BÖLÜM 4

APELİNİN FARMAKOLOJİK ETKİLERİ

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GİRİŞ

Bağ dokusunun özel bir tipi olan adipoz doku, yetişkin memelilerde adiposit olarak bilinen lipit dolu hücrelerin zayıf kimyasal etkileşimleri ile meydana gelmiştir. Yağ dokusu organizmadaki en büyük enerji kaynağı olarak bilinmekle birlikte, enerjinin yağ hücresinde depolanması ve salgılanması hormonal sinyallerle (insülin, katekolaminler, glukokortikoitler gibi) kontrol edilmektedir. Adipoz doku salgıladığı enzim, sitokin, büyüme faktörü ve hormonlar aracılığıyla biyolojik fonksiyonlar ve özellikle enerji metabolizmasının düzenlenmesinde önemli bir yere sahiptir. Yağ dokunun endokrin fonksiyonlarına aracılık ettiği düşünülen yeni bir adipokin ise apelin'dir. Apelin, başlangıçta Tatemoto ve ark. tarafından sığır mide dokusundan saflaştırılmış APJ'(apelin reseptörü)nin endojen bir ligandıdır (1-3).

Apelin geni 77 amino asit kalıntısından oluşan bir öncü proteini kodlamaktadır ve bu protein N-terminalinde bir sinyal peptidi ve merkezi bölgede bir dizi eşleştirilmiş bazik amino asit içermektedir. Bu öncül protein, proteazlar (ACE2) tarafından hidrolize edilerek Apelin-55, Apelin-36, Apelin-17 ve Apelin-13 gibi biyoaktif peptitlere dönüşmektedir (4-6).

Apelin/APJ sistemi insan dokularında yaygın olarak ifade edilir ve damar dilatasyonu, kan basıncı, miyokard kontraktilitesi, yeni damarların gelişmesi, sıvı dengesi ve insülin salınımı dahil olmak üzere birçok önemli biyolojik işlevin düzenlenmesinde görev almaktadır (7).

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SONUÇ

Apelin, biyolojik ve terapötik potansiyeli ile son yıllarda giderek daha fazla araştırmaya konu olan fizyolojik ve farmakolojik olarak aktif bir adipokin olarak öne çıkmaktadır. Kardiyovasküler sistem, nörolojik işlevler başta olmak üzere vücutta bir dizi metabolik süreç üzerinde etkili olan apelin, çok sayıda biyolojik yolakta rol oynayarak kardiyoprotektif, nöroprotektif, antiinflamatuar ve anti-aging özellikler sergilemektedir. Bu çok yönlü etkiler, apelinin çeşitli hastalıkların önlenmesi,teşhisi, ve tedavisinde kullanılabileceğini destekleyen güçlü bilimsel kanıtlar sunmaktadır.

Bu çalışma, apelinin klinik ve farmasötik uygulamaları ile terapötik faydalarını bilimsel bir çerçevede incelemeyi amaçlamaktadır. Apelinin biyolojik sistemler ve çeşitli patolojik durumlarla ilişkili terapötik etkileri, mevcut araştırmalar ışığında incelenmiştir. Özellikle apelinin, kardiyoprotektif ve nöroprotektif etkinliklerinin yanı sıra, antiinflamatuar ve anti-aging özelliklerinin terapötik potansiyeli üzerinde durulmuştur.

Bununla birlikte, apelinin klinik uygulamalarının daha da geliştirilmesi için kapsamlı klinik araştırmaların gerekliliği vurgulanmaktadır. Apelinin farmakokinetik ve farmakodinamik özellikleri, biyoyararlanımı ve etki mekanizmaları üzerine yapılacak daha ileri çalışmalar, terapötik etkinliğini belirlemek ve potansiyel advers etkilerin en aza indirilmesi açısından büyük önem taşımaktadır. Günümüz araştırmalarında ve tıp dünyasında apeline olan ilgi hızla artmasına rağmen apelinin terapötik potansiyeli henüz tam anlamıyla keşfedilmediği için saflaştırılmış apelin içeren FDA onaylı bir farmasötik ürün mevcut değildir. Mevcut klinik çalışmaların sınırlı olmasından dolayı daha büyük ölçekli, hasta odaklı ve kontrollü çalışmalara ihtiyaç duyulmaktadır. Bu nedenle, apelinin etkinliğini belirlemek, en verimli şekilde klinik pratiğe kazandırmak ve güvenli kullanımını sağlamak için uzun vadeli daha fazla araştırmaya ihtiyaç vardır.

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