Bölüm 6

KAPSAİSİN VE KANSER

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GİRİŞ

Bazı günlük tüketilen meyve ve sebzelerde yaygın olarak bulunan doğal fitokimyasalların, moleküler ve hücresel seviyelerde çeşitli kanser türleri üzerinde engelleyici etkileri olduğu iyi bilinmektedir (Aggarwal, Takada & Oommen, 2004). Doğal olarak oluşan bu fitokimyasallardan biri olan kapsaisin, gıda katkı maddesi olarak yaygın bir şekilde kullanılan Capsicum (Family Solanaceae) cinsi acı biberlerin keskin bir ana bileşenidir. Kapsaisinin, çeşitli fizyolojik ve farmakolojik etkileri olduğu gösterilmiştir (Szallasi & Blumberg, 1999). Örneğin çeşitli çalışmalar, kapsaisin kullanımının, bazı hastalıklar ve kanserle ilişkili iltihap ve ağrıyı hafifletebileceğini göstermektedir (Hayman &Kam, 2008). Ayrıca biriktirme çalışmaları, kapsaisinin lösemi (Ito & ark., 2004, Tsou &ark., 2006), multipl miyelom (Bhutani & ark., 2007), kutanöz hücre karsinoması (Hail & Lotan 2002), glioma (Lee, Nam & Kim, 2000, Amantini & ark., 2007), dil kanseri (Ip &ark., 2012a), nazofarengeal karsinom (Ip & ark., 2012b), özofagus karsinoması(Wu & ark., 2006), gastrik kanser (Kim & ark., 1997), pankreas kanseri (Zhang & ark., 2008, Pramanik, Boreddy & Srivastava, 2011), hepatokarsinom (Jung, Kang & Moon, 2001, Huang & ark., 2009), kolon kanseri (Kim & ark., 2004, Lu & ark., 2010), küçük hücreli akciğer kanseri (Brown & ark., 2010), meme kanseri (Thoennissen & ark., 2010) ve prostat kanseride (Mori & ark., 2006, Sánchez &ark., 2007) dahil olmak üzere insanlarda çeşitli kanser hücre hatları üzerinde anti-proliferatif etkiye sahip olduğunu göstermiştir. Kapsaisin, kanser hücrelerinin büyümesini baskılayabilme kapasitesine, öncelikli olarak apoptozun indüklenmesi yoluyla aracılık ettiği düşünülmektedir. Ek olarak, kapsaisinin anti-kanser etkileri arasında hücre döngüsünün ilerlemesinin durdurulması, transkripsiyon faktörünün düzenlenmesinin yer aldığı düşünülmektedir (Lin & ark., 2013).

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ve apoptozuindüklemesine yol açıp açmadığını ve mitokondri ve kaspaz üyelerinin programlanmış hücre ölümüne katılıp katılmadıklarını belirledik. Burada, kapsaisin'in G2 / M fazında hücre döngüsünün durmasına neden olduğunu ve KB hücrelerinin apoptozuna neden olduğunu gösteriyoruz. KB hücrelerinde kapsaisin kaynaklı apoptoz, mitokondriyal membran geçirgenliği ve kaspaz aktivasyonu ile ilişkilidir. Bu sonuçlar, kapsaisinin, kanser hücresi büyümesinin önlenmesinde faydalı olabileceğini ortaya koymaktadır (Lin &ark., 2013). Üstelik yüksek oranda potansiyel olarak çoklu etki mekanizmasına sahip olan bir pleitrofik molekül olarak, kapsaisinin birçok yol aracılığıyla çalışması ve bunların birçoğunun TRPV1 reseptörünün aktivasyonunu içermemesi muhtemeldir. Kanserojenlerin metabolik aktivasyonunun inhibe edilmesi ve çok çeşitli kanser hücrelerinde apoptozun indüklenmesi dışında, kapsaisinin antikanser aktiviteleri arasında hesaba katılması önerilen mekanizmalar antioksidan aktivite (Dairam & ark., 2008), peroksizom proliferatör ile aktive edilmiş reseptör gama aktivasyonu (Kim ve ark 2004), anjiyogenezin inhibisyonu (Min & ark., 2004), kansere bağlı lipit metabolizmasının modülasyonu (Anandakumar & ark., 2009) ve aromataz aktivite inhibisyonu (Luqman& ark., 2011) bulunmaktadır (Bley & ark., 2012).

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