

ANALYSIS OF NURSING DIAGNOSIS: DELAYED SURGICAL RECOVERY OF ADULT AND ELDERLY PATIENTS

ANÁLISE DO DIAGNÓSTICO DE ENFERMAGEM: RECUPERAÇÃO CIRÚRGICA RETARDADA EM ADULTOS E IDOSOS HOSPITALIZADOS

ANÁLISIS DEL DIAGNÓSTICO DE ENFERMERÍA EN EL RETRASO DE LA RECUPERACIÓN QUIRÚRGICA EN ADULTOS Y ANCIANOS HOSPITALIZADOS

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ABSTRACT

The objective of this study was to analyse nursing diagnosis of delayed surgical recovery in adult and elderly patients. It is a descriptive observational prospective study using a quantitative approach. Randomized sample included 69 subjects monitored since the first day after surgery until hospital discharge from a public university hospital in the State of Rio de Janeiro, Brazil. The production data instrument assessed the presence or absence of defining characteristics and related factors. The evaluators were trained in order to ensure an accurate diagnosis assessment. Twenty-three (33.4%) subjects were diagnosed with delayed surgical recovery. Most of them were female, average age was 52 years old and average length of stay was 14 days. Regarding the defining characteristics in both groups, elderly patients presented "moving difficulties" and "need for self-care". Amongst the adults there was a prevalence of "loss of appetite, nausea and discomfort". As to the related factors, "expectations after surgery – anxiety" was only present in adults; and "pain and obesity" only in elderly people. Although diagnosis in those groups was prevalent, defining characteristics and related factors were different. Nevertheless, diagnosis causes limitations in the two groups, which directly influences the quality of care. Therefore, we recommend an early diagnosis regarding nursing practice.

Keywords: Surgical Procedures, Operative; Perioperative Nursing; Nursing Diagnosis; Hospitalization.

RESUMO

O objetivo deste estudo foi analisar o diagnóstico de enfermagem recuperação cirúrgica retardada em adultos e idosos hospitalizados. Tratou-se de estudo de abordagem quantitativa, descritivo, observacional e prospectivo. Amostra aleatória foi composta de 69 sujeitos acompanhados desde o primeiro dia de pré-operatório até a alta hospitalar, em um cenário de hospital universitário público de grande porte do Estado do Rio de Janeiro. Utilizou-se um instrumento de produção de dados para avaliação da presença ou ausência das características definidoras e dos fatores relacionados. Os avaliadores realizaram treinamento para minimizar e garantir acurada avaliação do diagnóstico. Obtiveram-se 23 (33,4%) sujeitos com o diagnóstico de recuperação cirúrgica retardada. Houve predomínio do sexo feminino, a média de idade foi de 52 anos de idade e a média de internação foi de 14 dias. Quanto à análise das características definidoras nas duas populações, observaram-se exclusivamente nos idosos "dificuldade para movimentar-se" e "precisa de ajuda para o autocuidado". Nos adultos, foram observados: perda de apetite com náuseas e desconforto. Sobre os fatores relacionados, estiveram presentes, somente nos adultos, expectativas pós-operatórias – ansiedade. E, nos idosos, dor e obesidade. Demonstra-se, contudo, que, apesar de prevalente, o diagnóstico em ambas as populações, as características definidoras e os fatores relacionados foram diferenciados. Porém, a presença do diagnóstico em si causa limitações nos dois grupos, influenciando diretamente os padrões de qualidade da assistência. Recomenda-se, portanto, evidenciar precocemente esse diagnóstico na prática clínica de enfermagem.

Palavras-chave: Procedimentos Cirúrgicos Operatórios; Enfermagem Perioperatória; Diagnóstico de Enfermagem; Hospitalização.

RESUMEN

El objetivo del presente estudio fue analizar el diagnóstico de Enfermería en el Retraso de Recuperación Quirúrgica en adultos y ancianos hospitalizados. Se trata de un estudio de enfoque cuantitativo, observacional, prospectivo de diseño descriptivo. La muestra aleatoria consistió en 69 sujetos seguidos desde el primer día pre-operatorio hasta el alta hospitalaria. El estudio se llevó a cabo en un gran hospital público universitario del Estado de Río de Janeiro, Brasil. Se utilizó un instrumento de producción de datos para evaluar la presencia o ausencia de características definidoras y factores relacionados. Los evaluadores realizaron entrenamiento para minimizar y garantizar la evaluación precisa del diagnóstico. Se encontraron

23 (33,4%) sujetos con diagnóstico de Retraso en la Recuperación Quirúrgica. Hubo predominio del género femenino, con edad media de 52 años y 14 días promedio de internación. Con relación a las características definidoras en las dos poblaciones, los ancianos demostraron principalmente dificultad para moverse y necesidad de ayuda para cuidarse. Los adultos presentaron pérdida de apetito con náuseas y discomfort. Cuanto a los factores relacionados, en los adultos se observaron expectativas pos-operatorias – ansiedad y en los ancianos dolor y obesidad. Se demuestra que, a pesar de prevalente, el diagnóstico en las dos poblaciones, las características definidoras y los factores relacionados son diferentes. El diagnóstico en sí causa limitaciones en los dos grupos, influyendo directamente en los niveles de calidad de la atención. Por lo tanto, se recomienda evidenciar precozmente dicho diagnóstico en la práctica clínica de enfermería.

Palabras clave: Procedimientos Quirúrgicos Operativos; Enfermería Perioperatoria; Diagnóstico de Enfermería; Hospitalización.

INTRODUCTION

Perioperative nursing provides surgical care to adult and elderly patients from admission to hospital discharge. A longer than expected stay of a surgical patient can be diagnosed as delayed surgical recovery¹, which is an extension of the number of postoperative days required to initiate and perform daily activities.² Delayed surgical recovery is a phenomenon of global concern because it affects postoperative outcomes and costs. Due to the increase in life expectancy each year an estimated 63 million people undergo surgical treatment for traumatic injuries and another 31 million to treat diseases.³ This indicates the rapid growth in rates of surgical procedures, which requires more attention to patient safety to reduce complications, mortality, readmissions and hospital costs.³ Hence it is important to promote research on nursing diagnosis of delayed surgical recovery that, although relevant for clinical practice, is not much described in the literature. Researchers only came across four studies addressing such diagnosis directly. The first study described it in an elderly male patient hospitalized for surgical prostatectomy⁴; the second was a conceptual analysis of diagnosis; the third consisted of a cross-sectional descriptive exploratory study on measures of clinical accuracy⁶; and the last one was a sectional observational study on diagnosis incidence in a surgical population.¹ None of the studies, however, was a longitudinal follow-up research from preoperative to discharge.

Most studies describe clinical variables that contribute to delayed surgical recovery in isolation or deal with global aspects of diagnosis, e.g. studies on postoperative pain; healing of surgical wound infection; nursing diagnosis during perioperative; feelings of postoperative patients; and, especially, postoperative complications.^{4,7-9}

In order that nursing diagnosis are incorporated into nursing practice, research that corroborate evidence-based diagnosis (defining characteristics and related factors) and explore its incidence in different population groups should be carried out.¹⁰

Therefore, the description of diagnosis of delayed surgical recovery may help to reduce surgical complications, provide safe care and cut costs with readmissions or late discharges. In such cases, it is fundamental for perioperative nursing to correlate the patient's clinical condition to defining characteristics and related factors.² Defining characteristics, i.e. clinical indicators to diagno-

sis are: postponement of return to work; movement difficulties; disruption of surgical wound healing; fatigue; perception that more time for recovery is required; loss of appetite with or without sickness; help for self-care; and pain or discomfort.^{1,2} Factors that contribute to delayed surgical recovery are: pain; postoperative expectations; postoperative infection at the incision site; obesity; extensive surgery; and prolonged surgery.^{1,2}

Factors that make patients more vulnerable to the defining characteristics of the diagnosis studied should be recognized. The following study question was raised: "what are the related factors and defining characteristics of nursing diagnosis of delayed surgical recovery in adult and elderly patients?" This study aimed at analysing the incidence of such diagnosis in this specific population group.

MATERIAL AND METHODOLOGY

This is a quantitative prospective observational research. The setting of the study was a university hospital in Rio de Janeiro. Surgical specialties selected were: orthopaedics, gynaecology, neurosurgery, thoracic, ENT, maxillofacial, head and neck surgery and urology.

Sample was selected randomly. The hospital had 115 beds for surgery. Study subjects were chosen according to the following inclusion criteria: patients over 21 years of age; patients in their first preoperative day; and patients that could be monitored throughout hospitalization. Exclusion criteria were: subjects without clinical research conditions; unaccompanied patients; discharge before surgery; need for postoperative admission to intensive care unit; and readmission. No distinctions were made regarding colour/ethnicity, social class or group.

Sixty-nine patients participated in the research. Data was collected from July to September 2012, through a questionnaire including the variables of nursing diagnosis defining characteristics and related factors of delayed surgical recovery. These were decoded according to scales and assessment instruments or indicators (Table 1).

Evaluators were trained to minimize the so-called imperfect gold standard bias¹⁰ to ensure a more accurate assessment of the study subjects. Training was carried out with the five evaluators. It consisted of providing theoretical support for

identification of diagnosis; applying 12 different clinical cases, 50% with nursing diagnosis of delayed surgical recovery and 50% with no diagnosis in the study, with three replicates each; evaluating effectiveness (identifying correct diagnosis), false-negative (identifying diagnosis that were related to the study), false-positive (diagnosis with few clinical signs and symptoms - diagnostic errors) and tendency of each evaluator.

Table 1 - Variables of study analysis. Rio de Janeiro (RJ), 2012

Element of nursing diagnosis of delayed surgical recovery	Variables analysed
Postponement of return to work	Hospital stay and post-operative recovery longer than expected
Movement difficulties	Help needed to change lying position, to sit down, to get out of bed, to sit in a chair, to walk around; to go to the bathroom
Disruption of surgical wound healing	Wound dehisced; signs of inflammation (erythema, redness, heat and swelling); presence of exudate and /or drainage 48/72 hours postoperatively
Fatigue	Prolonged periods in bed and excessive tiredness for walking
Loss of appetite and nausea	Food acceptance less than 50%; stomach pain or reflux; use of antiemetic drugs
Loss of appetite no nausea	Food acceptance less than 50%; appetite loss
Help for self care	The Lawton scale
Discomfort	0 to 10 pain scale
Pain	Visual analogue scale (VAS)
Postoperative expectations	Negative feelings after surgery
Surgical site infections	Surgical site infection reported in medical record; exudate or purulent drainage; erythema; separation of deep tissues; isolation of bacteria; use of antibiotics; fever and hospitalization that exceeds 14 days
Obesity	Body mass index (BMI = weight (kg)/ height ²) ≥ 30
Extensive surgery	Abdominal, thoracic, vascular, thoracic spine with instrumentation, hip replacement and cancer surgery
Prolonged surgery	Surgery duration longer than the average reported in the literature

Two trainings courses were required to obtain acceptable levels of correct identification of diagnosis. In the first training course, only evaluator number 3 succeeded; evaluators 1, 2, 4 and 5 had a considerable false-negative rate, i.e. were conservative to infer diagnosis. These evaluators were invited back for a second training course, in which they tried to identify the reason for incorrect inference. Subsequently, the previous steps were repeated and results were as follows: one for efficiency;

zero for false-negative; zero for false-positive; and one for tendency. Therefore, the continuity of the study and the presentation of a standard operating procedure for data collection among the research subjects were ensured.

During data collection, the research sample was daily monitored from hospital admission to discharge; i.e., the same subject was daily monitored during hospitalization. Sixty-six days (thoracic surgery) was the maximum follow-up period and three days (clinics Orthopaedics, ENT and Gynaecology) the minimum. One day was the shortest monitoring postoperative period and twenty-eight the largest, both in Otorhinolaryngology.

Data were transferred to an Excel spreadsheet and classified according to the following variables: age, sex, type of surgery, date of admission, surgery and discharge. Defining characteristics and related factors were listed according to their presence or absence during monitoring. These variables were analysed by descriptive statistics, considering absolute and percentage frequency.

The study complied with ethical and legal specifications of Resolution 422/12 of the Department of Health. The study participants signed a Statement of Informed Consent approved by the Research Ethics Committee (CAAE No. 06566112.5.0000.3259).

RESULTS

Twenty-three (33.4%) patients were diagnosed with delayed surgical recovery: 15 were female (65.2%); the average age was 52 years and the median 55 years. However, comparing diagnosis by age group, the study revealed that 14 (60.9%) subjects were aged ≥ 50 years (Table 2).

The average length of hospitalization was 14 days, which varied according to the clinical and surgical specialties and the diagnosis of delayed surgical recovery (Table 3).

Nursing diagnosis of delayed recovery depended on the subject presenting at least one defining feature and one related factor. Furthermore, a single individual can present one or more of these characteristics or factors (Table 4).

Table 2 - Study subjects according to age group and nursing diagnosis of delayed surgical recovery. Rio de Janeiro (RJ), 2012

Age group	Subjects (%)	Subjects with delayed surgical recovery
21-30	8(11,6)	4
31-40	14 (20,3)	2
41-50	11 (16)	3
51-60	15 (21,7)	6
61-70	15 (21,7)	6
71-80	6 (8,7)	2
Total	69 (100)	23

Table 3 - Average number of days of hospitalization and subjects diagnosed with delayed surgical recovery due to surgery. Rio de Janeiro (RJ), 2012

Type of surgery	Average days	Subjects with delayed surgical recovery
Neurosurgery	12,28	3(13)
Urology	10,14	6 (26,2)
Cardiothoracic surgery	35	2(8,7)
Orthopaedic surgery	11,66	5(21,7)
Gynaecological surgery	10,78	4(17,4)
ENT surgery	8,2	3(13)
Total		23(100)

Table 4 - Defining characteristics and related factors in subjects with nursing diagnosis of surgical recovery according to age (n = 23). Rio de Janeiro (RJ), 2012

Defining characteristics	Adult patients	Elderly patients
Postponement of return to normal activities	4	4
Movement difficulties	0	2
Disruption of surgical wound healing	5	6
Fatigue	2	3
Perception of more time needed for recovery	3	4
Loss of appetite and nausea	3	1
Loss of appetite no nausea	2	2
Need help for self-care	0	2
Discomfort	6	2
Total	25	26
Related factors	Adult patients	Elderly patients
Pain	0	2
Post-operative expectations – anxiety	2	0
Surgical site infection	3	4
Obesity	0	4
Extensive surgery	6	7
Prolonged surgery	8	4
Total	19	21

The defining characteristics of the elderly group were basically “movement difficulties” and “need help for self-care”. In adult patients, “loss of appetite with nausea” and “discomfort” were more frequent. Regarding the related factors, only adult patients presented “post-operative expectations – anxiety”; among the elderly “pain” and “obesity” were identified. The factor related to “prolonged surgery” was 50% higher among adults than among the elderly.

Although prevalent in both groups, defining characteristics and related factors were differentiated. The adult group was associated with surgical complications and early chronic disease detected in adulthood (Table 5). In the elderly group, the factors related to the ageing process, i.e. a decrease in functional ability prevailed.

Table 5 - Other factors (comorbidities) present in subjects with nursing diagnosis of delayed surgical recovery due to age (n = 23). Rio de Janeiro (RJ), 2012

Other factors (comorbidities)	Adults patients	Elderly patients
Diabetes mellitus	3	3
Hypertension	6	8
Neoplasia	1	6
Dyslipidaemia	0	1
Anaemia	7	2
Total	18	22

Elderly patients with delayed surgical recovery were associated with chronic diseases, such as hypertension, diabetes *mellitus* and cancer. Hypertension and anaemia prevailed amongst the adult patients.

DISCUSSION

A lengthy perioperative phase was mainly due to four factors: date for surgery not defined; patient still being examined and undergoing perioperative examinations; surgery cancelling; or post-operative complications. These factors contributed to confirm diagnosis of delayed surgical recovery, i.e. postoperative length of stay. The increase in postoperative days also contributed to the establishment of the first defining feature described by taxonomy: it postpones return to daily activities.^{1,2,5} This element was present in equal numbers in the adult and elderly populations. However, unlike adults that reported mainly difficulty in returning to work, elderly patients experienced difficulty in returning to daily activities, as well as dependence on others for self-care¹¹.

Hospital admissions were highest for thoracic surgery; however, that group did not register occurrences of delayed surgical recovery. This was due to the fact that those patients had a prolonged preoperative hospitalization for improvement in lung function, which reduced incidence of complications after the procedure. Study results corroborate other researches that pointed out that the preoperative should compensate and optimize respiratory function with breathing exercises that promote lung expansion and, consequently, blood oxygenation after anaesthesia.¹²

Postoperative complications among elderly patients were mainly related to frailty associated with ageing and its multifactorial aspects¹¹. These changes meant higher incidence of defining characteristics associated with reduced moving ability and loss of functional ability.^{8,13}

Such changes associated with ageing may explain the uniqueness of defining characteristics "movement difficulties" and "need for self-care". Functional ability of elderly people undergoing surgery should be assessed.¹⁴ If diminished, it may extend recovery of normal physiological function. Daily activities become more difficult, causing dependency and delaying surgical recovery. In adults, the relevant defining characteristics were "discomfort" and "loss of appetite with nausea", both associated with nausea. Although underestimated by the health team, nausea and vomiting symptoms are impressively high; apart from discomfort they may delay recovery and increase hospital costs.¹⁵

In late postoperative period (72 hours after surgery), catabolic state associated with poor nutritional intake can lead to malnutrition, affect wound healing and the immune system. Malnutrition can contribute to pressure ulcer formation and bleeding at the incision site, increasing the risk of dehiscence and infection of surgical wounds.¹⁶ The defining characteristic "disruption of surgical wound healing" was present in 47.8% of the subjects – 54% in the elderly group and in 46% in the adult group. Such feature was put in evidence mainly because of disruption of surgical wound healing which can be influenced by depth and extent of the wound, nutrition, infection, tissue perfusion, chronic diseases (diabetes, hypertension and cancer), obesity, drug therapy, foreign bodies, age and location of the wound.¹⁶

"Disruption of surgical wound healing" was mainly associated with postoperative infection at the incision site. This referred to surgical site infection (SSI) caused by an infectious agent.¹⁷ Studies revealed that the main causes of infections are: prolonged perioperative; high bed occupancy rates; low standard of asepsis in the operating room; inadequate planning of the surgical centre; patient age; obesity; malnutrition; diabetes; use of steroids and immunosuppressive drugs; type, duration and time of surgery; and position of drains. Both adult and elderly subjects presented these elements.^{8,11}

Physical and mental fatigue was characterized by energy expenditure, frustration with daily activities and prolonged bed rest.¹⁸ Cancer is among the diseases associated with fatigue. According to the literature, it can occur in 75-95% of cases; however, in this study, only 30% had the defining feature in both groups. Related factors restricted to the elderly group were "obesity" and "pain". The former is associated with surgery risks and complications, since fat tissue increases the risk of infection and dehiscence at the incision site.¹⁶ Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage; it promotes functional and organic

changes that compromise recovery, healing and is responsible for sequelae or even risk of death.⁹

Pain in surgery is associated with nociceptive stimulus. In the hospital environment, it is prevalent in the postoperative, and may happen in 40-60% of cases, moderate to intense pain. It happens mainly in patients who undergo extensive surgery, such as abdominal, cardiac, thoracic, orthopaedic and kidney, and induces: shallow breathing, decreased vital capacity and functional residual capacity, with secretion retention and atelectasis; i.e. pain can cause or contribute to a delayed postoperative.⁹ The literature states that elderly people resign themselves to feel pain, because they believe it is a natural consequence of ageing.²⁰ In this study, the researchers could identify it through daily assessment from pre-op to discharge, as well as through observation of expectations and misconceptions about pain.

Postoperative anxiety was observed in adults. It was associated with emotional changes caused by variations in their daily routine, distancing from social context and exposure to the stress of hospitalization.⁸

Emotional stresses - fear, anxiety, expectations and fantasies – influence the psychological and organic state of surgical patients and may compromise their recovery. Such feelings affect the effectiveness of adult stem cells, increase blood pressure and, consequently, the risk of bleeding during surgery, diminishing immunity and favouring the appearance of psychosomatic disorders.^{8,21}

Prolonged surgery was 50% more prevalent among adults than among elderly people. Although all patients are at risk during surgery, prolonged procedures increase risk of infection and exposure to potential adverse effects caused by anaesthesia.²² Extensive surgical procedure was a factor associated to over half of the subjects diagnosed with delayed surgical recovery. It is more frequent in major surgeries that involve severe resection and bleeding with exposure of large vessels of body cavities to ambient temperature, which contributes to delayed recovery.^{23,24}

The study highlights a rapidly ageing population and early symptoms of chronic diseases in adult patients. Both require specialized medical care and surgical treatments.²¹ Therefore, nursing care is indispensable to a full perioperative recovery, helping adult and elderly customers to resume their functional abilities, independence and autonomy for self-care.

CONCLUSION

Out of the 69 subjects longitudinally investigated, 23 (33.4%), were diagnosed with delayed surgical recovery. There was a difference between the defining characteristics and the related factors in the elderly and adult groups. In the elderly group, "movement difficulties" and "help for self-care" prevailed. In adults, "loss of appetite with nausea" and "discom-

fort" prevailed. Related factors present only in elderly patients were "pain" and "obesity" and in adults "postoperative expectations – anxiety". Prolonged surgery (50%) was another factor more common in adult patients than in elderly patients.

In conclusion, although prevalent in both populations, defining characteristics and related factors are differentiated. Diagnosis causes limitations in the two groups, directly influencing the quality of care. Researchers recommend, therefore, early diagnosis in clinical nursing practice.

In this study, it was not possible to analyse the relationship between age, type of surgical procedure and surgical specialty, which could be object of further studies along with a comparison between perioperative care in different institutions.

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