Composite Curing Units Used in Academic Dental Institutions of Karachi

Sir,

The light cure composite restorations are being placed extensively in the contemporary dental practice. When curing light is passed through the restorative material, its intensity is decreased. This may cause the deeper layers of the material to polymerize insufficiently, resulting in inferior physical and mechanical properties of the restoration. Light intensity below 300 milliwatts per square centimeter is usually considered as inadequate for setting reaction.

Inadequate light intensity can be an important quality issue, as it may result in postoperative sensitivity. Studies done in USA, Canada, Australia, Israel and India have found that there was a significant variability in the light intensity output among various dental offices.1-6

The objective was to measure the light intensity output of the composite curing units used at 13 dental institutions in Karachi. It was a cross-sectional study. The light output intensity of curing units was measured using Caulk Cure-Rite meter (L.D. Caulk / Dentsply) and the mean of 3 readings were taken.

There were 29 light curing units installed in the 13 institutions of Karachi. The mean value was light output was 345.2 mW/cm² and SD 251.1 mW/cm². Eleven curing units (out of 18) at undergraduate institutions had poor light output while 3 units (out of 11) at postgraduate institutions had poor light output (cut off < 300 milliwatts per square centimeters).

No undergraduate institution had curing light meter in their department. About half (14 out of 29) curing units in dental institutions had an unacceptable light intensity. This is an alarming situation for dentists. The restorations placed using such curing units would not serve any benefit to the patients. The restorations will have poor physical strength, increased chances of micro-leakage, postoperative sensitivity and secondary caries.

This study has focused on academic institutions rather than private practice clinics. As dentists are unable to determine the adequacy of light intensity by just looking at the emitted light, we recommend that a light meter must be used in dental institutions and practice settings to monitor light intensity on regular basis. It will help the dentists improve upon their quality of composite fillings.

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REFERENCES


Table I: Comparison of findings with other studies.

<table>
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<th>Location</th>
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<th>Number of curing units observed</th>
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<td>Dental institutions</td>
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</table>

* Current study.

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