
CAR-19**Heart rate and blood pressure in mitral valve prolapse patients: divergent effects of long-term propranolol therapy. Correlations with catecholamines**

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Introduction: There is a well-known association between mitral valve prolapse (MVP) and low blood pressure (BP), although patients (P) often have high levels of catecholamines (CAT) and high heart rate (HR). To our knowledge, there are no studies about the effects of long-term adrenergic β -blockade on these parameters.

Methods: Twenty normal individuals (N)—8 males (M) (49.9 ± 12.9 years) and 12 females (F) (41.8 ± 11.8 years); 46 MVP P—15 M (49.3 ± 15.5 years) and 31 F (42.0 ± 12.8 years). Phase1—in both N and P free of medication, determination of (1) 24H urinary epinephrine (E) and norepinephrine (NE) by HPLC; (2) rest HR by ECG; (3) 24H ambulatory HR and BP (ABM). Phase2—same tests in MVP P while taking propranolol by 10 to 12 months.

Results: CAT ng/mg creatinine: E—M 5.1 ± 2.5 (N), 9.1 ± 3.9 (Ph1), 7.9 ± 3.1 (Ph2); F 6.2 ± 3.5 (N), 13.0 ± 9.7 (Ph1), 10.7 ± 6.7 (Ph2). Higher in P ($P < .01$), lower under propranolol ($P = .002$). NE—M 22.2 ± 7.2 (N), 36.8 ± 16.8 (Ph1), 27.4 ± 10.6 (Ph2); F 28.1 ± 7.3 (N), 46.2 ± 18.1 (Ph1), 33.0 ± 12.9 (Ph2). Higher in P ($P < .01$), lower under propranolol ($P < .001$). HR—M 75 ± 5.4 (N), 79 ± 7.2 (Ph1), 65 ± 3.8 (Ph2); F 74 ± 3.2 (N), 80 ± 6.5 (Ph1), 69 ± 6.2 (Ph2). Lower under propranolol ($P < .0001$). ABM: phase1—HR higher in P. SBP and DBP lower in P. Phase2—lower HR whereas higher SBP and DBP in P under propranolol. No correlation between BP and CAT. Correlation between E levels and rest HR.

Conclusions: These MVP patients had high levels of CAT, high HR, and low BP. With long-term β -blockade, HR decreased related to E, but BP raised, supporting the role of β_2 receptors supercoupling on low BP in MVP.