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Status: Master Thesis, final version
Date: 02-07-2015

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Journal: European Journal of Cardiovascular Nursing
Reference style: Vancouver
Word count: max. 3800

Word count: 3502
Transparent reporting: CONSORT

Word count abstract: 284

The preliminary effect of a nursing intervention (the PREDOCS programme) to prepare frail older patients for cardiac surgery.

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Abstract

Background: The patient population undergoing cardiac surgery has become older, sicker and of higher-risk. This results in an increase of postoperative delirium, depression, pressure ulcers and infections. A multicomponent, preadmission nursing intervention PREvention Decline in Older Cardiac Surgery patients (PREDOCS) was developed to better prepare frail older patients for elective cardiac surgery and to prevent postoperative complications.

Aim: The aim of this study is to examine the preliminary effect of the PREDOCS-programme by older patients (≥65 years) who undergo cardiac surgery in a cardiac surgery centre in The Netherlands.

Methods: This post-test only quasi experimental design is part of a larger multi-centre stepped wedge study in which three centres are involved. Study participants were 250 patients (≥65 years) who undergo cardiac surgery. 125 patients received usual care and 125 received the PREDOCS-programme. We compared the combined incidence of postoperative delirium, depression, pressure ulcer and/or infection in older cardiac surgery patients received the PREDOCS-programme with patients received usual care only in a cardiac surgery centre, by using logistic regression analyses.

Results: Our final sample comprised 250 patients who underwent elective cardiac surgery with a median age of 73,45 years (first to third quartile: 68,6 – 78,8 years), predominantly male (77,6%), submitted to the following surgeries: CABG (45,2%), valve (20,8%), combined (10,8%), other (23,2%). Based on multiple analysis, a statistically significant association between care receiver and postoperative complications was found (ρ-value = 0,019). No significant association (ρ-value = 0,686) was found between the intervention and the combined incidence of postoperative complications.

Conclusions: The PREDOCS-programme did not result in a clinically significant improvement in the prevention of postoperative complications. The results of the full trial should be awaited.

Keywords: Frailty, older people, cardiac surgery, prevention, postoperative complications, effect.

Introduction

With the increase in average life expectancy and the higher incidence of cardiovascular disease, more older people are eligible for cardiac surgery.[1,2] Due to improvements in surgical technics and anaesthetic procedures, they can pass cardiac surgery. Older patients, here defined as ≥65 years of age, account for almost 60% of the procedures in cardiac surgery.[3] A part of this population consists of vulnerable patients. Vital patients have little increased risk of complications of hospitalization in contrast to this vulnerable patients. Frail older patients frequently suffer from postoperative delirium (14.7% to 54.9%)[4,5], depression (10.0% to 37.7%)[2], pressure ulcers (10.6% to 18.0%)[2] and nosocomial infections (8.3% to 54.5%).[2,6]

Delirium is a temporary state of mental confusion that can occur as a result of a physical illness and often occurs in patients undergoing heart surgery.[7] Patients who experience delirium have poorer health care outcome. They often have a prolonged hospital stay, higher incidence of in-hospital falling, require often inpatient physical therapy, are more often discharged to a nursing facility, and are more likely to require home health services, compared with patients who do not experience postoperative delirium.[8]

Depression occurs in 15% to 40% of patients who undergo cardiac surgery.[1,9] After cardiac surgery, depression is a major cause of mortality; its effects are long-lasting, with risk for deaths increased for up to ten years after surgery.[9] In addition to mortality, postoperative depression has been shown to adversely affect surgical recovery and is associated with increased cardiac morbidity and decreased functional status.[10]

Pressure ulcers are injuries to the skin and underlying structures that vary in size and severity.[11] Pressure ulcers have serious consequences, such as pain and frustration to patients, their relatives, and caregivers[11] and, according to Lewicki and colleagues a 50% increase in nursing care time, prolonged hospitalizations, higher hospital costs, increased comorbidity, sepsis a four-fold increase in mortality rates among patients who subsequently develop bacteremia.[12]

Surgical site infections (SSI) are serious operative complications that occur in approximately 2% of surgical procedures. Patients who developed a surgical site infection (SSI) can cause substantial morbidity, mortality and prolonged length of hospital stay what results in high cumulative healthcare costs.[6]

In general, complications can cause functional and cognitive decline and a decrease in quality of life and wellbeing after discharge from the hospital. Very often this decline already exists before hospital admission and occur more often in frail patients which are admitted to the hospital with a below average health level, making them vulnerable for postoperative complications (figure 1, red line).[1]

(Insert Figure 1)

Over 97% of the cardiac patients is elective and thus have a waiting time before hospital admission.[13] In general, this waiting time is a few weeks. This time can be used to identify frail older people to reduce the risk on postoperative complications.[13,14] Currently, patients are not screened by a nurse before hospital admission. Careful preparation during the preoperative period may minimize morbidity, mortality and resource use.[14] The waiting time is an opportunity to optimize the patient's condition (see figure 1).

Ettema et al. developed a preadmission nursing intervention: PREvention Decling in Older Cardiac Surgery patients (PREDOCS) to better prepare older patients for elective cardiac surgery and to prevent postoperative complications.[1] The PREDOCS-programme aimed to prevent the four frequently occurring postoperative complications which are mentioned above. In the waiting time before hospitalization, nurses identify patients who are vulnerable and have an increased risk of complications. By means of one nursing consult, patients will be prepared for cardiac surgery in the period before hospital admission.[1]

The PREDOCS-programme has already been evaluated on its feasibility.[13] The programme appeared to be feasible to use in clinical practice but should be built into the hospital's cardiac surgery pathway or applied in home care.[13] Before the program will be implemented in an appropriate way, it has to be examined with a larger sample.

The purpose of this research is to examine the preliminary effect of the PREDOCS-programme. To demonstrate the preliminary effect of the PREDOCS-programme, we compared the combined incidence of postoperative delirium, depression, pressure ulcer and/or infection in older cardiac surgery patients received the PREDOCS-programme with patients received usual care only in a cardiac surgery centre.

Methods

Study design, settings and ethical aspects

A post-test only quasi experimental design was used to examine the preliminary effect of the PREDOCS-programme and is part of a larger multi-centre stepped wedge study in which three centres are involved: two general hospitals and one academic hospital in the Netherlands (figure 2). By using this design, the control group can be compared with the intervention group (before and after the implementation of the PREDOCS-programme).

(Insert Figure 2)

This study is conducted in a non-academic hospital and one of the largest cardiac surgery centres in the Netherlands where over 1,400 cardiac surgery procedures are performed each year. Within the larger stepped wedge study, this hospital is randomized to be the first centre to start with the implementation of the PREDOCS-programme, shown in figure 2 as 'Centre 1'. The study conforms to the Declaration of Helsinki.[15] The study protocol was approved by the medical review board of the University Medical Centre Utrecht. Written informed consent was obtained from every participant.

Sample

The study population which we focus in this study are elective patients from 65 years and older who undergo cardiac surgery. The sample included patients from 65 years or older, planned for cardiac surgery, gave informed consent and for the intervention group only were able to visit the preoperative screening programme. Patients were excluded if they were unable to speak Dutch, were participating in another conflicting study at the same time, were diagnosed with an mental illness such as depressed mood, infection, or who have a heart of lung transplantation in the past.

A sample size calculation with 95% significance level and 80% power was performed by using the estimated effect calculated in a previous study.[1] Based on a total incidence of postoperative complications (36%)[1] and a total expected decrease to 24.1%[1] a sample size was calculated by using the Fisher's exact test. The required total number of patients needed to prove the effect of the PREDOCS-programme is 494, i.e. 247 per group. For correcting, six patients were added (total of 250 patients per group). In order to achieve sufficient power, missing values were substituted through multiple imputation. This is done to prevent the exclusion of observed data.[16]

Intervention

The PREDOCS-programme is performed in one nursing consult, five to two weeks prior to surgery. During the consultation, the nurse determines whether the patient has an increased risk of experiencing delirium, depression, pressure ulcer or infection. Such patients can considered to be frail. They have an increased risk to develop one or more postoperative complications. Subsequently, patients with an increased risk receive information on additional actions that will give them an opportunity to reduce their risk. In this study, the PREDOCS-programme is given by two four hour trained research nurses. Figure 3 shows the steps of the PREDOCS-programme.

(Insert Figure 3)

Outcomes

The primary endpoint regards the occurrence of postoperative complications on the nursing departments after intensive care admission. Delirium was measured by using the Delirium Observations Screening (DOS) scale with a sensitivity of 100% and a specificity of 68%[17], wherein a score of ≥3 indicates an increased risk for delirium. Depression was measured by using the Geriatric Depression Screening (GDS-2-15) scale[18] with a sensitivity of 96-97% and a specificity of 57-67%[19], wherein a score of ≥4 indicates an increased risk for depression. Pressure ulcer was diagnosed by daily physical inspection through nurses, following the International NPUAP-EPUAP Pressure Ulcer Classification System[20]. All measurements of stage I ,non-blanchable redness of intact skin, and higher were considered as pressure ulcer. Exacerbation of pressure ulcers (grade 1-4) and location were noted. Infections were diagnosed based on laboratory testing which were found in daily reports of doctors/nurses and in the letter of dismissal. Secondary endpoints were total hospital length of stay and mortality.

Other variables

Baseline characteristics were collected, including: age, gender, type of cardiac surgery procedure, CABG, aortic valve surgery, aortic valve surgery combined with CABG, mitral valve surgery and other cardiac surgery, BMI (body mass index), chronic diseases, use of resources, educational level, social status and any handicaps. Furthermore, the time between receiving the PREDOCS-programme and the surgery and the European System for Cardiac Operative Risk Evaluation (EuroSCORE) was registered. EuroSCORE is a widely accepted model to predict operative mortality (in-hospital or 30-day) for cardiac surgery patients.[21]

Procedures

At the start of the study, two nurses received training in providing the intervention during a single four-hour session. This training included an introduction to the PREDOCS-programme, breathing exercises for the patients and implementation strategies. Because it was too burdensome for the patient, the PREDOCS-programme was not added to the existing preoperative screening programme at the preoperative clinic.[13] Patients came five to two weeks before surgery to the hospital to receive the PREDOCS program.

All elective patients from 65 years or older who undergo cardiac surgery and met the inclusion criteria, were asked to participate in the study. The research-nurse sent the study information to all eligible patients. Patients willing to participate returned the reply envelope. After two weeks, the research-nurse phoned each patient to inform about the study and answer any questions.

In the framework of the larger stepped wedge trial, randomization was done on hospital level. The hospital in this study started as the first centre with the implementation of the PREDOCS-programme. First, the control group was filled. These patients received usual care. Then we started with the implementation of the PREDOCS-programme. So, based on surgery date it was decided if the patient ended up in control or intervention group. Previous research has shown that the PREDOCS-programme will have a positive effect on the prevention of post-operative complications.[13] It was expected that the program entails no negative effects, and that it will do more good than harm.

Patients participated in the intervention group were approached for a PREDOCS consultation with the specially trained nurse. They received the PREDOCS-programme in addition to usual care.

Postoperative complications were screened by nurses on the ward. Patients were screened for delirium every shift. One and three days after surgery the DOS was registered by the nurse on the thoracic surgery department. The risk on depression was registered one and three days after surgery. During this study, the patient was be asked by the research nurse to fill in the GDS 2-15. Pressure ulcer was diagnosed by daily physical inspection through nurses, following the International NPUAP-EPUAP Pressure Ulcer Classification System,[20] and was entered in the electronic nursing file. Infections were registered in the letter of dismissal and/or laboratory tests and/or starting antibiotics.

All baseline characteristics and postoperative complications were entered into a special created database by nursing students and the first author.

Statistical analysis

Data were analyzed using the SPSS software (SPSS version 22, SPSS Inc., Chicago, IL, USA). Continues data in baseline differences in demographic and clinical variables were

assessed for normality through Shapiro-Wilks test and plots. If a normal distribution data are shown by a mean and standard deviation (SD). In case of a uneven distribution, data were expressed as median and first and third quartile. Categorical data is presented as absolute frequencies (percentages).

Pearson Chi-Square was calculated to explore the differences between the control- and the intervention group, because of dichotomous data. In case of an uneven distribution, the Mann-Whitney test was used to demonstrate statistical significance. Logistic regression was used to investigate the association between the combined incidence of postoperative delirium, depression, pressure ulcer and infections and the PREDOCS-programme. First, all baseline variables with $\rho \leq 0.05$ and clinically relevant variables were tested in univariate analysis. The combined dichotomous outcome and random group were tested in a multiple analysis through logistic regression, adjusted for baseline differences. A ρ-value ≤0.05 was considered statistically significant.

Results

Study recruitment for this sub-study was carried out between February 2015 – May 2015. During this period, 108 patients were screened for eligibility. Of those, 30 (28%) were excluded. A total of 78 patients provided consent. After informed consent was given, patients were randomized (based on date of operation) to the control- or intervention group. A total of 50 patients were randomized to the control group. A total of 28 patients received the intervention. Figure 4 shows the flow of the recruitment and participation of the patients.

Multiple imputation was used to reach the sample size calculation. By using data from the other participating centers, a sample of 250 patients is created. In order to show effect, a sample size of 500 was calculated. This number is not reached, so a sample size of 500 could not be achieved.

(Insert Figure 4)

Sample characteristics

Baseline sample characteristics, based on imputed data, are presented in Table 1. Our final sample comprised 250 patients who underwent elective cardiac surgery with a median age of 73,45 years (first to third quartile: 68,6 – 78,8 years), predominantly male (77,6%), submitted to the following surgeries: CABG (45,2%), valve (20,8%), combined (10,8%), other (23,2%). Compared with the control group, patients in the intervention group had a higher EuroSCORE and more comorbidity (Table 1).

(Insert Table 1)

Based on multiple analysis, no significant association (ρ-value = 0,686) was found between the intervention and the combined incidence of postoperative complications. A statistically significant association between care receiver and postoperative complications was found (ρ-value = 0,019) (Table 2).

In univariate analyses, the factors significantly associated with postoperative complications were: a higher EuroSCORE (Table 1 and Table 2) and a higher prevalence of comorbidity (Table 1). In the multiple analyses, the independent predictors of postoperative complications included the intervention group (PREDOCS), EuroSCORE (ρ-value = 0,019), living alone (clinically relevant), care receiver (clinically relevant) and a walking stick/walker (ρ-value = 0,039).

(Insert Table 2)

Length of stay in both groups had a median time of 5 days. Discharge destination differed statistically significantly (ρ-value = 0,019). In the control group 33 patients died, in the intervention group 13 (Table 3). The time between the PREDOCS consultation (intervention group) and the operation date had a median time of 10 days (first to third quartile: 1 – 27 days).

(Insert Table 3)

Discussion

In this study we examined the preliminary effect of the PREDOCS-programme on the incidence of postoperative complications. We found no association between the PREDOCS-programme and the incidence of postoperative complications by elective cardiac surgery patients from 65 years or older. We also found that patients who received the PREDOCS-programme had a higher educational level and were more vulnerable than patients in the control group. Furthermore, they underwent more often life-saving surgery (valve replacement) and had more comorbidity.

Several studies have investigated the effect of preoperative education interventions for cardiac surgery patients. There is evidence that preoperative education interventions can lead to positive postoperative outcomes for surgical patients in general, but not specific for cardiac surgery patients.[1,22]

Based on other studies, it was expected that the PREDOCS-programme would have effect.[1,3,4,13] The feasibility study has shown that patients who received the PREDOCS consult with the nurse felt as very pleasant and instructive.[13] McHugh et al developed a nurse led shared care programme to improve care for patients on the waiting list for coronary artery bypass grafting (CABG).[23] They found that patients who received the intervention were more likely to stop smoking, reduce obesity, improved in general health status and the level of anxiety and depression was improved.[23] A video information intervention combined with individualized information sessions was effective on psychosocial recovering. Patients had less anxiety and depression after discharge.[24] Individual sessions had an effect on depression in this study. In our study, we analyzed the combined incidence of postoperative complications. So, maybe PREDOCS influence depression, but it is not investigated in this study.

In contrast, other studies found no evidence of reducing anxiety,[25-27] depression,[26] pain[27,28] or hospital stay.[24,27,28] Also a meta-analysis between 2000-2011 found conflicting evidence.[22] They reviewed randomised controlled trials to analyse the existing evidence concerning the effect of preoperative education among cardiac surgery patients. They found conflicting evidence about the effectiveness of preoperative education for patients undergoing cardiac surgery.[22] The preliminary effect of the PREDOCS-programme also indicates that there is no evidence that preoperative education may minimize postoperative complications.

Besides postoperative complications, we also found no differences in hospital length of stay between the control- and intervention group. Remarkable is a statistically significant higher EuroSCORE in the intervention group, which indicates a higher risk of death. But in contrast, more patients died in the control group. A possible explanation could be that more

fragile patients are included in the intervention group, nurses are more awake for complications, faster recognition of complications and have prevented deaths this way. Further, patients who received the PREDOCS-programme had a higher educational level, so they could be more adaptive for PREDOCS. Nevertheless, they experienced more often complications but deceased fewer, despite the fact that they are more vulnerable and undergo more life-saving operations. A possible explanation could be that they had less severe complications, so PREDOCS may have a protective effect.

In the PREDOCS-programme, receiving informal care is a predictor for a higher risk of getting a postoperative delirium. In this study, we found something else. We found an association between 'care receiver' and postoperative complication. Care receivers fewer suffer from postoperative complications than patients who are self-reliant. There is no supporting literature found. But, a possible explanation could be that family members or caregivers are accustomed to take care of the patient. So, they also do this in the hospital, which reduces complications.

The findings of our study must be considered within the context of the following limitations. By using multiple imputation, a sample of 250 patients was achieved. The calculated sample size was 500. There is insufficient power, which has an impact on the demonstration of the preliminary effect. Maybe there is an association between the PREDOCS-programme and postoperative complications, but it cannot be demonstrated in this study.

Another limitation is the use of multiple imputation. Besides the fact that missing data were imputed, there are also additional patients created. This affects the reliability of the data set. Furthermore, this study describes patients from a non-academic hospital. But through multiple imputation, data from two other hospitals are also included (one academic and one non-academic hospital). Based on this sample we cannot demonstrate that there is no preliminary effect in one hospital. The two other hospitals may have another patient population which can influence the effect.

The number of days of the PREDOCS consultation to surgery was less than required, a median of 10 days. The PREDOCS consultation should be scheduled five to two weeks before surgery, so the patient have enough time to prepare. The fact that the patient had not sufficient time to prepare themselves could have diluted the preliminary effect.

A strength of this study is that all data (from three hospitals) was collected in one database. The advantage is that all data were collected and registered in a consistent way. Furthermore, the PREDOCS-programme is developed on data from this hospital. The program connects to the patient category to which the PREDOCS-programme is developed. Furthermore, all consults were performed by two nurses, the first calls were carried out

together. There were regular discussions about the content of the consultations to ensure that each patient received the same information.

Conclusions and implications

In conclusion, in this preliminary study the PREDOCS-programme did not result in a clinically significant improvement in the prevention of postoperative complications. It is a complex intervention in which the nurse plays an important role. A good preparation for the hospitalization is essential for the increasingly aging patient category. However, studies shows conflicting evidence, so further research is necessary. During this study, we saw that older patients (>80 years) or very vulnerable patients found it too burdensome to come to the hospital for the PREDOCS-programme. If the PREDOCS-programme is going to be implemented, it should be fit in the clinical pathway. At the moment there is an multicenter study on the effect of PREDOCS ongoing. The results of the full trail should be awaited.

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Tables and figures

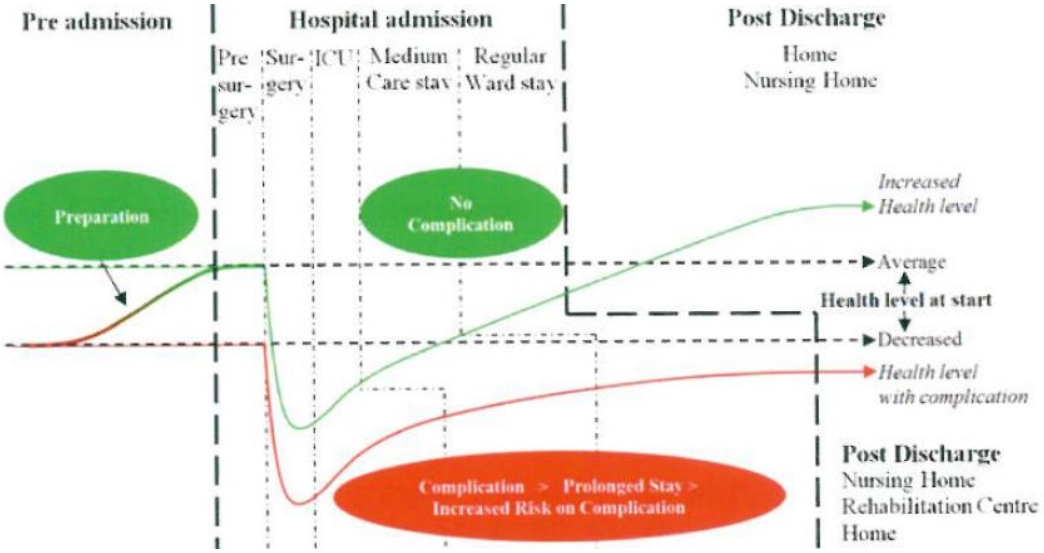

Figure 1. *Theoretical clinical course of a patient with a decreased health level (red curve) undergoing cardiac surgery who develops a postoperative complication and experience a prolonged hospital stay versus the proposed effect in case of preparation (green curve). The upper dashed horizontal line represents the average health level of a patient before admission and the lower horizontal line represents the health level of a patient with decreased health level before admission.*[1]

Centre 1	Control period Usual care	Intervention period PREDOCS	Intervention period PREDOCS	Intervention period PREDOCS
Centre 2	Control period Usual care	Control period Usual care	Intervention period PREDOCS	Intervention period PREDOCS
Centre 3	Control period Usual care	Control period Usual care	Control period Usual care	Intervention period PREDOCS

Figure 2. *The stepped wedge design.*

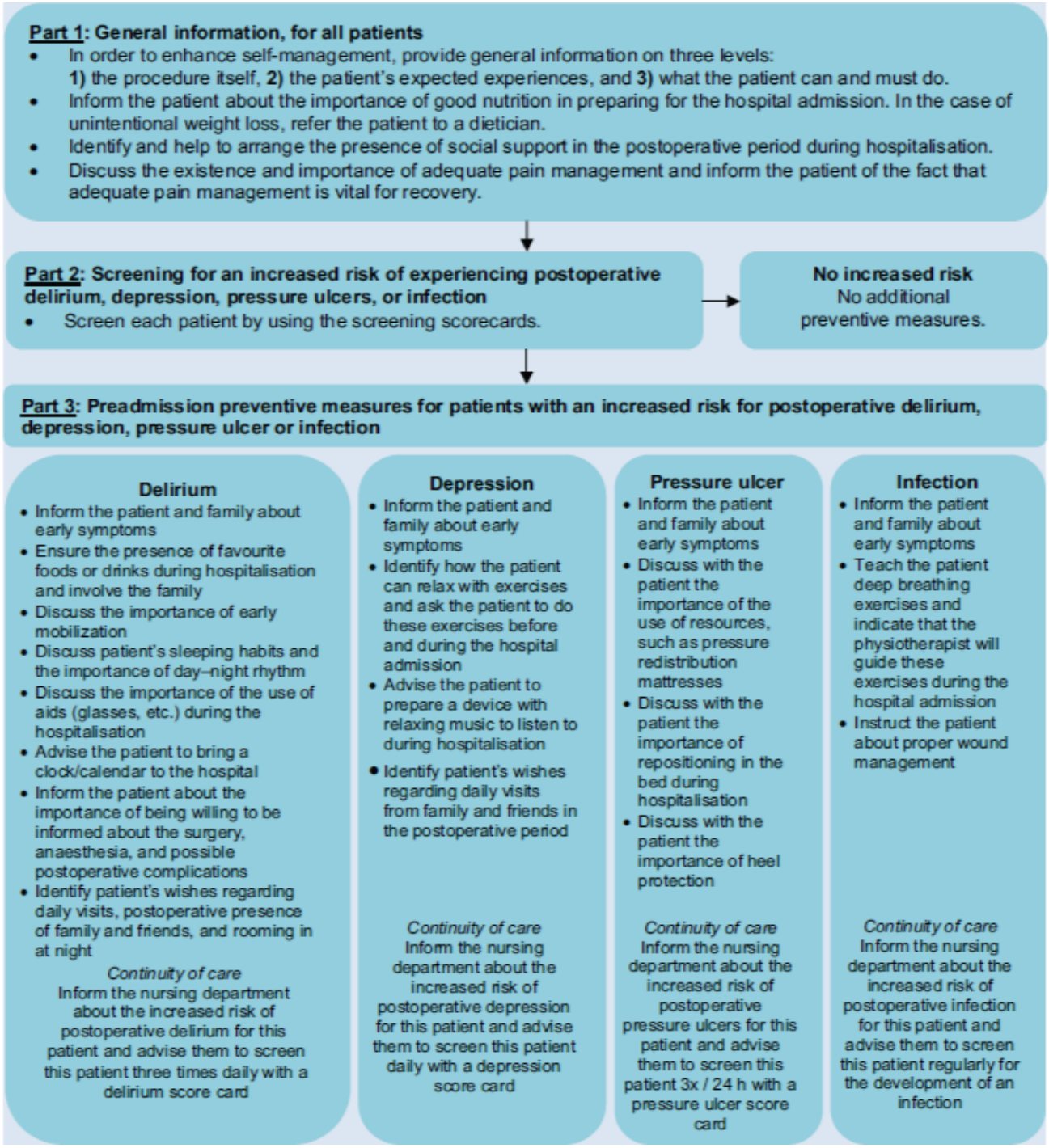

Figure 3. *Flow of the PREDOCS-programme for preparing older patients for their hospital admission for cardiac surgery.*[1]

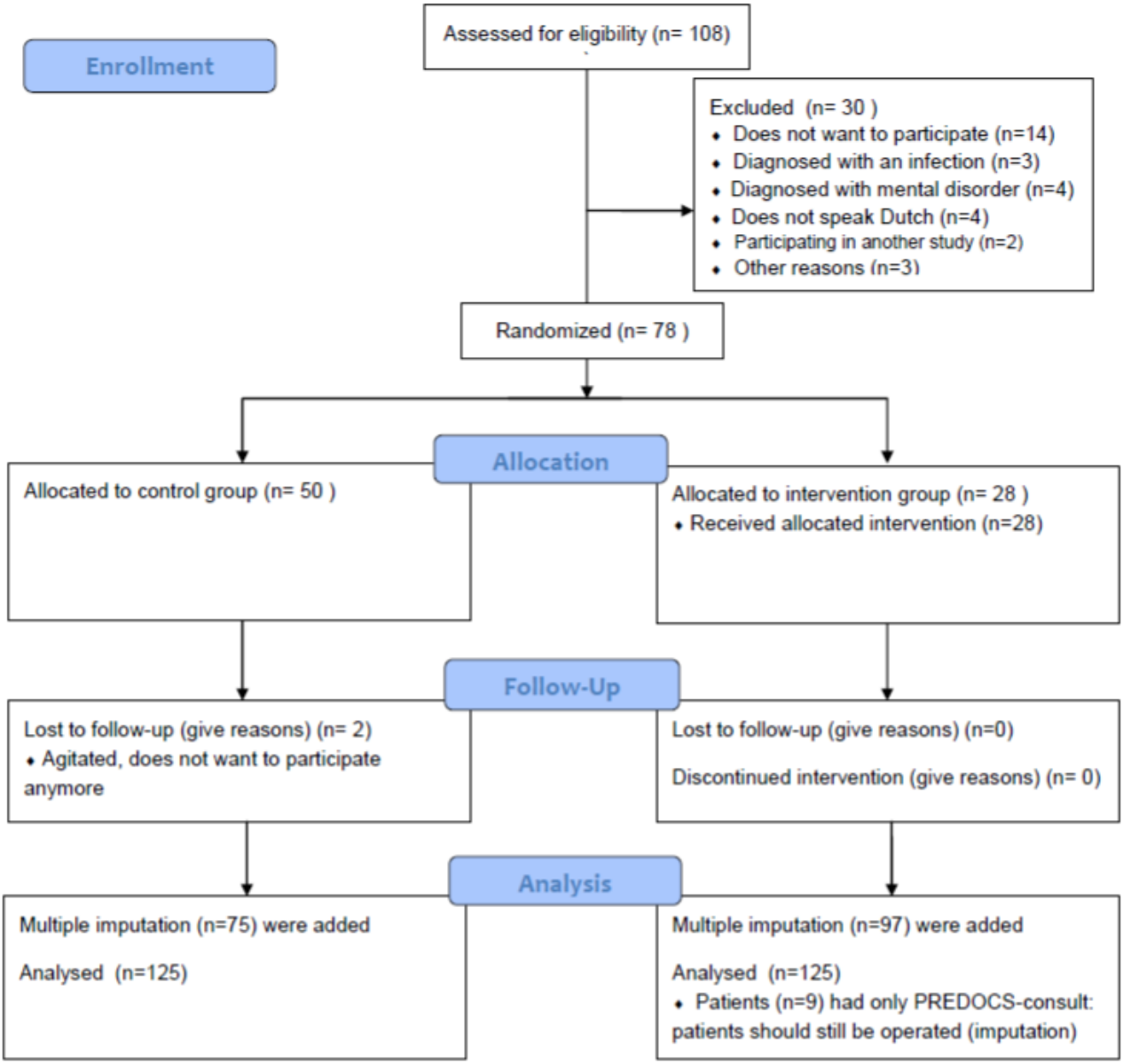

Figure 4. *Flow chart of the selection process for the study population.*

Table 1. *Baseline characteristics.*

Variable	Intervention group (n=125)	Control group (n=125)	*ρ-value*
General			
Age	73,8 (69,5 - 78,6)	73,4 (68,7 - 79,2)	0,544
Female gender	30 (24.0%)	26 (20,8%)	0,649
BMI	26,6 (24,5 – 28,9)	27,0 (24,0 – 29,8)	0,465
EuroSCORE	2,76 (1,31 – 7,56)	1,37 (1,17- 3,57)	0,006
Surgical procedure			
CABG	58 (46,4%)	55 (44,0%)	
Valve	30 (24,0%)	22 (17,6%)	0,279
CABG+ valve	14 (11,2%)	13 (10,4%)	
Other	23 (18,4%)	35 (28,0%)	
Comorbidity	121 (96,8%)	111 (88,8%)	0,025
Preadmission use of			
Fraxiparin	1 (0,8%)	3 (2,4%)	0,622
Benzodiazepines	5 (4,0%)	4 (3,2%)	1,000
Diuretic	23 (18,4%)	20 (16,0%)	0,738
Resources			
Glasses	79 (63,2%)	71 (56,8%)	0,366
Hearing aids	16 (12,8%)	20 (16,0%)	0,589
Walking stick or walker	17 (13,6%)	14 (11,2%)	0,702
Wheelchair	1 (0,8%)	3 (2,4%)	0,622
Insoles	11 (8,8%)	15 (12,0%)	0,535
Educational level			
Primary school	21 (16,8%)	30 (24,0%)	
Secondary school	11 (8,8%)	20 (16,0%)	
Lower vocational education	17 (13,6%)	11 (8,8%)	0,181
Secondary vocational education	25 (20,0%)	25 (20,0%)	
Higher education	40 (32,0%)	28 (22,4%)	
University	11 (8,8%)	11 (8,8%)	
Social status			
Single / widow(er)	37 (29,6%)	46 (36,8%)	0,283
Living alone	42 (33,6%)	52 (41,6%)	0,240
Care receiver	17 (13,6%)	14, (11,2%)	0,702
Handicap			
Deaf / Deafness	23 (18,4%)	17 (13,6%)	0,389
Blind	0 (0%)	0 (%)	
Physically limited	9 (7,2%)	18 (14,4%)	0,102
Intellectual disability	0 (0%)	0 (0%)	

Continues data (uneven distribution) presented as median (first to third quartile). Difference analyzed by using Mann-Whitney test. Categorical variables presented as absolute frequency (percentages). Difference analyzed by using Person Chi-Square test.
BMI = Body Mass Index; CABG = Coronary Artery Bypass Graft; EuroSCORE = European System for Cardiac Operative Risk Evaluation.

Table 2. *Logistic regression on the incidence of postoperative complications.*

Variable	Univariate				Multivariable			
	β	Sig.	Exp(B) (95% CI)	R^2	β	Sig.	Exp(B) (95% CI)	R^2
Group (intervention)	0,096	0,704	1,101 (0,670-1,808)	0,001	0,107	0,686	1,113 (0,663-1,869)	
EuroSCORE	0,040	0,019	1,041 (1,007-1,077)	0,035	0,024	0,192	1,024 (0,988-1,061)	
Sex (female)	0,370	0,226	1,448 (0,795-2,637)	0,008				
Age	0,014	0,485	1,014 (0,975-1,054)	0,003				
Comorbidity	0,486	0,332	1,627 (0,609-4,342)	0,005				
Social status								
Living alone	0,342	0,192	1,408 (0,842-2,354)	0,009	0,396	0,173	1,486 (0,841-2,626)	0,077
*Care receiver**	-0,680	0,088	0,507 (0,232-1,107)	0,016	-1,068	0,019	0,344 (0,141-0,837)	
Handicap								
Deaf(ness)	0,606	0,087	1,833 (0,915-3,674)	0,016				
Physically limited	0,593	0,158	1,810 (0,794-4,127)	0,011				
Resources								
Hearing aids	0,261	0,472	1,298 (0,638-2,639)	0,003				
Insoles	-0,172	0,679	0,842 (0,373-1,901)	0,001				
Walking stick / walker	0,842	0,039	2,322 (1,045-5,160)	0,024	0,855	0,068	2,352 (0,939-5,895)	

CI: confidence interval; EuroSCORE = European System for Cardiac Operative Risk Evaluation; Group (intervention) = patients who received the PREDOCS-programme; R^2= Nagelkerke R Square; Sig = ρ-value.
*Care receiver: patients who are not self-reliant at home.

Table 3. *Postoperative complications, hospital days and destination*

Variable	Intervention group (n=125)	Control group (n=125)	*ρ-value*
Postoperative complications			
*Combined incidence**	64 (51,2%)	61(48,8%)	0,800
Hospital days			
Hospital days after intensive care unit	5,00 (3,00 - 6,00)	5,00 (3,00 - 6,00)	0,103
Destination			
Home	56 (44,8%)	50 (40,0%)	
Transfer to another hospital	54 (43,2%)	39 (31,2%)	0,019
Rehabilitation centre	1 (0,8%)	2 (1,6%)	
Nursing home	1 (0,8%)	1 (0,8%)	
Deceased	13 (10,4%)	33 (26,4%)	*(0,002)*

Continues data (uneven distribution) presented as median (first to third quartile). Difference analyzed by using Mann-Whitney test. Categorical variables presented as absolute frequency (percentages). Difference analyzed by using Person Chi-Square test.
ρ-value: Differences between the intervention and control group.
* Combined incidence: The combined incidence of postoperative delirium, depression, pressure ulcer and/or infection.