

Equation for Predicting Inferior Vena Cava Diameter as a Potential Pointer for Heart Failure Diagnosis among Adult in Azare, Bauchi State, Nigeria

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Abstract : Background: Dilatation of the inferior vena cava (IVC) is used as the ultrasonic diagnostic feature in patients suspected of congestive heart failure. The IVC diameter has been reported to vary among the various body mass indexes (BMI) and body shape indexes (ABSI). Knowledge of these variations is useful in precision diagnoses of CHF by imaging scientists. Aim: The study aimed to establish an equation for predicting the ultrasonic mean diameter of the IVC among the various BMI/ABSI of inhabitants of Azare, Bauchi State-Nigeria. Methodology: Two hundred physically healthy adult subjects of both sexes were classified into under, normal, over, and obese weights using their BMIs after selection using a structured questionnaire following their informed consent for an abdominal ultrasound scan. The probe was placed on the midline of the body, halfway between the xiphoid process and the umbilicus, with the marker on the probe directed towards the patient's head to obtain a longitudinal view of the IVC. The maximum IVC diameter was measured from the subcostal view using the electronic caliper of the scan machine. The mean value of each group was obtained, and the results were analysed. Results: A novel equation $\{IVC \text{ Diameter} = 1.04 + 0.01(X) \text{ where } X = \text{BMI}\}$ has been generated for determining the IVC diameter among the populace. Conclusion: An equation for predicting the IVC diameter from individual BMI values in apparently healthy subjects has been established.

Keywords : equation, ultrasonic, IVC diameter, body adiposities

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