

Pengaruh jarak tip curing unit dan durasi penyinaran terhadap kekerasan permukaan resin komposit nanofilled = Effect of led light curing unit's tip distance and curing time to surface hardness of nanofilled composite resin

Vina Arlia Shafadilla, author

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Abstrak

Resin komposit termasuk dalam material restoratif direk yang proses pengerasannya melalui proses polimerisasi dibantu dengan bantuan cahaya. Penelitian ini bertujuan untuk mengetahui pengaruh jarak dan durasi penyinaran terhadap kekerasan permukaan resin komposit nanofilled. 60 spesimen resin komposit yang ditumpat dalam mold dibagi ke dalam 6 kelompok berdasarkan jarak dan durasi penyinaran yang berbeda yaitu 2 mm, 5 mm, dan 8 mm; serta 20 detik dan 40 detik. Rerata nilai tertinggi dimiliki oleh kelompok dengan jarak terkecil dan durasi penyinaran terlama sedangkan nilai rerata terendah terdapat pada kelompok dengan jarak terbesar dan durasi penyinaran tersingkat. Terdapat perbedaan bermakna antar tiap kelompok perlakuan dengan jarak yang berbeda, namun pada 2 kelompok yang memiliki jarak tip LED Light Curing Unit sebesar 8 mm, tidak ada perbedaan bermakna. Dapat disimpulkan, jarak tip LED Light Curing Unit dan durasi penyinaran berpengaruh terhadap kekerasan permukaan resin komposit nanofilled. Pengaruh durasi penyinaran hanya signifikan apabila jarak tip LED Light Curing Unit terhadap permukaan resin komposit kurang atau sama dengan 5 mm.

Composite resin is a material of choice for direct restorations. Hardening process of composite resin is triggered by light to begin the polymerization process. The aim of this research was to assess the effect of LED light curing unit's tip distance and curing time to surface hardness of nanofilled composite resin. 60 specimens were prepared into a mold and they were divided into 6 groups based on the different curing distance and time which is 2 mm, 5 mm, and 8 mm along with 20 seconds and 40 seconds. The highest surface hardness was seen in group with 2 mm tip's distance and 40 seconds curing time, while the lowest was seen in group with 8 mm tip's distance and 20 seconds curing time. Significant differences were seen between different tip's distances but in 2 groups which has 8 mm tip's distances and different curing time, there is no significant differences. In conclusion, LED light curing unit's tip distance and curing time is affecting surface hardness of nanofilled composite resin. Curing time only affect the surface hardness if the tip's distance is less than 8 mm.