

11. BÖLÜM

KALP KAYNAKLI TÜMÖR HAYVAN MODELLERİ

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Kalp ve perikard tümörleri ile kistleri relatif olarak nadir neoplasmlar olup, gelişmiş görüntüleme teknikleri ortaya çıkana kadar çoğunluğu postmortem otopsi çalışmalarında tesbit edilebilmiştir. Ekokardiografi, ince kesitli tomografi ve yüksek kaliteli görüntüleme imkanı sunan manyetik rezonans (MRI) tekniklerinin gelişmesi bu tümörlerin ve kistlerin erken tanısında ve gerekli tedavinin uygulanmasında önemli rol oynamışlardır. Bu sayede, daha önceleri çoğunlukla hastaların ölümleriyle sonuçlanan bu patolojiler günümüzde tanı ve sonrasında cerrahi müdahaleler ile tam tedavi edilebilir aşamaya kadar gelmiştir.

Büyük data serilerinde yapılan incelemeler sonucunda primer kalp tümörlerinin sıklığı ortalama %0.02 olarak bulunmuştur. Otopsi serileri incelendiğinde, her 1 milyon otopside 200 tümör gibi çok nadir bir oran ortaya çıkmaktadır (1).

Kalp tümörlerinin %0.056'sı primer, %1.23'ü ise sekonder olarak gözlenmektedir. Kalbi en sık metastaz yapan 3 malignite odağı sırasıyla akciğerler, özefagus ve lenfomalardır (1). Kalbin bu tarz ekstrakardiyak tümörler tarafından sekonder tutulumu primer kalp tümörlerine göre yaklaşık 20-40 kat daha sık gözlenmektedir (2).

KALP VE PERİKARDIN PRİMER TÜMÖRLERİ

Otopsi serilerine bakıldığında primer kalp tümörlerinin sıklığı %0.001 ile %0.28 arasında değişen çok düşük oranlardadır. Tüm benign kardiyak tümörler arasında %40 ile en yüksek oranda miksoma görülmektedir (3).

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Prenatal dönemden, normal ölüm periyodlarına kadar geçen dönemde ratların GSM operatörlerinin kulelerinden yayılan radyasyonun emisyonunun benzeri non-iyonize radyasyona, günde 19 saat olacak şekilde, maruz bırakılmaları (1.8 GHz GSM, 0,5,25,50 volt/metre) sonucunda en yüksek güç uygulanan gruplarda (50 volt/metre) kalp Schwannomları insidansında istatistiksel olarak belirgin artış saptanmıştır (108,109).

Bunun yanında cep telefonu antenlerinden salınan non-iyonizan radyasyonun taklit edildiđi modelde, ratlara ışınım 2 yıl uygulanmış ve bu modelde de rat kalplerinde Schwannom gelişimi tespit edilmiştir (110).

Schwannomla sonuçlanan non-iyonizan radyasyon uygulanan bu modellerde tümöral gelişmenin insidansının uygulanan non-iyonizan radyasyonun gücüyle olduđu kadar yüksek spesifik absorbsiyon oranı (SAR) maruziyeti ile de artış gösterdiđi bildirilmiştir (6W/kg, 3W/Kg, 1.5w/kg) (109).

İyonizan radyasyon kullanılarak, literatür incelendiğinde, oluşturulan kardiyak tümör hayvan modeli ilgili herhangi bir çalışma bulunmamaktadır. Genellikle iyonizan radyasyon, verildiđi alan itibarıyla lokal etki yaparken, uygulamaya komşu organ bölgelerinde de dejeneratif etkilere yol açmaktadır. Bu etkiler genelde geç dönemde ortaya çıkmakta ve bazen ciddi dereceye ulaşabilmektedir (111,112). Genelde radyoterapileri takip eden 10 yıl ve sonrasında ortaya çıkan bu etkiler arasında perikardiyal kalınlaşma, perikardiyal effüzyon, perikardit, kapak dejenerasyonu ileti sistemi üzerinde lokal fibrotik etkisi nedeniyle ritm problemleri gibi patolojiler sayılabilmektedir (113-115). Bu patolojiler haricinde radyoterapiler sonrasında koroner vasküler alanda aterosklerotik deđişiklikler de rapor edilmiştir (116,117).

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