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Title:

Bedrest Quality Improvement Project for Outpatient Diagnostic Cardiac Catheterizations

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ACCEPTED

Session Title:

Rising Stars of Research and Scholarship Invited Student Posters

Slot:

RS PST1: Sunday, 17 November 2019: 11:45 AM-12:15 PM

Applicable Category:

Clinical, Students

Keywords:

Bedrest, Diagnostic Cardiac Catheterization and Early Ambulation

References:

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Abstract Summary:

A three-month quality improvement project evaluated a new bedrest practice for transfemoral diagnostic cardiac catheterizations using 4, 5, and 6-French sheaths with manual removal. The new bedrest practice reduced the total length of bedrest to two-hours and elevated the head of bed to 60 degrees after one hour of bedrest.

Content Outline:

I. Introduction

A. Quality improvement project evaluating the effect of reducing the length of bedrest to two-hours and elevating the head of bed to 60 degrees after one hour

B. Setting

a) Outpatient cardiac catheterization department at New York University Health

C. Objectives

a) Maintained good quality indicator reports for groin complications and hematomas

b) Reduced length of stay and discharge times

c) Increased patient satisfaction

II. Methodology

A. Study Design

a) Control group: A 2017 database was used to retrospectively obtain findings on the four-hour bedrest with the HOB flat

b) Intervention group: Convenience sample collected 2/1/18- 4/30/18 using the new reduced bedrest practice with position change

B. Sample

a) Inclusion criteria: Outpatient, transfemoral diagnostic cardiac catheterizations with manual sheath removal

b) Exclusion criteria: Sheath size > 6 French, SBP > 180, DBP > 100, Platelet < 100,000/mcL, INR > 1.5, heparin drip, bivalirudin drip

C. Measurements/Data Analysis

a) Descriptive data: Age, gender, sheath size, antiplatelet aggregate medication, and aortic stenosis recorded

b) Length of stay: Defined as time of discharge minus hemostasis time and recorded in minutes

c) Patient satisfaction: 3/17-6/17 Press Ganey scores (control) and 3/18-6/18 Press Ganey scores (intervention) were recorded

III. Results

A. The control group had 2 groin complications and the intervention group had no groin complications, which was not significantly different ($p = .11$)

B. The intervention group's length of stay was reduced over 100 minutes and was significantly different from the control group ($p < .01$)

C. There were statistically significant increases in patient experience of pain ($p = 0.02$) and procedural delay ($p = .01$)

IV. Conclusion

A. Elevating the head of bed to 60 degrees after one-hour of bedrest and ambulating after two-hours of total bedrest for transfemoral diagnostic cardiac catheterizations via 4-6 French sheaths with manual removal is safe

B. Length of stay was reduced and resulting in more effective recovery space and resource utilization

C. Patient perception of procedure delays and pain significantly improved

D. Practice should be expanded to inpatients and emergency department patients

Topic Selection:

Rising Stars of Research and Scholarship Invited Student Posters (25201)

Abstract Text:

Background: The American College of Cardiology 2012 transfemoral cardiac catheterization guidelines recommend bedrest for one to two hours for 4 to 5-French sheaths and two to four hours for 6 to 8-French sheaths. Research supports that raising the head of bed to 60 degrees after one hour and ambulation after two hours of total bedrest is safe for transfemoral diagnostic cardiac catheterizations with manual sheath removal. Prior to Winter 2018, a large academic medical center was ordering four hours bedrest with the head of bed completely flat for every transfemoral diagnostic catheterizations with manual sheath removal. A three-month quality improvement project was implemented to evaluate a new bedrest practice, which involved reducing the total length of bedrest to two-hours and elevating the head of bed to 60 degrees after one hour of bedrest. This new bedrest protocol included any outpatient undergoing transfemoral diagnostic cardiac catheterizations using 4, 5, or 6 French arterial sheaths removed with manual pressure.

Methodology: A 2017 database was used to retrospectively obtain control findings on the four-hour bedrest with the head of bed flat ($n = 178$). A convenience sample was used for the intervention group, which included all patients who met the new bedrest protocol criteria ($n = 214$). Any patients with severe hypertension, thrombocytopenia, taking oral anticoagulation, or receiving intravenous anticoagulation drips were excluded from participating in the reduced bedrest protocol. Descriptive data for age, gender, sheath size, antiplatelet aggregate medication, and aortic stenosis was recorded for each group. Information regarding groin complications, discharge times, and patient satisfaction was collected for both the control and intervention groups. Descriptive statistics, t -tests, chi-square, and Kruskal-Wallis tests were used to analyze the data.

Results: The control and intervention groups were not significantly different in gender, age, clopidogrel dose, ticagrelor dose or diagnosis of aortic stenosis. Aspirin dose, clopidogrel dose, and sheath size were significantly different between the control and intervention groups. There were 2 control participants with hematomas compared to no groin complications for the intervention group, $\chi(1) = 2.53, p = .11$. The length of stay in minutes was significantly different for the control group ($M = 283, SD = 55.3$) and intervention group ($M = 184, SD = 57$); $t(285) = 15.3, p < .01$. Since the aspirin dose, clopidogrel dose, and sheath size were significantly different between the control and intervention groups, the length of stay was compared using these variables. A Kruskal-Wallis test showed that there was not a significant difference of the length of stay between aspirin dose in the control group, $\chi^2(2) = 0.59, p = .74$. Similarly, a Kruskal-Wallis test showed that there was not a significant difference of length of stay between aspirin dose in the intervention group, $\chi^2(2) = 1.58, p = .45$. When comparing the clopidogrel dose in the control group, a Kruskal-Wallis test showed that there was not a significant difference between dosages, $\chi^2(2) = 1.28, p = .53$. However, a Kruskal-Wallis test showed that there was a significant difference of length of stay between clopidogrel dosages in the intervention group, $\chi^2(3) = 9.22, p = .03$. Specifically, the mean rank of clopidogrel dosing on length of stay in the intervention group is 600 mg > 75 mg > none > 300 mg clopidogrel dosing. A Kruskal-Wallis test showed that there was not a significant difference between groups for sheath size and control length of stay, $\chi^2(2) = 1.71, p = .43$. Similarly, a Kruskal-Wallis test showed that there was not a significant difference between groups for sheath size and intervention length of stay, $\chi^2(2) = 1.28, p = .53$. The Press Ganey[®] mean scores for *overall rating of the*

hospital, rating compared to other hospitals, overall nursing care, pain management, and wait times for procedure increased after this bedrest practice change was implemented. There were statistically significant increases in Press Ganey® patient satisfaction scores related to *pain* ($p = .02$) and *procedural wait times* ($p = .01$).

Implications for Practice: Elevating the head of bed to 60 degrees after one-hour of bedrest and ambulating after two-hours of total bedrest for transfemoral diagnostic cardiac catheterizations using 4 to 6 French sheaths with manual removal is safe. The average length of stay was reduced by 99-minutes and resulted in more effective recovery space and resource utilization. Patient perception of procedure delays and pain significantly improved. In conclusion, this cardiac catheterization department optimized its utilization of recovery space and procedural costs while improving patient satisfaction and maintaining safe patient outcomes.