BÖLÜM

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Tartışmalar: Septik Şokta Resüsitasyonu Yönlendirme $SCVO_2$'mi Laktatın Temizlenmesi mi?

Jan Bakker, MD, PhD, FCCP
Çeviri: Uz. Dr. Naim Boran Tümer

GİRİŞ

Septik şok, doğrulanmış ya da şüpheli enfeksiyonu olan hastalarda yeterli sıvı resüsitasyonu rağmen ya da 4 mmol/L'dan daha fazla seviyede bir laktat varlığında (sepsise bağlı doku hipoperfüzyonu adı verilir) hipotansiyonun direnç gösterdiği durum olarak tanımlanmıştır.[1] Bu koşullar altında, Sepsisle Mücadele Kılavuzu ortalama arteriyel basıncın (OAB) 65 mm Hg'nin üzerinde tutulmasını ve laktat seviyelerinin, santral veya karışık venöz hemoglobin satürasyonunun ($ScvO_2$/ SvO_2) normalleştirilmesini önerir.[1] Bu temelde perfüzyon basıncının eski hale getirilmesi, doku perfüzyonunun iyileştirilmesi ve oksijen alımı ile oksijen ihtiyacı arasındaki dengenin sağlanması anlamına gelir.

Yeni yapılan bir çalışmada, artan laktat seviyeleri ve hipotansiyonu olan septik hastalarda %46'lık bir mortalite oranı tespit edilmiştir.[2] Ayrıca, resüsitasyonun son noktası olarak $ScvO_2$ kullanan bir çalışma[3] ile resüsitasyonun son noktası olarak hem $ScvO_2$ hem laktat temizleme kullanan bir diğer çalışma[4] mortalitede önemli iyileşmeler göstermiştir. Ancak santral venöz basıncı ve OAB'ı ortak hedef seçen ve erken resüsitasyonda $ScvO_2$ ve laktat temizlemeyi karşılaştıran başka bir çalışma (çoğunlukla septik şok hastalarında) mortalitede fark olmadığını göstermiştir.[5] Ek olarak, $ScvO_2$ ölçümlerine dayalı erken hedefe yönelik tedavi ile yatak başında doktor kontrolüne ve genel bakıma dayalı, zorunlu santral venöz kateter yerleşimi olmaksızın sistolik kan basıncı ve kalp atım hızı ölçümlerini esas alan standart terapiyi karşılaştıran yeni bir çalışmada yine mortalitede fark olmadığı gösterilmiştir.[6]

Dolayısıyla, septik şok hastalarının resüsitasyonunda $ScvO_2$ veya laktat seviyelerinin nasıl kullanılacağı konusu tartışmalıdır. Bu bölümde bu parametrelerin arka plan fizyolojisi ve septik şok hastalarının tedavisinde klinik kullanımları ele alınmıştır.

VENÖZ OKSİJENASYONUN FİZYOLOJİSİ

Venöz oksimetrenin pek çok yönü yakın zamanlarda incelenmiştir.[7,8] Dolaşımda bol miktarda oksijen vardır. Kırmızı kan hücreleri, sol ventrikülü yaklaşık %100'lük doymuş hemoglobin ile terk edip, mikro dolaşımda oksijen alışverişi yaptıktan sonra sağ ventriküle yaklaşık %75'lik doymuş hemoglobin ile geri dönerler. Dokulara oksijen temini azaldığında, aşamalı oksijen tüketimi bu oksijen fazlasının kullanılmasıyla sağlanır ve bu venöz oksijenasyonun kademeli olarak azalmasına neden olur.[9] Oksijen teminindeki düşüş kritik bir seviyeye ulaştığında, laktat seviyeleri genellikle artmaya başlar.[10,11] Bu modellerde, arteriyel oksijen satürasyonu ve hemoglobin seviyeleri çoğunlukla sabit kalırken, venöz oksijenasyon kalp debisiyle (KD) orantılıdır. Dolayısıyla bu koşullarda venöz oksijenasyon, tüm vücudun oksijen talebiyle KD arasındaki dengeyi yansıtır. SvO_2'nun bölgesel venöz oksijenasyon seviyelerini yansıtmadığının bilinmesi önemlidir.[12] Kardiyak fonksiyon normal olduğunda, oksijen içeriğindeki azalmalar KD'deki artışlarla karşılanırken venöz oksijenasyon minimum etkilenir.[13] Ancak kardiyak fonksiyon sınırlı veya oksijen içeriğindeki azalma aşırı ise, sistemdeki oksijen fazlası esas olarak oksijen talebindeki değişiklikleri telafi etmek için kullanılır ve dolayısıyla venöz oksijenasyon azalır.[14] Klinik koşullarda venöz oksijenasyon pek çok faktöre bağlı olsa da (Şekil 73–1), ana faktör muhtemelen KD'nin oksijen içeriği ve oksijen talebindeki değişikliklere verdiği cevaptır.

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