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## A comparative study of Ivabradine and Bisoprolol used in combination versus up titration of Bisoprolol to maximum dose in patients with systolic heart failure and left ventricular systolic dysfunction

Sadia Akram

Khyber Medical University, Pakistan

Reduction in heart rate in patients with heart failure is related to improved cardiovascular outcomes. The primary objective of this study was to compare the therapeutic effects of Ivabradine used in combination with Bisoprolol versus up titration of Bisoprolol in South Asian population with systolic heart failure and left ventricular systolic dysfunction. Patients with systolic heart failure (n=114), LVEF < 35% by Teichholz method, NHYA class I-III, sinus rhythm and resting HR > 70 bpm, already on Bisoprolol 5 mg od/p.o were divided into 2 groups; each group had 57 patients randomly assigned. Group 1 (n=57) patients were up titrated to Bisoprolol 10 mg od/p.o and patients in Group 2 (n=57) received Ivabradine 5 mg b.i.d/p.o in addition to Bisoprolol 5 mg od/p.o. Blood samples for BNP level, an ECG, echocardiogram, systolic and diastolic BP were taken at selection (visit 0), after 2 weeks (visit 1), at 4 weeks (visit 2), at 12 weeks (visit 3), and finally at 24 weeks after completion of treatment for follow up of study (visit 4). There was a significant decrease in mean resting heart rate in Ivabradine group as compared to Bisoprolol group. Addition of Ivabradine also improved the heart failure symptoms with significant decrease in BNP. The effect on LVEDD and LVESD did not differ significantly between the two groups. However, a significant increase was observed in LVEF in Ivabradine group as compared to Bisoprolol group. The effect on systolic BP and diastolic BP was significantly affected by the up titration of Bisoprolol whereas neither parameter showed significant affect with the addition of Ivabradine. This study concludes that long-term reduction of heart rate with Ivabradine 5 mg b.i.d/p.o and Bisoprolol 5 mg od/p.o when used in combination has proven to improve primary efficacy endpoint, left ventricular ejection fraction, symptoms of heart failure and BNP significantly.

### Biography

Sadia Akram has completed her MPhil in Pharmacology at the age of 27 years from Khyber Medical University, Peshawar and has worked as a Clinical Pharmacist in department of Cardiology at Rehman Medical Institute from May 2013 to Dec 2017. She has recently joined Yusra Institute of Pharmaceutical Sciences as Assistant Professor Clinical Pharmacy and is also a member of Graduate Studies & Research Board.