Abstract

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Contour analysis of the photoplethysmographic pulse measured at the finger.

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Abstract

Analysis of the contour of the peripheral pulse to assess arterial properties was first described in the nineteenth century. With the recognition of the importance of arterial stiffness there has been a resurgence of interest in pulse wave analysis, particularly the analysis of the radial pressure pulse acquired using a tonometer. An alternative technique utilizes a volume pulse. This may conveniently be acquired optically from a finger (digital volume pulse). Although less widely used, this technique deserves further consideration because of its simplicity and ease of use. As with the pressure pulse, the contour of the digital volume pulse is sensitive to changes in arterial tone induced by vasoactive drugs and is influenced by ageing and large artery stiffness. Measurements taken directly from the digital volume pulse or from its second derivative can be used to assess these properties. This review describes the background to digital volume pulse contour analysis, how the technique relates to contour analysis of the pressure pulse, and current and future applications.

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