



Feasibility and safety of same-day discharge and shortened bedrest after atrial fibrillation ablation

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Abstract

Background While initial studies suggest that same-day discharge or shortened bedrest may be feasible for some patients following atrial fibrillation (AF) ablation, the risks and benefits of this approach remain unclear for patients undergoing hemostasis with figure-of-eight (FO8) suture technique.

Methods We prospectively evaluated access site bleeding, length of hospitalization, urinary catheterization, and other clinical outcomes in patients undergoing AF ablation with 3 hours of bedrest between April and May 2021, and compared them to a control group that had undergone AF ablation with 6 hours of bedrest from April to July 2019. FO8 sutures were used for hemostasis in all patients. Independent risk factors for bleeding and urinary catheterization were determined using multiple logistic regression.

Results Same-day discharge was achieved in 74% of patients in the 3-hour bedrest group compared to 7% of patients in the 6-hour bedrest group ($p < 0.001$). There were no differences between 3-hour and 6-hour bedrest groups in the rates of serious adverse events (2% vs. 1%, $p = 0.45$) or rehospitalizations or ED visits (1% vs. 3%, $p = 0.45$) within 30 days of ablation. The 3-hour bedrest group showed a non-significant trend toward more access site bleeding (15% vs. 8%, $p = 0.10$), but had a significant reduction in urinary catheterization (27% vs. 64%, $p < 0.001$) and opioid analgesia use (20% vs. 33%, $p = 0.04$).

Conclusions Same-day discharge after 3 hours of bedrest is safe and feasible following AF ablation and is not associated with higher rates of complications or rehospitalizations at 30 days. Reduced bedrest resulted in decreased opioid analgesia and urinary catheterization.

Keywords Same-day discharge · Atrial fibrillation ablation · Bedrest · Quality improvement

1 Introduction

The use of catheter ablation for atrial fibrillation (AF) has grown rapidly in recent years, [1, 2] driven by increasing evidence of its clinical superiority over antiarrhythmic therapy for arrhythmia control, improved quality of life, and cardiovascular outcomes [3–7]. Historically, hospital admission

for overnight monitoring was the standard of care following AF ablation, and this remains the protocol at many institutions. Fueled in part by increasing demand for AF ablation, as well as resource constraints exacerbated by the COVID-19 pandemic, there has been a growing interest in same-day discharge for patients undergoing AF ablation. [8–10].

Furthermore, the optimal duration of bedrest after AF ablation remains undefined. When manual compression was the primary method of post-procedural hemostasis, bedrest of ≥ 6 hours was felt to be required to prevent post-procedural bleeding in the setting of anticoagulation. The advent of superior hemostatic techniques (figure-of-eight [FO8] suture placement or vascular closure systems), and the growing appreciation of prolonged bedrest's possible disadvantages, including increased pain, catheter-associated urinary tract infections (CAUTIs), and patient dissatisfaction, has prompted examination of this practice [10–13]. Prior studies using novel hemostatic techniques with shorter bedrest

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periods (2–4 hours) have demonstrated comparable or lower rates of bleeding complications compared to manual compression with 6 hours of bedrest [10–13]. However, the treatment and control groups of these prior studies differed in both bedrest duration and hemostatic technique; hence, the clinical effects of bedrest reduction in isolation have yet to be evaluated [10–13]. Furthermore, the impact of removing FO8 sutures at the conclusion of bedrest has not been well studied, given that most centers have left sutures in place until the morning after AF ablation. [11, 13–15].

We adopted FO8 sutures for post-ablation hemostasis in 2018. In 2020, we transitioned from a bedrest duration of 6 to 3 hours and adopted a same-day discharge protocol for patients undergoing AF ablation, based on retrospective safety data from other institutions [9–13]. Following this transition, we began a prospective cohort study to examine the feasibility of same-day discharge and the clinical impact of reducing bedrest from 6 to 3 hours in patients undergoing AF ablation with FO8 sutures for hemostasis.

2 Methods

2.1 Population/study design

Patients undergoing AF ablation at Beth Israel Deaconess Medical Center (BIDMC) between April and May 2021 were enrolled in the prospective, experimental arm of our study in which providers and nursing staff were instructed to facilitate a 3-hour bedrest protocol and same-day discharge by documenting time of suture removal, ambulation and duration of bedrest. These patients were compared to a retrospective control arm comprising patients who underwent AF ablation between April and July 2019 at BIDMC, when our institutional protocol entailed 6 hours of bedrest and patients were routinely monitored overnight in the hospital. Inclusion in either study arm required uncomplicated femoral venous access and immediate post-procedural hemostasis. The rationale for utilizing 2019 data as a comparison group was the significant deviation from routine clinical practice imposed by the COVID-19 pandemic during this same period of time in Spring 2020. Rates of serious adverse events (SAEs), re-hospitalizations or ED visits, minor access site bleeding, urinary catheterization, and opioid analgesia use were assessed in both groups. The study protocol was approved by the BIDMC Institutional Review Board (protocol #2019D000754).

2.2 Ablation procedure

Ultrasound-guided femoral venous access was used for all AF ablations. The vast majority of ablations in both cohorts were performed using radiofrequency energy. Typically, a 7

French sheath was employed for coronary sinus pacing, an 8.5 French inner diameter steerable long sheath for mapping and ablation, and a 9 or 10 French sheath for intracardiac ultrasound. In 2019, femoral access was primarily bilateral, with 2 venous sheaths per femoral vein. Under this configuration, the 8.5 French inner diameter transseptal sheath and a 7 French short sheath were placed in the right femoral vein and a 9 French and 7 French short sheaths were placed in the left femoral vein. In late 2020, this changed to 3 unilateral venous sheaths: an 8.5 French inner transseptal sheath, 9 French sheath and 7 French sheath in the right femoral vein. All ablations were performed under general anesthesia with a heparin bolus and infusion to maintain an activated clotting time of 300–350 s. Following completion of the procedure, protamine was generally given to reverse the activated clotting time. Venous sheaths were removed in the electrophysiology laboratory, and hemostasis was achieved with FO8 sutures in all patients. Urinary catheters were not placed at the beginning of the procedure. Patients underwent bladder scan at the termination of the case, and straight catheterization was performed if > 500 mL of urine was present.

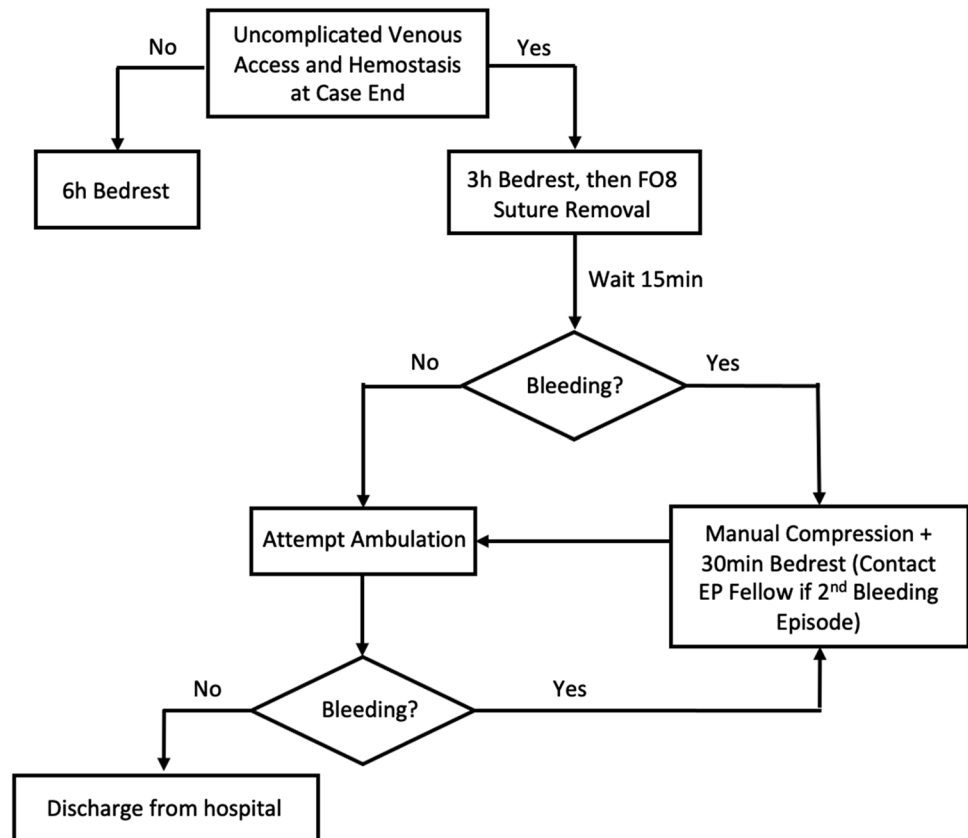
2.3 Bedrest protocol

Six hours of bedrest with removal of FO8 sutures the following morning was our institutional practice in 2019 for patients undergoing AF ablation. Our 3-hour bedrest protocol is detailed in Fig. 1. The time of FO8 suture placement was documented. Three hours after suture placement, FO8 sutures were removed, and patients were kept supine for an additional 15 minutes while being monitored for any immediate bleeding. If no bleeding was observed, patients were instructed to ambulate. If no bleeding occurred during ambulation, patients were then discharged home. If bleeding occurred at any point during the protocol, manual pressure was applied until the bleeding stopped and an additional 30 minutes of bedrest was imposed prior to repeat ambulation.

2.4 Clinical endpoints

Time to FO8 suture removal and time to ambulation were recorded in real time for patients in the prospective (3-hour bedrest) arm of the study. Minor bleeding was defined as any access site hematoma or oozing occurring between FO8 suture placement and discharge which required the application of lidocaine, epinephrine, or manual pressure. Catheter-associated urinary tract infection (CAUTI) was defined as an infection following urinary catheterization of any kind—either intermittent or in-dwelling—during or after ablation and requiring antibiotics prescribed within 1 week of AF ablation, paired with either a confirmatory provider note or positive urinalysis. We also examined the use of post-procedural

Fig. 1 AF ablation same-day discharge protocol. Depicted below is the protocol for post-procedural care of the 94 patients who underwent AF ablation in April–May 2021, which limited bedrest to 3 hours and was designed to help facilitate safe, same-day discharge



opioid analgesia, length of hospital stay, and all-cause ED visits or re-hospitalizations within 30 days of AF ablation. SAEs were defined as any complication within 30 days of AF ablation resulting in significant morbidity including access site re-bleeding significant enough to require imaging, blood transfusion or invasive intervention. Demographic information, comorbidities, home medications, and ablation details were ascertained by review of the electronic medical record. Left ventricular ejection fraction (LVEF) was obtained from the most recent echocardiogram or cardiac MRI report prior to AF ablation. ICD-9 and ICD-10 codes were used to determine the presence of comorbidities (Supplementary Table S1). Patient experience of post-procedural bedrest was evaluated in the 3-hour bedrest group via a standardized survey. Because this information was not available for comparison in the 6-hour bedrest group, patients in the 3-hour bedrest group were asked to project their anticipated satisfaction, discomfort, and pain if their bedrest had been 3 hours longer. Patients undergoing repeat ablation were asked to compare these parameters to their experience from prior AF ablation procedures. For survey questions #1–6, patients were asked to circle an integer between 0 and 10, where 0 represented most satisfaction, least discomfort, or least pain. For questions #8–10, zero represented much more satisfaction, much less discomfort, or much less pain with the current bedrest period compared to that of a prior ablation; 5 represented equality of these parameters

between current and prior ablations; and 10 represented much less satisfaction, much more discomfort, or much more pain with the current ablation (see Supplementary Materials).

2.5 Statistical analysis

Baseline characteristics were compared between the 3-hour and 6-hour bedrest cohorts using the Student's *t*-test for continuous variables and chi-square for categorical variables. *p*-values reported for unadjusted clinical outcome comparisons between bedrest cohorts were obtained from univariate logistic regression. Clinical characteristics associated with minor bleeding or urinary catheterization in a univariate screen with a significance threshold of $p < 0.10$ were included in a multivariable logistic regression model to identify independent predictors. Unless otherwise specified, survey response data is expressed as mean \pm SD. All statistical tests were performed using Stata version 16 (College Station, TX).

3 Results

There were 94 patients prospectively enrolled in the 3-hour bedrest group following AF ablation between April–May 2021. These were compared to 118 patients who underwent

AF ablation with a 6-hour bedrest protocol between April and July 2019. The baseline characteristics of each group are summarized in Table 1. Both 3- and 6-hour bedrest groups were predominantly male (67 vs. 70%) and of similar mean age (65 ± 9 vs. 63 ± 11 years), BMI (30 ± 7 vs. 30 ± 6 kg/m²) and LVEF ($56 \pm 10\%$ vs. $54 \pm 11\%$), but with a higher proportion of non-White patients in the 3-hour bedrest group (18% vs. 7%, $p=0.03$). Comorbidities occurred at similar frequencies in both groups, with the exception of sleep apnea, which was less common in the 3-hour bedrest cohort (30% vs. 46%, $p=0.02$). AF was more often paroxysmal in the 3-hour

bedrest group than in the 6-hour bedrest group (56% vs. 41%, $p=0.02$). Apixaban was the most commonly used anticoagulant, followed by rivaroxaban, warfarin, and dabigatran—with a similar distribution in each group. Roughly half of patients in each group used aspirin concurrently; P2Y12 inhibitor use was infrequent. Procedure duration was shorter in the 3-hour than in the 6-hour bedrest group (259 ± 56 min vs. 281 ± 79 min, $p=0.02$). Femoral access was more often bilateral in the 6-hour bedrest group (94.1% vs. 19.2%, $p<0.001$), and used a greater number of venous sheaths than the 3-hour bedrest group (0.9% vs. 1.1% for 2 sheaths, 8.5% vs. 84.0%

Table 1 Baseline characteristics

Variable	3-h bedrest protocol (N=94)	6-h bedrest protocol (N=118)	p-value
<i>Demographics</i>			
Female, n (%)	31 (33.0)	36 (30.5)	0.70
Non-White, n (%) [#]	11 (18.3)	7 (7.0)	0.03
Age (years), mean \pm SD	65 ± 9	63 ± 11	0.26
BMI, mean \pm SD [#]	29.7 ± 7.1	30.2 ± 5.8	0.59
LVEF, mean \pm SD [#]	56 ± 10	54 ± 11	0.13
<i>Comorbidities, n (%)</i>			
CKD	10 (10.6)	84 (89.4)	0.21
Hypertension	45 (47.9)	59 (50.0)	0.76
Diabetes mellitus	13 (13.8)	17 (14.4)	0.91
Sleep apnea	28 (29.8)	54 (45.8)	0.02
CAD	24 (25.5)	36 (30.5)	0.42
Heart failure	21 (22.3)	23 (19.5)	0.61
Atrial fibrillation subtype			0.02
Paroxysmal	53 (56.4)	48 (40.7)	
Persistent	41 (43.6)	70 (59.3)	
<i>Anticoagulation, n (%)</i>			
Apixaban	58 (61.7)	67 (56.8)	
Rivaroxaban	24 (25.5)	39 (33.1)	
Dabigatran	1 (1.1)	3 (2.5)	
Warfarin	11 (11.7)	9 (7.6)	0.31
<i>Antiplatelet agent, n (%)</i>			
Aspirin	21 (47)	28 (51)	0.26
P2Y12 inhibitor	2 (2.1)	7 (5.9)	0.17
<i>Procedural details</i>			
Duration (min), mean \pm SD	259 ± 56	281 ± 79	0.02
Bilateral femoral access, n (%)	18 (19.2)	111 (94.1)	<0.001
Number of sheaths, n (%)			<0.001
2	1 (1.1)	1 (0.9)	
3	79 (84.0)	10 (8.5)	
4	13 (13.8)	97 (82.2)	
5	1 (1.1)	10 (8.5)	
CTI or other RA ablation, n (%)	46 (48.9)	48 (51.1)	0.83
Additional LA ablation, n (%)	50 (53.2)	54 (45.8)	0.28
Protamine given, n (%)	93 (98.9)	118 (100.0)	0.26

[#]Data unavailable for some patients. Race: $n=60$ (3 h group), $n=100$ (6 h group). BMI: $n=93$ (3 h group), $n=118$ (6 h group). LVEF: $n=83$ (3 h group), $n=104$ (6 h group). *Abbreviations:* BMI, body mass index; LVEF, left ventricular ejection fraction; AF, atrial fibrillation

for 3 sheaths, 82.2 vs. 13.8% for 4 sheaths, 8.5% vs. 1.1% for 5 sheaths; $p < 0.001$). Approximately half of each group underwent additional ablation beyond pulmonary vein isolation, including cavotricuspid isthmus or posterior wall isolation. Protamine was given to 99% and 100% of patients in the 3- and 6-hour bedrest cohorts, respectively.

Seventy-four percent of patients undergoing AF ablation in the 2021 cohort were discharged home the same day compared to 7% of patients in 2019 (Fig. 2). Of the 24 patients who did not have same-day discharge after 3 hours of bedrest, 10 (42%) were admitted for procedure- or anesthesia-related complications, 2 (8%) for monitoring after a complex procedure, 5 (21%) for lack of transportation home, and 7 (29%) for unexplained reasons. Mean time from FO8 suture placement to removal was documented in 71/94 patients, with a mean time of 3 hours and 24 minutes \pm 27 minutes. Bedrest duration was documented for 72/94 patients, with a mean of 3 hours 57 minutes \pm 37 minutes, compared to the intended 3 hours and 15 minutes. Fourteen of the 24 patients in the 3-hour bedrest group who were not discharged same-day had FO8 sutures removed the morning after ablation. Timing of ambulation and suture removal in this subgroup was not precisely documented.

A non-significant increase in minor bleeding was seen with 3 hours versus 6 hours of bedrest (14.9% vs. 7.6%, $p = 0.10$). Fewer patients in the 3-hour bedrest group required opioid analgesia (20.2% vs. 33.1%, $p = 0.039$) or urinary catheterization (26.6% vs. 63.6%, $p < 0.001$) compared to the 6-hour bedrest group. CAUTIs were infrequent in both 3- and 6-hour bedrest cohorts (1.1% vs. 1.7%, $p = 0.70$; Fig. 2). There was 1 vascular access-related complication (retroperitoneal bleed) in the 6-hour bedrest group, and none in the

3-hour bedrest group. There were 3 unplanned health encounters within 30 days of ablation: 1 in the 3-hour bedrest group (ED visit for pericarditis) and 2 in the 6-hour bedrest group (ED visit for epigastric pain, hospitalization for peripheral vertigo; Fig. 2). In a per-protocol sensitivity analysis, which excluded the 28 patients in the 3-hour bedrest group without documented time-to-suture removal or bedrest duration, clinical outcome comparisons yielded similar results—except for reduction in opioid requirement in the 3-hour bedrest group, which was no longer statistically significant (21.2% vs. 33.1%, $p = 0.09$; Supplementary Figure S1).

Table 2 shows univariable and multivariable logistic regression for the outcome of minor bleeding. After multivariable adjustment, number of antithrombotic drugs was the only variable independently predictive of minor bleeding (OR 3.38, $p = 0.005$; Table 2). Table 3 shows univariable and multivariable logistic regression for the outcome of requiring urinary catheterization. After multivariable adjustment, bedrest duration (3 h vs. 6 h: OR 0.21, $p < 0.001$) and procedure duration (OR 1.10 per 10-min increase, $p < 0.001$) were independent predictors of need for urinary catheterization.

Forty-one of the 94 patients in the 3-hour cohort completed the standardized satisfaction survey following bedrest. Survey results were non-normally distributed, therefore are presented as medians and interquartile ranges (IQR). Among the 41 respondents, the median (IQR) score for “overall satisfaction” was 1 (0–3), indicating a high level of satisfaction. These patients also reported minimal discomfort or pain during their 3-h bedrest period, with scores of 1 (0–3) and 1 (0–1), respectively. Forty respondents anticipated that their satisfaction (8 [5–10])

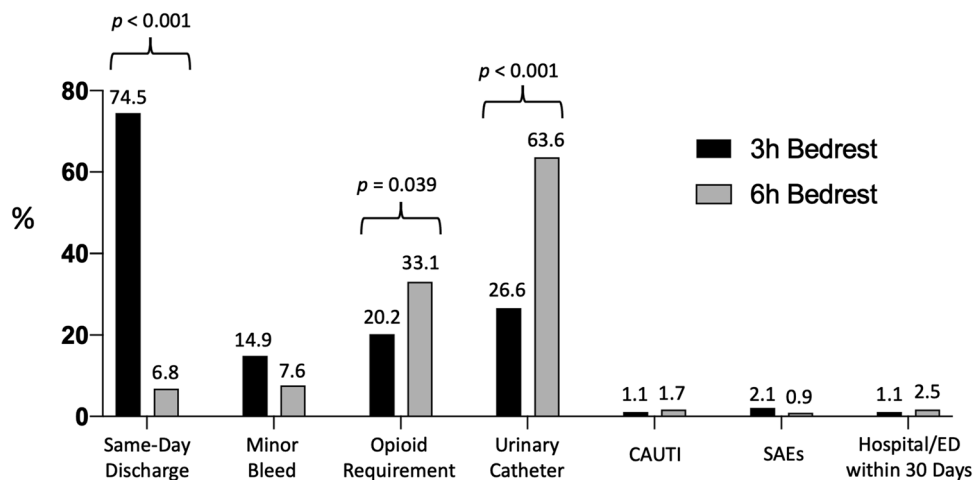


Fig. 2 Clinical outcomes by bedrest cohort. $N = 94$ patients for 3-hour bedrest cohort, $N = 118$ for 6-hour bedrest cohort. Numbers above each bar represent the percentage of that bedrest cohort that experienced a given clinical outcome. Comparisons without a specified p -value were non-significant. *3-hour bedrest group had 1 fatal hemorrhagic stroke and 1 transeptal puncture-related hemopericardium;

6-hour bedrest group had 1 retroperitoneal bleed. #3-hour bedrest group had 1 ED visit for pericarditis; 6-hour bedrest group had 1 ED visit for epigastric pain and 1 hospitalization for peripheral vertigo. SAE, serious adverse event; ED, Emergency Department; CAUTI, catheter-associated urinary tract infection

Table 2 Clinical predictors of minor bleeding

Variable	Minor bleeding			
	Univariate		Multivariate	
	OR	p-value	OR	p-value
Bedrest (3 vs. 6 h)	2.12	0.096	2.56	0.06
Sex (female vs. male)	0.74	0.55		
Age (years)*	1.35	0.21		
Body mass index (kg/m ²)	0.97	0.45		
Hypertension	1.40	0.45		
Sleep apnea	1.85	0.16		
Heart failure	1.07	0.90		
LVEF (%)*	1.61	0.096	1.61	0.11
No. of antithrombotic drugs	2.74	0.01	3.38	0.005
Case duration (min)*	1.04	0.25		
Bilateral femoral access	1.00	1.00		
No. of sheaths	0.99	0.97		
CTI performed	1.20	0.68		
Additional LA ablation	1.40	0.45		

Odds ratios for continuous independent variables correspond to a 1-unit increase unless otherwise stated

*Odds ratio per 10-unit increase in the independent variable

OR, odds ratio; LVEF, left ventricular ejection fraction; CTI, cavotricuspid isthmus ablation; LA, left atrial

Table 3 Clinical predictors of urinary catheterization

Variable	Urethral Catheterization			
	Univariate		Multivariate	
	OR	p-value	OR	p-value
Bedrest (3 vs. 6 h)	0.21	<0.001	0.21	<0.001
Sex (female vs. male)	1.23	0.48		
Age (years)*	1.18	0.25		
Body mass index (kg/m ²)	1.04	0.08	1.03	0.16
Case duration (min)*	1.11	<0.001	1.10	<0.001
CTI performed	0.86	0.56		
Additional LA ablation	1.07	0.80		

Odds ratios for continuous independent variables correspond to a 1-unit increase unless otherwise stated

*Odds ratio per 10-unit increase in the independent variable

OR, odds ratio; LVEF, left ventricular ejection fraction; CTI, cavotricuspid isthmus ablation; LA, left atrial

and discomfort (5 [0–8]) would have been worse had they needed 6 h of bedrest, while their pain may have been similar (1 [0–5], Fig. 3A). Thirteen patients who had at least one prior ablation reported being more satisfied with the current bedrest period than their previous one (0 [0–3]). Levels of discomfort (5 [1–5]) and pain (5 [0–5]) were similar between current and prior ablations among the 9 respondents to these questions (Fig. 3B).

4 Discussion

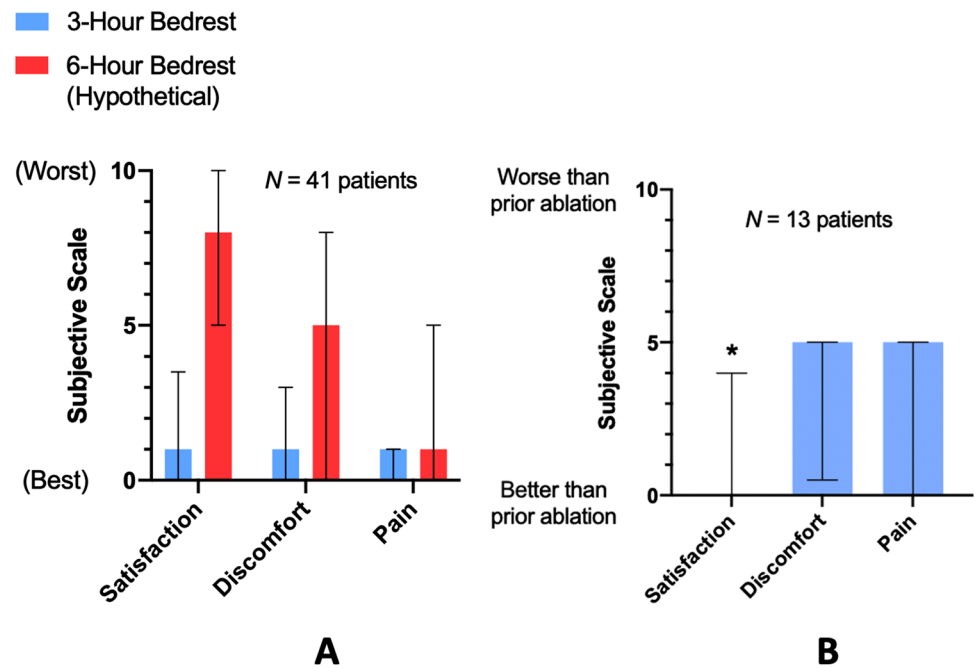
In this prospective, observational analysis of 3-hour bedrest following AF ablation, we found that same-day discharge is feasible and did not result in higher rates of ED visits or rehospitalizations within 30 days. Furthermore, reduced bedrest was associated with decreased urinary catheterization and opioid analgesia use without any significant increase in bleeding.

The markedly higher proportion of same-day discharges in our 2021 cohort than in our 2019 cohort (74% vs. 7%, $p < 0.001$) reflects a paradigm shift at our institution away from routine overnight monitoring following AF ablation, and should therefore not be interpreted as an isolated or direct effect of bedrest reduction. Our rate of same-day discharge is similar to that reported by Deyell et al. In that study, 21% of patients in a large Canadian AF ablation cohort required overnight hospitalization for reasons ranging from anesthesia- or ablation-related complications to lack of transportation home after a late case [9]. This was similar to our findings, in which 26% of patients with reduced bedrest were not discharged on the same day, with approximately half of those 26% staying for lack of transportation or logistical considerations. Reassuringly, we saw no difference between our 2019 and 2021 cohorts in the rates of SAEs, ED visits, or hospital readmissions within 30 days, suggesting that same-day discharge after AF ablation is safe. In addition to increasing hospital bed availability for patients with COVID-19 or other acute illnesses, Chu et al. highlight the economic impact of same-day discharge after AF ablation, estimating that it would save hospitals up to \$7,500 per patient [8]. Further study of the cost impact of same-day discharge following AF ablation is warranted.

Patients in the 3-hour bedrest cohort required urinary catheterization with less than half the frequency of those in the 6-hour bedrest cohort, even after adjusting for procedure duration. Data from the surgical literature demonstrate benefits of early mobilization in preventing urinary retention [16]. Though our study was not powered to detect a difference in CAUTIs, it is reasonable to expect that decreased rates of urinary catheterization resulting from reducing bedrest duration would also result in decreased risk of CAUTIs [17]. In a study of 800 patients undergoing left atrial ablation procedures, Mohanty et al. showed a CAUTI reduction from 4.3 to 0% with placement of a vascular closure device and reduction of bedrest from 6 to 2 hours $p < 0.001$ [12]. Given its associated morbidity and mortality, [18] reducing CAUTI risk is of great importance.

Opioid analgesia is often required for chronic back and musculoskeletal pain exacerbated by prolonged bedrest. One in three patients in the 6-hour bedrest group required

Fig. 3 Patient experience of post-ablation bedrest. Depicted below are patient-reported median levels of satisfaction, discomfort, and pain associated with their 3-hour bedrest period (A) compared to those anticipated if their bedrest had been 6 hours, and (B) compared to those recalled from prior catheter ablations. Error bars represent interquartile ranges. *Median satisfaction compared to previous ablation was zero



opioid analgesia compared to only 1 in 5 patients in the 3-hour bedrest group. This correlation remained consistent in direction and magnitude in our per protocol sensitivity analysis. Our observation that decreased bedrest results in reduced need for opioid analgesia is similar to findings from prior studies [10, 12]. The impact of shortening bedrest may extend beyond reducing post-procedural pain itself, given that opioid treatment for acute pain increases the risk of chronic opioid use and its associated morbidity and mortality. [19].

The minor bleeding rate we observed in our 3-hour bedrest cohort (14.9%) was somewhat higher than that reported elsewhere in the literature for patients undergoing AF ablation with FO8 suture placement [11, 13, 20]. This likely reflects the longer bedrest or longer time to suture removal employed in previous studies: for example, Okada et al. observed a 3.7% rate of minor bleeding, but used a bedrest period of 4 hours and did not remove groin sutures until the morning after ablation [13]. Issa and Amr reported minor bleeding in 7.3% of their patients with a 3-hour bedrest period, but FO8 sutures were similarly left in place overnight [11]. The statistically comparable minor bleeding risk between our 3- and 6-hour bedrest cohorts (14.9 vs. 7.6%, $p = 0.10$) is reassuring, but the relatively low numbers of bleeding events in our study raise the possibility that this comparison may have been underpowered. Furthermore, the observed trend toward increased bleeding in our 2021 cohort may reflect the increased number of sheaths per femoral vein that resulted from our transition to unilateral access. Even if present, however, a potential increase in minor bleeding with shorter bedrest and prompt suture removal may be outweighed by

enhanced patient satisfaction, prompt discharge, and lower rates of opioid use and urinary catheterization. Furthermore, given that number of antithrombotic agents independently predicted the likelihood of minor bleeding in our multivariate analysis, patients on multiple antithrombotic agents may represent a subgroup in whom extended bedrest or later suture removal could be considered.

When surveyed after their bedrest period, patients in our 3-hour cohort reported high levels of satisfaction and low levels of pain and discomfort—and estimated that they would have experienced less satisfaction and more discomfort had their bedrest period been 6 hours. The subset of patients who recalled having previous ablations (with 6 hours of bedrest) noted more satisfaction with the current bedrest period. These findings are similar to those reported by Natale et al., who examined patients using the VASCADE vascular closure device in whom bedrest was limited to 2–2.5 hours, and serve to emphasize the sizeable impact of bedrest reduction on patient experience. [10].

Our study has several limitations. First, low numbers of re-hospitalizations, ED visits, and minor bleeding events limited our statistical power to detect differences in these endpoints. Second, there were notable differences in baseline characteristics between bedrest cohorts (e.g., fewer venous sheaths and slightly shorter procedure times in the 3-hour cohort); however, these were adjusted for in multivariate analyses. Hospital readmissions, ED visits, and SAEs were adjudicated using a database specific to our institution, therefore urgent health encounters or complications addressed at other hospitals may have been missed. The lack of structured data collection form or survey for our retrospective (2019)

cohort precluded definitive between-group comparisons of patient experience, or a more nuanced analysis of time to ambulation and suture removal among patients in the 6-hour bedrest group. Finally, we could not eliminate the possibility of confounding by unassessed clinical variables given the observational nature of our study.

5 Conclusion

Same-day discharge is feasible and safe for patients undergoing AF ablation with FO8 sutures and 3 hours of bedrest. Reducing post-procedural bedrest from 6 to 3 hours decreases the need for urinary catheterization and opioid analgesia and results in higher levels of patient comfort and satisfaction, without a significant increase in bleeding, peri-procedural complications, re-hospitalization, or ED visits. Future studies are warranted to evaluate the financial impact of same-day discharge prospectively, and to examine if reduced bedrest offers similar benefits for other types of catheter ablations.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s10840-022-01255-4>.

Declarations

Ethics approval The BIDMC Committee on Clinical Investigations approved our investigation (IRB Protocol # 2019D000754) as a quality improvement project and determined that it did not constitute human subjects research.

Consent to participate Informed consent was not required.

Competing interests The authors declare no competing interests.

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