Bölüm 2

YAŞLANMA VE HİPOTALAMİK - HİPOFİZER AKS

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GİRİŞ

Tüm canlı organizmalar normal olarak bir yaşlanma sürecine girmektedirler (1). Yaşlanma, genellikle vücut ısısı, kan ve hücre dışı sıvı hacimleri gibi hücresel homeostatik mekanizmalardaki değişikliklerin yanı sıra, vücut sistemlerinin işlevlerinde bir azalmaya veya kaybına neden olan çeşitli metabolik ve fizyolojik değişiklikler ile karakterizedir (2). Yaşlanan popülasyonlardaki bu değişiklikler fiziksel, bilişsel ve duygusal olabilmektedir (3). Bireysel yaşlanma oranlarına bakıldığında ise çevresel, genetik ve epigenetik birçok faktörün birbiri ile etkileşimleri göze çarpmaktadır (4). Fizyolojik yaşlanma, endokrin fonksiyon ile ilişkili anatomik yapı ve sinyal değişikliklerinin görüldüğü çok faktörlü bir süreç olarak kabul edilebilir (5). Bu süreç hipotalamik, hipofiz ve gonadal fonksiyonlarda sinsi dekremental değişikliklere neden olmaktadır (6). Hipotalamus, hipofiz bezinden hormon salınımı dahil olmak üzere vücut ısısı, streslere cevap verme sirkadiyen ritim (7), susuzluk, besin alımı, enerji dengesi ve glukoz metabolizması gibi fizyolojik homeostatik süreçleri sürdürme işlevini üstlenen ve bir dizi çekirdek içeren önemli bir beyin bölgesidir (8). Hipotalamusun paraventriküler çekirdeği magnoselüler nörosekretuvar nöronlar ve parvoselüler nörosekretuar nöronlar olmak üzere iki alt bölümden oluşmaktadır. Hipotalamik para-

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insanlarda genellikle hücre dışı sıvı ve plazma hacmi azalır, bu da net vücut suyu kazancı veya kaybından kaynaklanan olumsuz sonuçların artmasına neden olmaktadır. Yaşlanma ile birlikte böbrek fonksiyonları, idrarı konsantre etme ve sodyumu koruma yeteneği giderek azalır. Genç insanlarla kıyaslandığında yaşlılarda susuzluk algısı azalır ve daha sonra dehidratasyon veya hiponatremi riski artar (72). En yaygın elektrolit bozukluğu olan hiponatremi, yaşlılarda ve hastanede yatan hastalarda sıklıkla görülür. Yaşlılarda yaygın olarak görülen bu hastalık ve ilaçlarla etkileşime giren fizyolojik değişiklikler, bu popülasyonu hiponatremi için daha büyük risk altında tutmaktadır (73). Yaşlılarda hiponatremi insidansı ve prevalansının nedenleri, yaşlanmanın idrar seyreltme üzerindeki etkileri, yaşlı popülasyondaki hiponatreminin çok faktörlü doğası, uygunsuz ve kalıcı vazopressin salınımı ile ilişkilendirilerek araştırılmaktadır (74). Yaşlanma ve vazopressinin sıçan periferik sinirlerinde sinir kan akışının düzenlenmesindeki rolünün araştırıldığı bir çalışmada vasopressinin periferik sinirdeki damarları daralttığı ve vazopressine verilen vazokonstriktif yanıtta yaşa bağlı bir düşüş olduğu tespit edilmiştir. Artan yaşla birlikte periferik sinirde vasküler düz kas hücrelerinde reseptör duyarlılığında da bir azalma şekillenebilir (75).

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