BÖLÜM 1

RENİN-ANJİYOTENSİN-ALDOSTERON SİSTEMİ FİZYOLOJİSİ

Orhan KARAYİĞİT[1]

GİRİŞ

Renin-anjiyotensin-aldosteron sistemi (RAAS), kan hacminin ve sistemik vasküler direncin kritik bir düzenleyicisidir. Bu sistemin aktivasyonu endotel disfonksiyonu, vasküler yeniden şekillenme, hipertansiyon, kalp yetmezliği ve böbrek hastalığı dahil olmak üzere birçok patolojik durumun merkezinde rol alır. Baroreseptör refleks azalmış kan basıncına kısa süreli yanıt verirken, RAAS daha kronik değişikliklerden sorumludur. RAAS, üç ana bileşenden oluşur: renin, anjiyotensin II ve aldosteron. Bu üçü, azalan renal kan akımına, distal kıvrımlı tübüle ulaşan azalmış sodyum yüküne ve/veya beta-agonizme yanıt olarak arter basıncını yükseltmek için hareket eder. Bu mekanizmalar sayesinde vücut, kan basıncını uzun süre yükseltebilir.[1,2]

RAAS yolu klasik olarak böbrek jukstaglomerüler (JG) hücrelerinden salgılanan renin'in, karaciğerde üretilen ve substratı olan anjiyotensinojen'i anjiyotensin I'e dönüştürmesi ile başlar. Anjiyotensin I'in anjiyotensin II'ye dönüşümü, anjiyotensin dönüştürücü enzim (ACE) adı verilen bir enzim tarafından katalize edilir. Anjiyotensin II, böbrek üstü bezinden aldosteron salınımının yanı sıra vazokonstriksiyona aracılık eder, bu da sodyum tutulmasına ve kan basıncının artmasına neden olur. (Şekil 1)

RAAS, endokrin etkilerine ek olarak otokrin (hücreden aynı hücreye) ve parakrin (hücreden farklı hücreye) etkileri olan lokal sistemleri içerir. Anjiyotensin II kalp, böbrek, kan damarları, adrenal bez ve beyin dahil olmak üzere çeşitli doku bölgelerinde lokal olarak sentezlenebilir. Bu nedenle plazma renin aktivitesinin

[1] Uzm. Dr., Yozgat Şehir Hastanesi, Kardiyoloji Bölümü orphan_8_9@hotmail.com

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