

# Antithrombotic regimens after aortic or mitral valve repair or replacement in hemodialysis patients



Kimberly Hilchie, B.Sc.(Bio), B.Sc.(Pharm); Erica Wang, B.Sc.(Pharm), Pharm.D; Wynnie Lau, B.Sc.(Pharm), Pharm.D; Thuy Le, RN, NP

## Background

- Patients with end-stage renal disease (ESRD) on hemodialysis (HD) may have valvular heart disease (VHD) requiring valve replacement with prosthetic heart valves (PHV)
- PHV increases the annual risk of major thrombosis
- HD patients are at an increased risk of thrombosis and bleeding
- No major cardiology or nephrology guidelines offer recommendations for antithrombotics in HD patients with PHV
- The objective of this study is to characterize the antithrombotic regimens after prosthetic valve replacement in HD patients

## Methods

- Retrospective, cross-sectional chart review

### Inclusion Criteria

- Age ≥ 18 years
- ESRD patient undergoing HD at a dialysis unit in BC with clinical pharmacist coverage
- Aortic and/or mitral valve repair or replacement in BC between Jan. 1, 2008 and Dec. 31, 2014

### Exclusion Criteria

- Tricuspid or pulmonary valve surgery only
- Contraindication to ASA or warfarin
- Patients without a profile in the PROMIS database
- Kidney transplant or peritoneal dialysis in year following surgery

### Primary Outcome

- % of patients on ASA, warfarin, ASA and warfarin, or no therapy, at discharge and one year after aortic valve replacement (AVR) (bioprosthetic or mechanical) and/or mitral valve replacement (MVR) (mechanical)

### Secondary Outcome

- % of patients who are on guideline-recommended antithrombotic therapy at discharge, 3 months, and one year

### Statistics

- Descriptive

## Results

Table 1. Baseline characteristics at the time of valve surgery

Parameter	AVR (n = 13) <sup>a</sup>	MVR (n = 9) <sup>a</sup>
Age, years, mean ± SD	64.5 ± 13.4	55.8 ± 12.7
Male, n (%)	8 (61.5)	6 (66.7)
Duration of HD <sup>b</sup> , years, mean ± SD	4.6 ± 4.4	6.7 ± 5.5
Fistula for HD access, n (%)	7 (53.8)	7 (77.8)
<b>Antithrombotic medications prior to valve surgery</b>		
Warfarin, n (%)	4 (30.8)	2 (22.2)
ASA, n (%)	6 (46.2)	5 (55.6)
ASA dose (mg), mean ± SD	81.0 ± 0.0	81.0 ± 0.0
<b>Antithrombotic indications</b>		
Atrial fibrillation, n (%)	6 (46.2)	5 (55.6)
CHADS <sub>2</sub> score, mean ± SD	3.0 ± 1.7	2.4 ± 0.9
Previous pulmonary embolism, n (%)	1 (7.7)	0 (0.0)
Coronary artery disease, n (%)	8 (61.5)	4 (44.4)
Stroke or TIA, n (%)	2 (15.4)	2 (22.2)
Peripheral vascular disease, n (%)	5 (38.5)	3 (33.3)
<b>Type of valve replacement</b>		
Mechanical valve, n (%)	2 (15.4)	5 (55.6)
Bioprosthetic valve <sup>c</sup> , n (%)	11 (84.6)	4 (44.4)

Abbreviations: HD, hemodialysis; SD, standard deviation

a. Two patients had both aortic and mitral valve replacement, and are therefore counted twice, once in each category

b. Does not include previous years of peritoneal dialysis

c. Includes transcatheter valve implantation

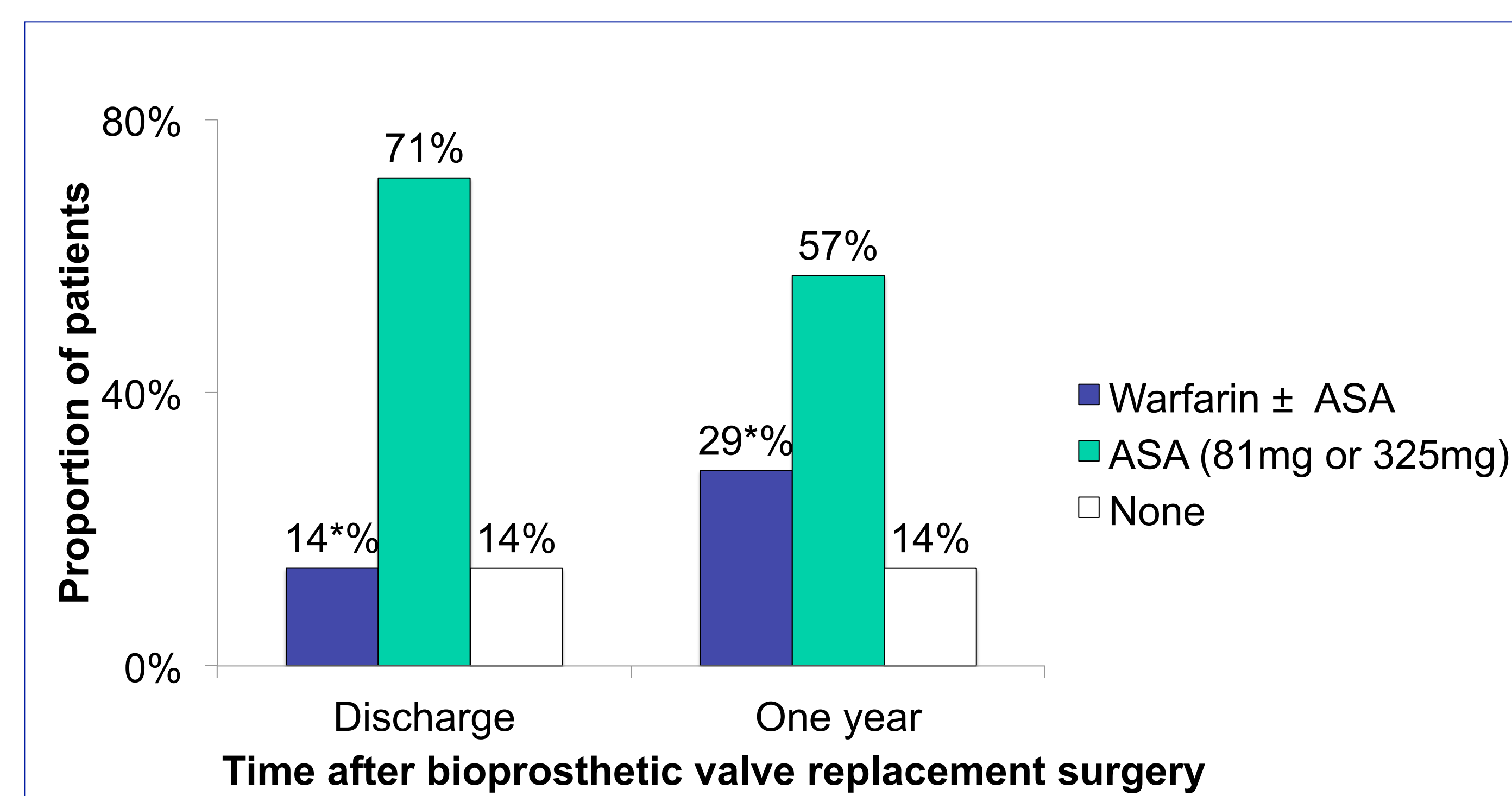


Figure 2. Antithrombotic regimens after aortic bioprosthetic valve replacement surgery in patients with ESRD undergoing HD (n = 7).

\*All patients had an indication for warfarin therapy

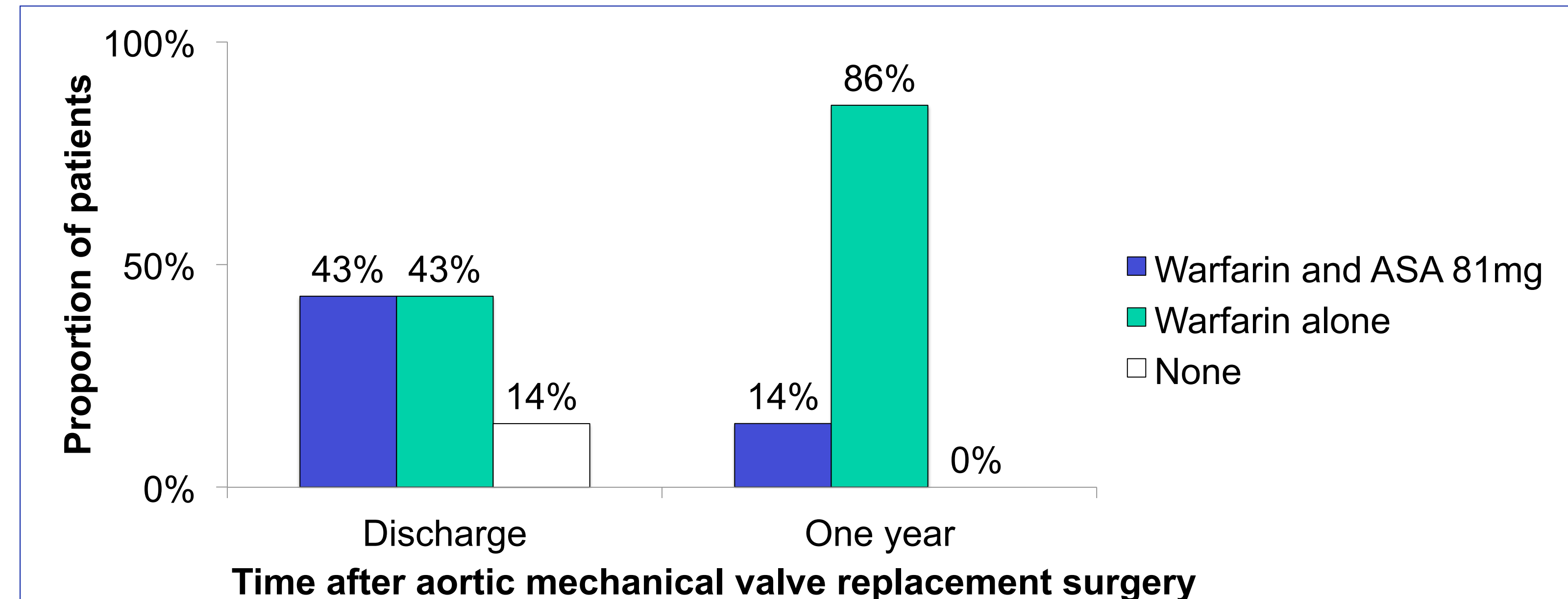


Figure 3. Antithrombotic regimens after aortic and mitral mechanical valve replacement surgery in patients with ESRD undergoing hemodialysis (n = 7).

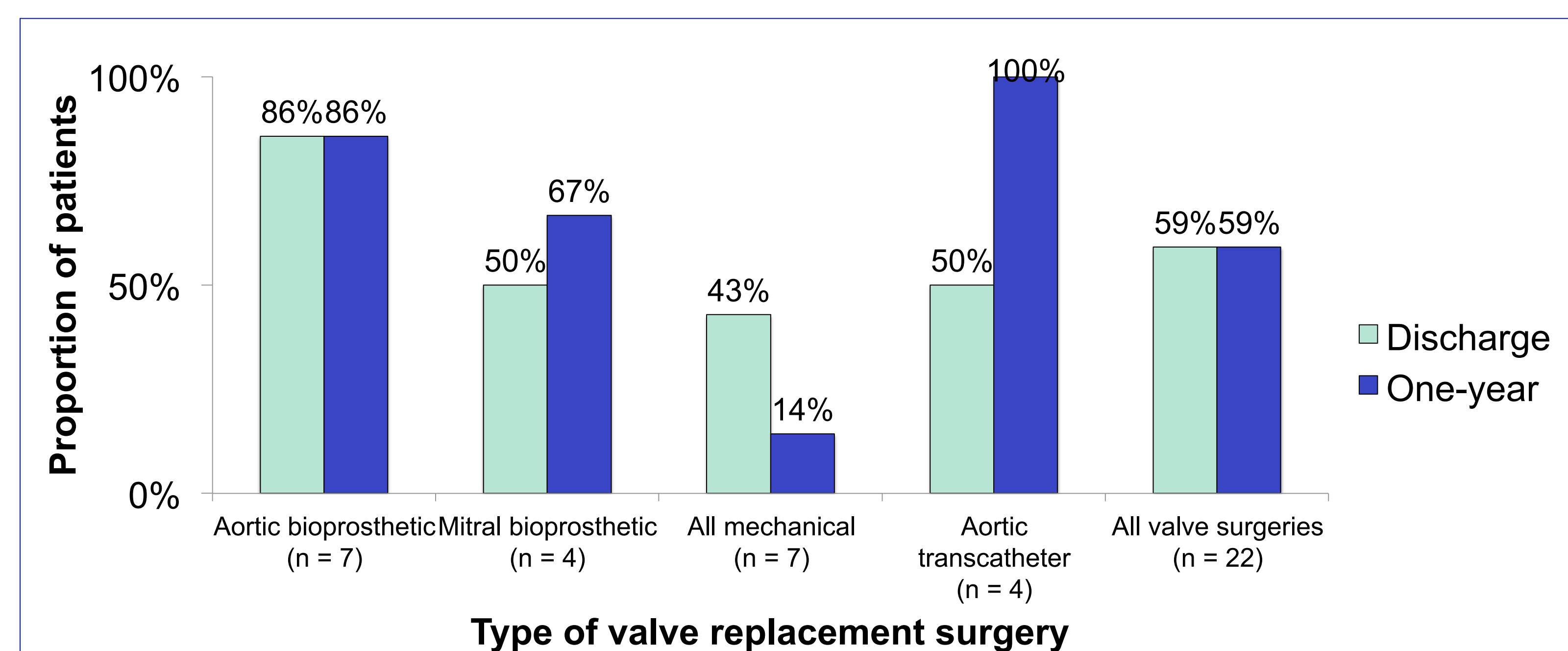


Figure 4. Proportion of patients on optimal antithrombotic therapy at discharge and one year after valve surgery.

## Discussion

- A small number of HD patients undergo valve surgery
- Many were not on optimal antithrombotic therapy prior to valve surgery

### Primary Outcome

- Most with bioprosthetic AVR were taking ASA or warfarin-based regimens at discharge; the intensity of antithrombotics did not change in the year after surgery
- <50% with mechanical valve surgeries were taking ASA and warfarin at discharge, and there was a reduction in intensity of antithrombotic therapy one year after surgery (i.e. 86% were on warfarin alone)

### Secondary Outcome

- 59% of patients were receiving guideline-recommended antithrombotic therapy at discharge and one year after valve surgery
- In general, there was a reduction in antithrombotic intensity within one year of valve surgery

### Limitations

- Retrospective design; small sample size; no statistics performed; PROMIS database information may be incomplete; unable to assess compliance, target INR ranges, or reasons for changes in therapy

## Conclusions

- ESRD patients on HD are generally not on guideline-recommended therapy at discharge or one year after prosthetic valve replacement
- Antithrombotic regimens tended to decrease in intensity during the year following prosthetic valve replacement

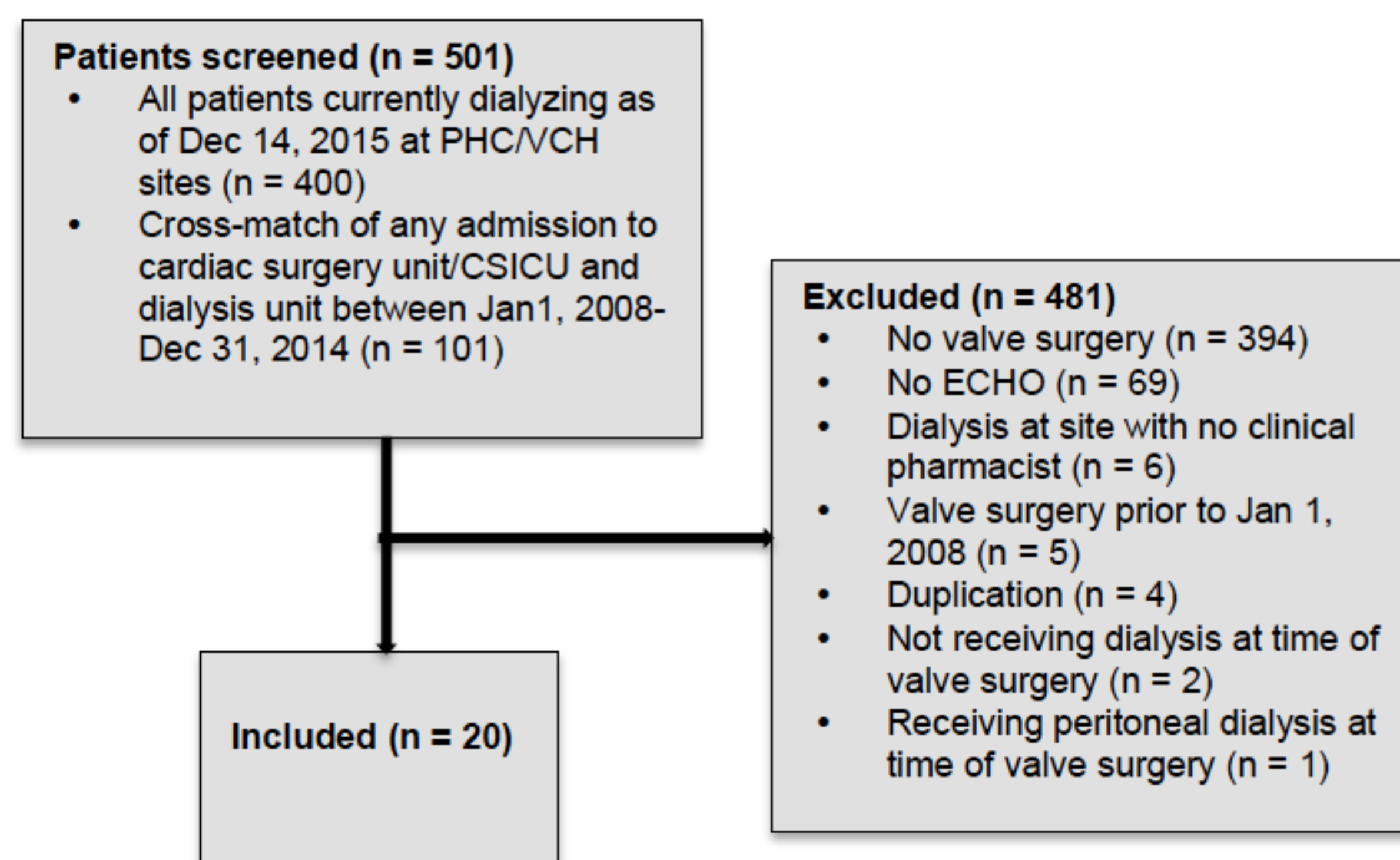


Figure 1. Patient flow diagram