

Biometric evaluation of the human coronary arteries

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It is essential to cardiologist and heart surgeon to be habituated with the coronary arteries anatomy, for the interpretation of angiographic abnormalities requires deep knowledge of the regular patterns of the coronary system. The goal of this study was to determinate the average diameter of both right and left coronary arteries and the total amount of branches, as well as the found variations. Eighteen hearts were dissected, obtained from adult cadavers from both sexes, fixated on 10% formal-deid solution and kept on isopropyl alcohol 70%, belonging to the Anatomy Laboratory of Universidade do Vale do Itajaí. The hearts did not present evidence of any morphologic alteration. They were dissected with assist of a stereoscopic magnifying glass. The left and right coronary arteries had their diameter analyzed through digital photography and the ImageJ 1.39 u software. Besides, an analysis of the amount and variations of coronary artery branches was made on the samples. The right coronary artery showed an average diameter of 3.76 mm, while the left showed 5.66 mm. Only one heart (5.5%) had a bigger diameter on the right coronary artery. On 44.5% of the hearts, the left coronary artery had trifurcated, originating the anterior, circumflex and marginal interventricular branches, while 55.5% of the artery had only bifurcated, originating the anterior and circumflex interventricular branches. In all hearts, the right coronary artery presented the left marginal and posterior interventricular branches. The right coronary artery had an average of 13.1 branches, while the left coronary artery showed about 20 branches. The anastomosis between the anterior interventricular branch and the posterior was on 44.5%, showing frequency related to the literature. On 94.5% of the hearts, the artery for both the sinoatrial and atrioventricular node was found. The coronary arteries demonstrates great variability of the origin and amount of branches, which knowledge is important not only for coronary angiographic exam but also for the revascularization myocardial surgery. The left coronary artery shows higher diameter and amount of branches than the right coronary, an important factor on coronary surgeries.