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In vitro cytotoxicity of five glass-ionomer cements.

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To evaluate the cytotoxic effects of five glass-ionomer cements (GICs) on an odontoblast cell line (MDPC-23), disks of every material were prepared and divided into Group 1: Vitrebond, Group 2: Vitremer, Group 3: Fuji II LC, Group 4: Fuji IX GP, Group 5: Ketac-Molar, Group 6: Z-100 (positive control)\. In Group 7, phosphate-buffered saline solution (negative control) was applied on filter paper\. After placing the samples in the bottom of wells, the cells (30,000cells/cm(2)) were plated and incubated for 72h\. The cell number was counted, the cell morphology was assessed by scanning electron microscopy and the cell metabolism was evaluated using methyltetrazolium assay\. The statistical analysis of Kruskal-Wallis was used to determine if the scores obtained for the cell metabolism and number of cells were different at the 95% confidence level\. In groups 1, 2, 3, 4, 5, and 6 the materials decreased the cell number by 74.5%, 75.5%, 45.5%, 29.5%, 32.5%, and 88.5%, respectively\. In groups 1, 2, 3, 4, and 5, the experimental GICs reduced the cell metabolism by 79%, 84%, 54%, 40%, and 42.5%, respectively\. Despite the fact that all experimental materials were cytotoxic to the MDPC-23 cells, the GICs were the least cytotoxic\. On the other hand, the RMGICs caused the highest cytophatic effects.

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