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ORIGINAL ARTICLE

Ultrasonic cleaning reduces the residual monomer in acrylic resins

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Abstract *Background/purpose:* The residual monomer remaining in acrylic resin can cause an allergic reaction and is toxic to oral soft tissue. This study determined the effect of the duration of ultrasonic cleaning on the amount of residual methyl methacrylate monomer in one heat-polymerized acrylic resin, Meliodent, and three autopolymerized acrylic resins, Unifast Trad Ivory, Unifast Trad Pink, and Unifast III.

Materials and methods: Thirty-six disc-shaped specimens of each brand were prepared and randomly divided into six groups: control (no treatment), positive control, and ultrasonic treatment in 50°C water for 3 minutes, 5 minutes, 10 minutes, or 15 minutes. The residual monomer was extracted and analyzed using high performance liquid chromatography.

Results: There were no significant differences in the residual monomer amount in the Meliodent groups. The amounts of residual monomer in the autopolymerized acrylic resin positive control group and ultrasonic treatment groups were significantly lower than those of the control group for the Unifast Trad Ivory, Unifast Trad Pink, and Unifast III groups ($P < 0.05$). The amount of residual monomer was not significantly different between the ultrasonic treatment in 50°C water (3 minutes for Unifast Trad Pink and 5 minutes for Unifast Trad Ivory and Unifast III) groups and the positive control group ($P > 0.05$).

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