PROGNOSTIC INDICATORS OF DELAYED SURGICAL RECOVERY IN PATIENTS UNDERGOING CARDIAC SURGERY

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BACKGROUND

Complications during the postoperative period are commonly described among patients undergoing cardiac surgery, for example, complications such as delirium (18.4%) (Li et al., 2015), atrial fibrillation (5-40%) (Montrief, Koyfman, & Long, 2018), pulmonary complication (32%), renal failure (10%), neurological complication (7%), acute respiratory failure (3.5%) (Eremenko & Zyulyaeva, 2019), and multiorgan failure (2%) (Ariyaratnam et al., 2019).

These complications can lead to the following sequelae for patients: increased hospital length of stay; delayed social activities; decreased quality of life; traumatic memories related to the frustrated expectation of recovery; and deleterious effects for the institution, such as increased hospital costs (Almashrafi & Vanderbloemen, 2016; Engelman et al., 2019; Pimentel et al., 2017; Quintana & Kalil, 2012). The nursing care plan requires precise diagnostic inference and, consequently, early interventions to minimize the possible damage related to prolonged hospitalization (Engelman et al., 2019).

PURPOSE

The purpose of this study was to analyze the prognostic capacity of the clinical indicators of a *delayed surgical recovery* nursing diagnosis throughout the hospital stay of patients having cardiac surgery.

DESIGN

A prospective cohort design was adopted. A sample of inpatients undergoing elective cardiac surgery was followed during the immediate preoperative period and hospitalization. This research was conducted in the Southeast Region of Brazil at a national reference institution that treats highly complex diseases and performs cardiac surgeries. Data were collected from July 2017 to July 2018.

METHOD

At the end of one year of data collection, 181 patients were followed in this study. The Kaplan-Meier method was used to calculate the survival time related to delayed surgical recovery. In addition, an extended Cox model of time-dependent covariates was adjusted to identify the clinical signs that influenced the change in the nursing diagnosis status.
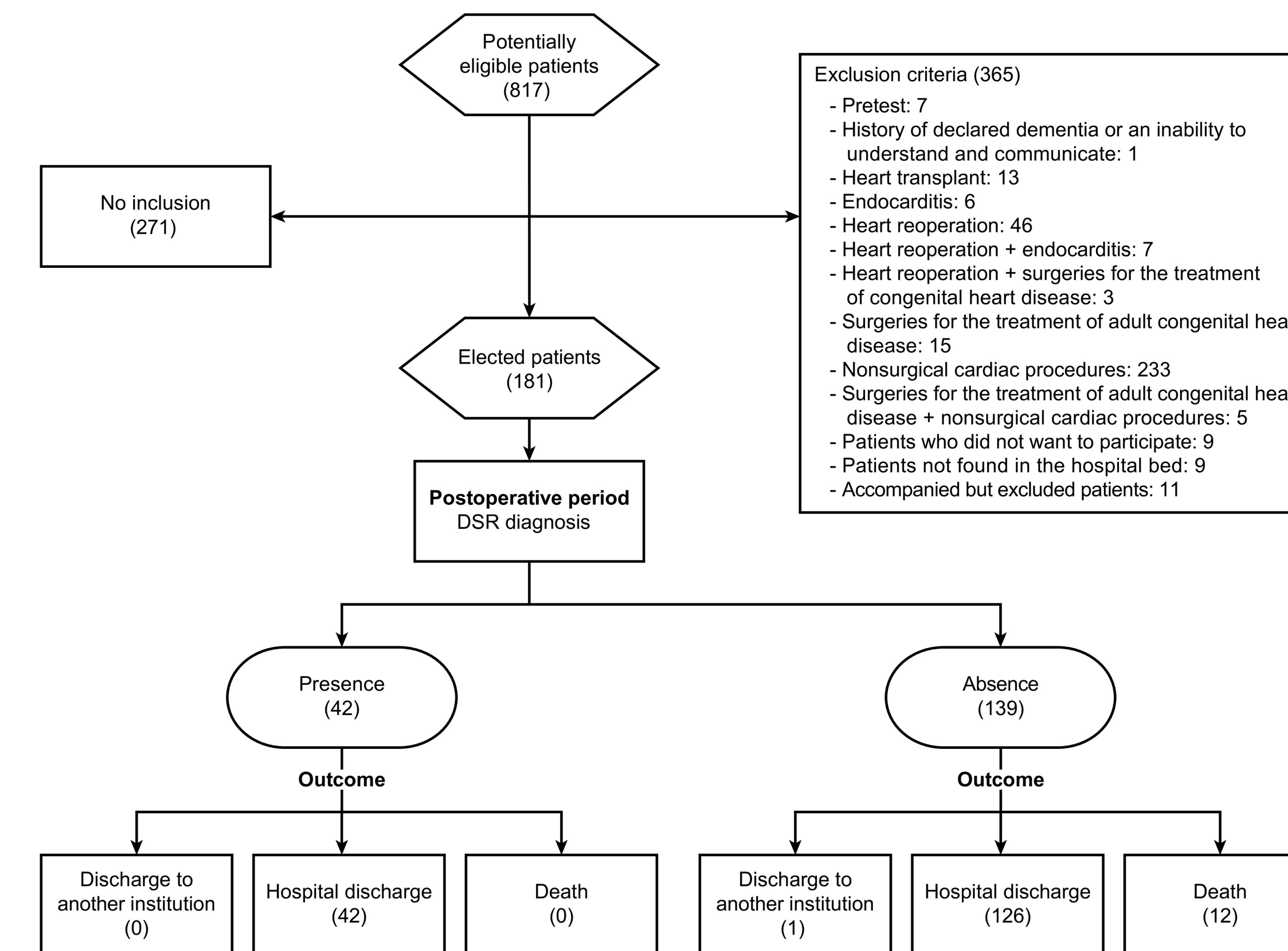
A delayed surgical recovery nursing diagnosis was present in 23.2% of the sample studied.

RESULTS

With an expected length of stay of 8 to 10 days, most new cases of delayed surgical recovery were observed on the 10th postoperative day (Table 1)

Interrupted healing of surgical area, loss of appetite, and atrial flutter were indicators related with an increased risk of delayed surgical recovery (Table 2)

Table 1: *Survival Data Obtained by the Kaplan-Meier Method (n = 181) of Delayed Surgical Recovery Among Patients Undergoing Cardiac Surgery.*

Time (Day)	At risk	Events	Survival rate	Standard error	Lower 95% CI	Upper 95% CI
1	181	3	0.98	0.01	0.96	1.00
4	168	2	0.97	0.01	0.95	0.99
5	166	2	0.96	0.01	0.93	0.99
6	164	5	0.93	0.02	0.89	0.97
7	156	2	0.92	0.02	0.88	0.96
9	139	4	0.89	0.02	0.85	0.94
10	127	8	0.84	0.03	0.78	0.90
11	112	1	0.83	0.03	0.77	0.89
12	101	4	0.80	0.03	0.73	0.86
13	90	1	0.79	0.03	0.72	0.86
14	79	5	0.74	0.04	0.67	0.82
16	62	2	0.71	0.04	0.64	0.80
21	29	1	0.69	0.05	0.60	0.79
23	20	1	0.65	0.05	0.55	0.77
29	14	1	0.61	0.07	0.49	0.76

Table 2: Extended Cox Model of the Time-Dependent Diagnostic Variables of Delayed Surgical Recovery

Clinical indicators	Risk ratios	Lower 95% CI	Upper 95% CI	Z test	P value
Evidence of interrupted healing at the surgical area (EIHSA)	34.04	17.91	64.70	10.77	<0.001
Loss of appetite	2.628	1.44	4.79	3.15	0.002
Requiring assistance with self-care	1.543	0.99	2.39	1.94	0.053
Benign arrhythmias	2.813	1.35	5.87	2.75	0.006
Adjustment of the model					
Concordance index: 0,858	**Standard error: 0.03**		*R^2 = 0.211		**Possible maximum: 0.625**
**G^2=218.3	Gl: 4	<0.001	***Wald =132.3	Gl: 4	<0.001
Log-rank=232.5	Gl: 4	<0.001			

*Wald's test; R^2: Coefficient of determination; G^2: Likelihood ratio test.

CONCLUSION

Timely recognition of selected clinical indicators demonstrate promising prognostic capacity for delayed surgical recovery.

CLINICAL RELEVANCE

Accurate identification of prognostic factors allows nurses to identify early signs of postoperative complications.

Consequently, the professional can develop an individualized plan of care, aiming at the satisfactory clinical recovery of the patient.

The early detection of the clinical indicators of the delayed surgical recovery is relevant to the clinical practice of perioperative nurses since this study has confirmed that nurse's assessment an indispensable role in the care of patients during the recovery period after cardiac surgery.

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