

**Comparison of left ventricular mass (LVmass) in people with normal and less than normal body mass index (BMI) who referred ( 2-16 years) to the clinic of Bouali hospital in Ardabil-2021**

**Abstract**

**Background:** Increased LV mass and LV hypertrophy creates a long-term risk of sudden death. Increased LV mass, which is evaluated by electrocardiography or echocardiography, is an independent risk factor the development of reduced left ventricular stroke volume, which itself increases the risk of heart attack.

**Aim:** The purpose of this study is to determine and compare the left ventricular mass (LV MASS) in people with normal and less than normal body mass index (BMI) referring to BoAli Hospital in Ardabil.

**Materials and Methods:** The study was conducted in 2021 on 101 people with normal BMI and 81 people with less than normal BMI. In order to select the samples in the groups, they were available from the patient people who referred to BoAli Hospital clinic, according to the entry criteria. All samples were subjected on the M-mode echocardiography and LV mass calculated for them using the Devereux formula, then the height and weight of all the participants were registered and BMI was calculated for all them, after that using Dubois & Dubois formula, the body surface area (BSA) was calculated for all subjects in the study and LVMI was obtained through the formula (LV mass / BSA). SPSS version 21 statistical software and Pearson correlation, independent t-chi square, multiple linear regression statistical tests were used for analysis, considering a significance level of less than 5%.

**Results:** A total of samples participated in the study. 101 people (55.5%) had normal BMI and 81 people (44.5%) had low BMI. The participants ranged in age from 2 to 15 years with an average of 7.17 years. There was a significant difference in the distribution of people in term of LVMI between people with normal and low BMI. (P value=0.047) A significant difference was seen between the average LVMass in people with normal BMI and people with low BMI.(P value<0.001) There was no significant difference between boys and girls in the

average LVMass in the group with normal BMI (P value=0.91) and in group with low BMI (P value=0.23). In both groups with normal and low BMI numerical values of BMI, waist circumference, height, age and weight were significantly and directly related to LVMass.

**Conclusion:** LV mass is significantly different in subjects with normal and low BMI in subjects aged 2 to 16 years who entered to study, but when adjusted for LV mass using body surface area ratio (BSA) there is no longer a significant difference between subjects with normal and low BMI.

**Keywords:** pediatric, body mass index, left ventricle mass, heart disease