

Correlation between hand ischemia questionnaire and peak systolic velocity of radial artery and ulnar in hemodialysis patients with upper arm native fistula arteriovenosa

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Abstrak

Introduction: Steal syndrome that occurs due to vascular access is one of the most feared complications after making a fistula arteriovenous (FAV). It is necessary to develop an assessment for early detection. Hand ischemia questionnaire (HIQ) and measurement of peak systolic velocity (PSV) of the radial artery and the ulnar artery are a form of subjective and objective examinations used to detect steal syndrome. The aim is to determine the correlation between HIQ and PSV of the radial artery and ulnar artery in hemodialysis patients with upper arm's native FAV to detect symptoms of steal syndrome.

Method: This is a cross-sectional study conducted in Cipto Mangunkusumo National Hospital from March to May 2019. Patients undergoing hemodialysis using upper arm native access FAV with or without symptoms of ischemia in the hands were included. Patients were asked to fill HIQ by interview, and then continued with measurement of PSV of the radial arteries and distal ulnar arteries from the hands with FAV.

Results: A total of 80 samples were taken with 43 were women (53.8%), and 37 were men (46.2%). About 91.2% of the samples were FAV at the brachiocephalic level. The median age of the samples was 53 years. From the total HIQ score obtained, the results were a minimum of 0, maximum of 70, and a median value of 3. PSV of radial artery were minimum of 20 cm/s, maximum of 79 cm/s, and median 40 cm/s. The minimum PSV of the ulnar artery was 16 cm/s, the maximum was 70 cm/s, and the median was 41 cm/s. There was a significant correlation between the hand ischemia questionnaire and the peak systolic velocity of the radial artery and the ulnar artery in patients with native upper arm FAV ($p < 0.001$), but after diagnostic testing, it was found that sensitivity was only 15% and specificity was 100%.

Conclusion: There was a significant correlation between hand ischemia questionnaire and peak systolic velocity of the radial artery and ulnar artery in patients with upper arm native FAV, but due to the low sensitivity, the hand ischemia questionnaire cannot be used as an initial examination to detect steal syndrome in patients with no symptoms of hand ischemia.