بررسی چسبندگی و مورفولوژی سلولهای استئوبلاست انسان در مجاورت MTA سفید، MTA تیره و IRM بعنوان مواد پرکننده انتهای ریشه توسط اسکن میکروسکپ الکترونی

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Title: Evaluation of adhesion and morphology of human osteoblasts to white MTA/Gray MTA and IRM as root end filling materials by scanning electron microscopy

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Introduction:

Osteoblast and periodontal ligament cells are major cells for wound healing after root end resection. The interaction of osteoblast with directly contact filling materials could plays a critical role in healing of surgical lesion. Adhesion and spreading of cells on material surface are the initial phase for cellular function. The purpose of the present study was the evaluation of morphology and attachment of human osteoblasts in presence of Gray MTA, white MTA and IRM as root end filling material.

Materials & Methods:

This study was a descriptive study the human osteoblasts (MG-63 cell line) were prepared from Iranian Pasteur Institue; Cellular Bank, were grown in PRMI 1640 medium. The testing materials were mixed according to the manufacture's instruction, inserted into the wells of 24-well flat-bottomed plate, and condensed to disk of 1mm thickness and 1×1mm diameter. Cells were added to the materials after two weeks. During 1,3,7 days intervals, the disk of materials along with cells were grown on their surface, examined by a scanning electron microscopy.

Results:

First day: After first day cells in presence of white and gray MTA showed adhesion and normal morphology, in presence of IRM were totally round. Third day: After third day osteoblasts adjacent to white and gray MTA were flat with adhesion to both materials. In presence of IRM they were round and with no attachment.

Seventh day: In seventh day cells appeared with adhesion and normal morphology. Adjacent to IRM cells were round with no attachment.

Conclusion:

The results indicate that human osteoblasts have a favorable response to gray and white MTA compared with IRM.

Key words:

Osteoblast, white MTA (mineral trioxide aggregate), gray MTA, SEM (scanning electeron microscope)

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