Comparing Efficacy and Safety of Verapamil versus Diltiazem in Atrial Fibrillation with Rapid Ventricular Response

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Introduction: Rate control is the preferred strategy for acute management of patients with atrial fibrillation with a rapid ventricular response. The two common class of drugs used are beta blockers and calcium channel blockers. Verapamil and diltiazem are used interchangeably in most cases. ACC/AHA guidelines have called them as first-line management for Atrial fibrillation/flutter with rapid ventricular response (Afib, RVR) (class I, level A). We aimed to compare the safety along with the efficacy of these drugs for management of A-fib with RVR.

Methods: A retrospective analysis of 200 patients admitted with Afib with RVR was done. They were divided into 2 groups, based on whether they received verapamil or diltiazem drip. Patients with acute coronary syndrome, who underwent electrical or chemical cardioversion were excluded. The primary end-points were the time required for rate control and the mean heart rate achieved. The secondary end-point was spontaneous cardioversion achieved. Safety of the drugs was compared in terms of rate of hypotension, recurrence of RVR or Afib if sinus rhythm was achieved.

Result: There were 60 patients in each group with comparable baseline characteristics. The average time required for rate control was less in the verapamil group as compared to diltiazem group (23 hr vs 27 hr, p-value 0.1). Better control of heart rate (<80 bpm vs 80-100 bpm) was achieved in verapamil group (50% vs 14%, p-value 0.002). The result remained significant in multiple linear regression analysis. More spontaneous cardioversion was achieved in the diltiazem group (11% vs 23%, p-value 0.09). There was no difference in the complication rates between the two groups. Baseline Characteristics Verapamil Diltiazem p-value Average Age (in yr) 72±14 74± 14 0.1 No of Females (in %) 30 (50%) 24 (40%) 0.2 History of Heart Failure 19 (31%) 19 (31%) 1 History of coronary artery disease 14 (23%) 10 (16%) 0.36 disease Outcome Measures Verapamil Diltiazem p-value Average time for rate control (in hrs) 23.27 0.2 control (in hrs) Average heart rate 80-100 bpm(%) 30 (50%) 46 (92%) 0.02 < 80 bpm(%) 30 (50%) 14 (23%) 0.02 Sinus Rhythm Achieved 14 (23%) 7 (11%) 0.09 Complications Verapamil Diltiazem p-value Hypotension 5 (8%) 7 (11%) 0.54 Recurrence of RVR 10 (16%) 14 (23%) 0.3

Conclusion: Our study revealed that better heart rate control was achieved with verapamil without any significant difference in complication rate. Heart rate control was also achieved faster in Verapamil group by approximately 4 hours on average. This result though clinically significant, but it could not reach statistical significance.