%[13,11]. Investigators attribute pediatric surgery suspensions to the ineffective communication between professionals and children's relatives. They also declare that information is superficial and incomplete; therefore, they leave doubts and create feelings like anxiety, fear, insecurity, and distress[11].

Among the causes of surgery suspension, the highest percentage found was related to client's non-attendance or delay. This result is similar to that pointed out by investigations carried out in teaching institutions from the cities of the southeast region of Brazil, which show 18.1% and 18.5%[17,11].

The percentage found in Aracaju (22.4%), a city in the northeast region of Brazil, is relevant because it is expressively lower than the rate found in a study conducted in a hospital of Fortaleza (39.9%)[5]. Such information can be explained because, in the institution under study, surgeries are scheduled a few days before the procedure and, in the other institution, scheduling is done very early.

In the present study, the percentage seen in the client's non-attendance or delay variable is higher than that of studies conducted in the United Kingdom (6.8%), Lebanon (11.1%), and India (4.1%)[18,14,19]. Patient's non-attendance generates waste of material, time and staff, besides the fact that another patient loses the opportunity of scheduling his/her surgery; thus, the service of surgical block and related units is not optimized[20].

Therefore, a better investigation about the reason of client's non-attendance is necessary to plan intervention strategies. A study on user's absenteeism shows the importance of conducting an active search to confirm the presence of an user in the surgery and/or modifications in the surgical procedure scheduling system, because some of the surgeries are scheduled far in advance[11,17].

In the present study, the third cause of cancellations corresponded to clinical conditions, with a rate approximately twice higher than that found in a university hospital of the State of São Paulo, and 1.6 times lower than that found in a large-sized hospital in Taiwan[11,8].

According to literature, many of the cancelled cases could have been recognized earlier and therefore could

have enabled the decision of corrective measures. It is an agreement between the authors that the existence of anesthetic outpatient clinics and preoperative visits reduces the number of surgical suspensions, because they allow the prediction of possible clinical complications[8,20].

The institutional conditions significantly contribute to the suspension of surgery procedures in the studied health unit, and they are the main cause responsible for half of these suspensions and appear as the second most frequent group. Issues related to the organization, scheduling errors, impossibility of surgeon's attendance, and date alteration, explain such fact. The same result was found in a study conducted at a teaching hospital in Paraná, Brazil, which concluded that the lack of specific materials and equipment was also the second cause of surgery cancellation; therefore, it could be a challenge for public institutions[12]. In them, the purchasing process is low and bureaucratic and the lack of interest in the existing resources is increasingly higher[12].

The frequency of surgery suspension causes is different and depends on the reality of each institution; however, the encountered problems are common and should be monitored through indicators that will subsidize planning and evaluation of improvement actions.

Although the item regarding team communication failure presented low percentage, in this study, ineffective communication seems to be the central and subliminal cause of several revealed items, and its impact might be more relevant than the presented numbers.

CONCLUSION

The study found an overall rate of surgery cancellation similar to the national rates and higher than international ones. The highest suspension frequencies occurred in pediatric, oncology, and general surgeries. Twenty-three causes for surgery cancellations were found in the investigated institution, among them patient's absenteeism and institutional conditions received higher attention, mainly represented by problems with material, human, and organization service-related resources.

Hence, monitoring the indicators related to surgery suspension should be a continuous action and intervention strategy planning should be subsidized with the aim of decreasing the rate of suspension and consequent minimization of trouble caused for clients, relatives, and institution.

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