



BÖLÜM 12.3

KALP CERRAHİSİNDE ANESTEZİ

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KALBİN ANATOMİ VE FİZYOLOJİSİ

Kalp vücudumuzun tamamının kan ihtiyacını sirküle eden, değişken hızlı, fazik, elektriksel olarak kendini aktive edebilen, yaklaşık 12 x 9 x 6 cm ebatlarında muskuler bir organdır. Bu organ toraksta orta mediastende perikardium içinde yer alan, 2. ve 5. İnterkostal mesafe aralığında, üçte ikisi orta hattın solunda, eğik yerleşimli olarak pozisyon alır. Kalbin tabanıyla tepesi arasında çizilen çizgi kalbin eksenini olup yatay düzlemle 40° lik açı yapar (1). Kalpte, iki atrial ikide ventrikül çifti olmak üzere 4 elastik oda mevcuttur. Sağ atrium üst ve alt vena cavalardan gelen sistemik venöz kan ile koroner sinüsten gelen koroner venlerin ulaştığı kalp boşluğudur. Sol atriyum, dört pulmoner venden pulmoner venöz drenajı alan kalbin arkadaki boşluğudur. Sağ ventrikül en önde bulunan kalp boşluğudur, sternumun

arkasında yer alır. Sol ventrikül ise apekse doğru daralan trabekülasyonlu konik bir yapıdır. Bu yapının kalınlığı sistemik dolaşımdaki basıncın fazlalığı nedeniyle sağ ventriküle göre daha kalındır. Sağ atrioventriküler kapak (triküspit kapak) ve sol kapak (mitral kapak), heriki atrioventriküler bölgeyi kapatır (2).

Kalp duvarı; epikard (viseral perikard), myokard ve endokard olmak üzere üç tabakadan oluşur.

Kalbi saran **pericardium** dışta fibröz ve içte seröz iki tabakadan oluşmaktadır. Pericardium fibrosum önde ve aşağıda sternum ile diaphragma'ya tutunmakta ve kalbe giren çıkan büyük damarların adventisyalı ile kaynaşarak devam etmektedir. Pericardium serosum, pericardium fibrosum'un iç yüzünü örttükten sonra (lamina parietalis), kalbe giren çıkan damarların bulun-

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Günümüzde 5-6 kg üzerindeki hastalarda transkateter teknikler kullanılarak koil veya plak implantasyonu ile PDA kapaması başarı ile uygulanmaktadır (83).

Fallot Tetralojisi

Siyanotik konjenital kalp hastalıkları içinde 1 yaş sonrası en sık görülen anomalidir. Geniş bir VSD, aortanın ata biner pozisyonu, sağ ventrikül hipertrofisi, pulmoner stenoz bu hastalığın bileşenlerini oluşturur. Hastalığın kliniği sağ ventrikül yolundaki darlığa bağlıdır. Yani pulmoner stenoz kliniği belirler. Obstrüksiyon arttıkça sağ-sol şant artarak ek O₂ verilmesine rağmen desatürasyon gerçekleşir. Hipoksik ataklar spontan gelişebileceği gibi sempatik tonusu arttıran sebeplerden dolayı (korku, ağlama, ajitasyon) anemi, asidoz, enfeksiyon ile de tetiklenebilir. Bu hastalarda hiperpne, derinleşen siyanoz, senkop gözlenebilir.

Akciğer grafisinde klasik **coeur en sabot** görüntüsü görülebilir ve bu görüntüye, sağ ventrikül hipertrofisine bağlı olarak apeksin elevasyonu ile birlikte ana pulmoner arter alanının konkavitesi neden olur. Pulmoner vaskülarite azalır. EKG’de sağ dal bloğu, geniş QRS görülür.

Anestezik yaklaşımda amaç kalbin debisini sağlamak için kalp hızı, kontraktilite ve önyükün korunmasıdır. Sağdan sola şant miktarını arttıracak girişim ve ajanlardan kaçınılır. PVR/SVR oranındaki artışlar önlenmelidir. PVR’yi azaltmak için solunumsal yöntemlerden faydalanılabilir. SVR korunmalı veya artırılmalıdır. SVR’yi arttırmak için 5-10 µg/kg fenilefrin kullanılabilir. SVR artışı ile sağdan sola şantın azaltılması sağlanabilir. Hipoksi SVR’ nin azalmasına yol açarak sağdan sola şantı daha da artacaktır. Hastaya %100 oksijen verilmelidir. SVR’yi düşüren farmakolojik uyarılar (volatil anestezikler, histamin salan ilaçlar, vazodilatörler, gangliyon blokerleri vb) siyanozu arttırır. Hipovolemik hastalarda pulmoner kan akımını arttırmak için yeterli preload

sağlanmalıdır. Bunun için 10-15 ml/kg % 5 albumin veya salin kullanılır. Anestezi induksiyonunda İM ketamin kullanılabilir. Damar yolu açıksa induksiyonda ketamin – opioid kombinasyonu kullanılabilir. Burdaki önemli nokta SVR belli bir düzeyde idame ettirilerek sağdan sola şantın sınırlandırılmasıdır. Sevofluran SVR’a etkisi en az olduğu için induksiyon ve idamede tercih edilir. İdamede narkotikler PVR ve hemodinamide stabilize sağlarlar.

Fallot düzeltildiğinde, sağ ventrikül yetmezliği gelişen hastalarda, sıvı verilerek dolum basıncı arttırılır, inotrop destek (dopamin, dobutamin gibi) sağlanır, sağ ventrikül afterload’u düşürülür. Hastaların posoperatif 12- 24 saat mekanik ventilatörde takibi pulmoner ödem riski açısından önerilmektedir.

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