

Diuretic prescription at hospital discharge after cardiac surgery: single-center, cross-sectional study

Eleia Mosaad¹, Mohamed Alfrargy¹, Ghezlan Sadek², Mohamed Kandil², Mohamed Elazab², Mona Amin², Ahmed Elgendy¹, Hoda Mahmoud², Dina Ghanem², Asmaa Yassin², Omar Mohamed¹, Ahmed Eldowaik¹

1) Critical Care Department, Aswan Heart Centre, Magdi Yacoub Foundation, Aswan, Egypt;

2) Nursing Department, Aswan Heart Centre, Magdi Yacoub Foundation, Aswan, Egypt.

Background:

Fluid shift and volume overload are major consequences of cardiopulmonary bypass after cardiac surgeries. Fluid overload has been associated with poor outcomes. Diuretic use is a cornerstone of managing postoperative volume overload during the hospital stay. We identified a gap in the literature regarding the use of diuretics post-hospital discharge after cardiac surgery patients.

Aim and objectives:

Our study aimed to describe our practice at Aswan Heart Centre regarding prescribing diuretic agents for patients after cardiac surgery at the time of hospital discharge.

Methods:

We conducted a cross-sectional study and screened all adult patients who underwent CABG, valvular heart surgeries, or both between January 2022 and December 2023 and survived till hospital discharge. We reviewed patients' charts and collected significant data, including the prescription of diuretic therapy at the time of hospital discharge. All variables were summarized and interpreted depending on the measurement scale and data distribution. We used the Chi2 test to compare non-continuous variables between groups.

Result:

We have identified 501 eligible patients, but we were unable to retrieve data for five patients. Hence, we analyzed the data for 496 patients. 328 (66.1%) were males. 219 (44.2%) patients underwent CABG, 258 (52%) had valvular surgery (VHD), and 19 (3.8%) had concomitant CABG and valve surgeries.

The median (IQR) age was 51 (38 – 59.3) years. 290 (58.4%) patients had a BMI of 25 or more. 97 (19.5%) patients were hypertensives, 63 (12.7%) were diabetics, and 121 (24.3) had hypertension and diabetes. 132 (26.6%) patients had a preoperative LV ejection fraction of less than 50%. The median cardiopulmonary bypass and cross-clamp times were 135 (105-177) and 84.5 (60.8-118) minutes, respectively. The median ICU length of stay (LOS) was 3 (2-4.6) days, and hospital LOS was 10 (7-17) days.

186 (37.7%) patients had postoperative AKI according to KDIGO classification using creatinine criteria (ninety-six had stage I, sixty-one had stage II, twenty-nine had stage III, and eleven required RRT). IABP was used in eleven patients, and three had CHB requiring PPM insertion.

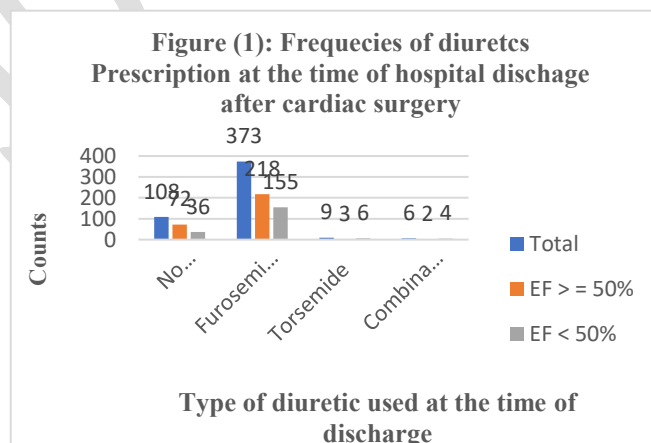


Figure (1)

At the time of discharge, 295 Patients had LVEF > 50%; we divided patients into two groups based on LVEF. We found no statistically significant difference between the two groups regarding the presence of either residual pericardial effusion in the pre-discharge echocardiography or more than mild pleural effusion in the last X-ray. Of patients with LVEF > 50%, 234 (79.3%) were discharged on regular oral diuretic therapy. The frequencies of different diuretic agents used are shown in Figure (1).

Conclusion:

We found that diuretics prescription is widespread in our center for patients after cardiac surgery. This practice was not only restricted to the traditional indication to treat fluid retention in patients with HFrEF as per guidelines. This is due to the multifactorial nature of volume overload after cardiac surgery. Whether this practice would affect patient outcomes or not needs to be investigated in further interventional studies.

Keywords:

Coronary Artery Bypass Grafting, Valvular Heart Disease, Left Ventricular Ejection Fraction, Cardiopulmonary Bypass, Residual Pericardial Effusion, Pleural Effusion.