

## Photoplethysmography와 전자혈압계로 측정된 ankle brachial pressure index(ABI)의 유용성

건양의대 내과 이창원, 박근용, 부산의대 내과 손석만, 김민주, 김용기

Ankle brachial pressure index(ABI)의 측정은 하지동맥질환을 진단하는데 유용한 비 침습적인 방법의 하나로 알려져 있다. ABI는 CW doppler나 photoplethysmography 등을 이용하여 정확하게 측정 가능하다는 사실은 알려져 있으나 간편하게 전자혈압계로 측정 가능한지에 대해서는 잘 알려져 있지 않다. 이에 본 저자들은 평균 나이  $56.9 \pm 12.4$ 세인 86명(남자 28명)의 당뇨병 환자(67명) 및 자원자(19명)를 대상으로 하여 먼저 족배 동맥을 측지하고 그 강도에 따라 0(측지 않음), 1(약하게 측지), 2(강하게 측지)로 구분하였다. 이후 전자혈압계와 photoplethysmography를 이용하여 양쪽 상완과 발목에서 각각 수축기 압력을 측정하였고 이를 통해 ABI를 계산하였으며 그 상관관계 (Pearson 상관계수)를 아래와 같이 얻었다.

	평균 상완혈압	좌측 발목혈압	우측 발목혈압	좌측 ABI	우측 ABI
전자혈압기	127±26	130±38	130±41	1.05±0.26	1.05±0.27
pletysmography	116±30	117±40	117±40	1.02±0.30	1.02±0.29
상관계수(b)	0.672	0.835	0.925	0.778	0.875

발목 혈압의 상관계수가 상완 혈압의 상관계수 보다 큰 것은 하지동맥질환이 심하여 혈압 측정이 불가능했던 5명의 혈압을 일률적으로 0으로 두었기 때문으로 생각되며 이러한 점을 감안하더라도 족배동맥 측지와 비교하여 전자혈압계를 이용하여 측정된 ABI가 photoplethysmography의 결과와 더 밀접한 상관관계를 보였다. 따라서 전자혈압계를 이용하여 ABI 측정하는 것은 말초혈관질환을 선별 검사하는데 유용할 것으로 사료된다.

## Relationship of Macrovascular Complications and Serum Uric Acid Level in Patients with Type 2 Diabetes associated with or without the Metabolic Syndrome

Chang-Young Ha\*, J.H. Jee, J.H. Noh, H.J. Kim, J.H. Jeong, M.S. Lee, Y.K. Min, M.K. Lee and K.W. Kim  
Division of Endocrinology and Metabolism, Department of Medicine, Samsung Medical Center,  
Sungkyunkwan University School of Medicine

Uric acid tends to increase in atherosclerotic diseases such as coronary artery disease and syndrome X (metabolic syndrome). In this study, we investigated the relationship of uric acid level and the frequency of macrovascular complications in patients with type 2 diabetes. 548 patients were recruited and their serum uric acid and lipid levels, BMI, Waist/Hip ratio and medical history were analyzed.

13.5% of men and 4.4% of women showed hyperuricemia. 37.8% of men and 41.4% of women among the groups of patients who showed normal serum uric acid levels were diagnostic of metabolic syndrome. On the other hand, 71.4% of men and 77% of women among the group of patients who showed hyperuricemia were compatible with the diagnosis of metabolic syndrome. 4.8% of patients without metabolic syndrome and 13.5% of those with metabolic syndrome among the group of patients who showed normal serum uric acid level had macrovascular complications. In contrast, 7.4% of patients without metabolic syndrome and 15.6% of those with metabolic syndrome among the group of patients who showed hyperuricemia had macrovascular complications. We observed significantly higher frequency of metabolic syndrome in patients with type 2 diabetes who had hyperuricemia than that in those with normal serum uric acid levels. Although the patients had normal uric acid levels, those with metabolic syndrome showed higher uric acid levels than those without metabolic syndrome. These results suggest that patients with type 2 diabetes who had both hyperuricemia and metabolic syndrome showed higher frequency of macrovascular complications than those with type 2 diabetes and metabolic syndrome without hyperuricemia. We also found that patients with type 2 diabetes and hyperuricemia without metabolic syndrome showed higher frequency of macrovascular complications than those with type 2 diabetes alone.