

Ice Water Ingestion and Sympatho-vagal Balance in Healthy Subjects: Importance of Time-Domain Heart Rate Variability

Savitri Siddanagoudra MD (Physiology), Priya S. A. MD (Physiology), Shobha Nallulwar MD (Physiology),
Dharwad, India

ABSTRACT

Background: Literature has witnessed the recognition of a significant relationship between the autonomic nervous system and cardiovascular mortality. In patients with autonomic failure, water drinking has been shown to produce changes in hemodynamics in terms of high blood pressure and bradycardia. In healthy individuals, this has been not addressed. Therefore, this study is aimed to record the time domain parameters of heart rate variability (HRV) in healthy subjects after ice water ingestion.

Methods: This cross sectional study included a total of 60 healthy subjects between the age group of 18-24 years, randomly assigned into two groups. Study group ingested ice water and control group ingested normal room temperature water. Before and after water ingestion, time domain parameters of HRV were recorded. Statistical data was analyzed by Student's unpaired *t* test.

Results: The primary endpoints RRI, SDNN, RMSSD were significantly increased and mean HR was decreased after ice water ingestion, when compared with those after room temperature water ingestion indicating vagal activity. The results are consistent with previous studies. On the other hand, HRV parameters did not change significantly ($p > 0.05$) in control group before and after room temperature water ingestion.

Conclusion: Ice water ingestion can reduce heart rate by vagal modulation in healthy subjects assuming supine position. (J Clin Prev Cardiol. 2015;4(2):27-31)

Keywords: Ice water ingestion, heart rate variability, reduced heart rate, vagal modulation

From: SDMCMS&H, Dharwad, Karnataka, India (S.S., S.N.), Dept of Physiology, JSSMC, Mysore, Karnataka, India (P.S.A)

Corresponding Author: Savitri Siddanagoudra MD (Physiology)

Assistant Professor, Dept of Physiology, SDMCMS&H,

Dharwad: 580009, Karnataka, India.

Email: putti50919@gmail.com