Bölüm 2

DENTAL IŞIK CİHAZLARININ KULLANIMINDA DİKKAT EDİLMESİ GEREKEN HUSUSLAR

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GİRİŞ

Dental ışık cihazları, çoğu diş hekimi tarafından doğru kullanılmamaktadır (Santini & Turner, 2011). Bir kompozit rezinin ışıkla polimerizasyonu sürecindeki aşamaların, sonucu etkilediği gösterilmiştir (Price & ark., 2014c; Shimizu & ark., 2015). Birçok rapor restorasyonların yenilenmesini gerektiren en önemli iki nedenin; ikincil çürükler ve kütlesel restorasyon kırıkları olduğunu göstermektedir (Sunnegårdh & ark., 2009; Heintze & Rousson, 2012; Kopperud & ark., 2012). Düşük oranda rezin polimerizasyonunun; kırılma, ikincil çürük veya restorasyonlarda aşınma nedeniyle başarısızlığa neden olduğuna dair yeterince dolaylı kanıt vardır (Shortall & ark., 2013; Hammouda, 2010; Rueggeberg & ark., 2009; Ferreira & ark., 2011; Feitosa & ark., 2012). 2012 yılında yapılan bir çalışmada rezin kompozit restorasyonların erken başarısızlık oranının amalgam restorasyonlarından 10 kat daha fazla olduğu bildirilmiştir. Araştırmacılar, polimerizasyon ışığının yanlış konumlandırılmasının bu başarısızlıklara katkıda bulunabileceğini iddia etmiştir (Overton & Sullivan, 2012). Ayrıca polimerizasyonu için yetersiz ışık enerjisi uygulanan rezin kompozit materyallerde; mekanik ve fiziksel özelliklerin bozulduğu (Shortall & ark., 2013; Hammouda, 2010), dişe daha zayıf bağlanma gerçekleştiği (Ferreira & ark., 2011), materyal üzerinde bakteriyel kolonizasyonun arttığı (Brambilla & ark., 2009) ve materyalin yetersiz renk kararlılığı gösterdiği (Janda & ark., 2007; Brackett & ark., 2007) bildirilmiştir. Bu nedenle, ışıkla aktive olan kompozit rezinlerin yeterli polimerizasyonunu sağlamak için, operatörlerin polimerizasyon işlemine dikkat etmeleri ve kullandıkları kompozit rezinlere uygun ışık cihazları kullanmaları önemlidir (Price & ark., 2015).

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(International Commission on Non-ionizing Radiation Protection), 1997). Mavi ışık tehlikesi için ACGIH eşik sınırı, ICNIRP yönergeleri ve ağırlıklı mavi ışık tehlikesi fonksiyonu ile uyumludur, 8 saatlik bir günde toplam 167 dakikalık bir süre boyunca 100 J/cm^2-sr'yi geçmemelidir (American Conference of Governmental Industrial Hygienists, 2012). 1980'lerde QTH polimerizasyon ışıklarından kaynaklanan tehlikeleri değerlendiren önceki çalışmalar, bu birimlerin oküler yaralanmaya neden olma potansiyeline sahip olmadığını bildirmişlerdir. Bununla birlikte, 1980'lerde incelenen ışıkların çoğu, 400 ile 500 nm gibi geniş bir spektrum aralığında ve 400 mW/cm^2'den daha az ışık gücü sağlamaktaydı (Satrom & ark., 1987). Son zamanlarda yapılan bir araştırma (Labrie & ark., 2011), bu ışık cihazlarıyla, ACGIH sınırlarına (American Conference of Governmental Industrial Hygienists, 2012) 8 saatlik bir iş günü boyunca ulaşılabileceğini buldu. Eğer test edilen PAC ışığında turuncu koruyucu gözlük takmayan bir operatör, uzağa bakmadan önce her polimerizasyon döngüsünün ilk saniyesinde ışık ucuna bakarsa, maksimum günlük maruz kalmayı aşmak için, yedi kez ışık uygulamasının yeterli olduğu bildirilmiştir (Labrie & ark., 2011). ACGIH kurallarında önerilen maksimum maruz kalma süresinin normal ışığa duyarlılığı olan kişiler için olduğu unutulmamalıdır; katarakt ameliyatı geçirmiş veya ışığa duyarlı hale getirici ilaçlar alan hastalar veya diş hekimleri, mavi ışığa karşı daha fazla duyarlıdır ve kısa maruz kalma süreleri ile retina hasarı meydana gelebilir (American Conference of Governmental Industrial Hygienists, 2012; ICNIRP (International Commission on Non-ionizing Radiation Protection), 1997). Bazı mavi ışık filtreleme camlarının, 500 nm dalga boyundaki ışığın altındaki iletimini % 1'in altına düşürdüğü gösterilmiştir (Bruzell & ark., 2007). Mavi ışık filtreleme gözlükleri kullanıldığında, ışık cihazından gelen parlak mavi ışıktan uzağa bakmak yerine, operatör ışıkla polimerizasyon esnasında işlemi güvenle izleyebilir. Bu, restorasyona gönderilen ışık miktarını da iyileştirecektir (Seth & ark., 2012; Price & ark., 2010b; Federlin & Price, 2013).

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