

A Study of Common Carotid Artery Behavior from B-Mode Ultrasound Image for Different Gender and BMI Categories

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Abstract : The increment thickness of intima-media thickness (IMT) which involves the changes of diameter of the carotid artery is one of the early symptoms of the atherosclerosis lesion. The manual measurement of arterial diameter is time consuming and lack of reproducibility. Thus, this study reports the automatic approach to find the arterial diameter behavior for different gender, and body mass index (BMI) categories, focus on tracked region. BMI category is divided into underweight, normal, and overweight categories. Canny edge detection is employed to the B-mode image to extract the important information to be deal as the carotid wall boundary. The result shows the significant difference of arterial diameter between male and female groups which is 2.5% difference. In addition, the significant result of differences of arterial diameter for BMI category is the decreasing of arterial diameter proportional to the BMI.

Keywords : B-mode Ultrasound Image, carotid artery diameter, canny edge detection, body mass index

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