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Does MTA really increase expression of tissue inhibitor of metalloproteinase (TIMP-2) in extracted teeth?

LETTER TO THE EDITOR

Dear Sir,

I read the article entitled 'Fracture resistance and histological findings of immature teeth treated with mineral trioxide aggregate' (1) published in Dental traumatology journal. I appreciate the great work of the writers; however, this article has a factual error. In this article, the reinforcing effect of the dentin has been explained by increasing expression of TIMP-2 over one year period. As a fact, expression of the genes needs a live system that is the cells must be alive. MTA should trigger the DNA to produce m-RNA and the resultant production of the protein (here: TIMP-2) by ribosomes. All these processes need a live system. How this process can be done in the dentin matrix of an extracted tooth without any blood supply over one year period?

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Reference

1. Hatibović-Kofman S, Raimundo L, Zheng L, Chong L, Friedman M, Andreasen JO. Fracture resistance and histological findings of immature teeth treated with mineral trioxide aggregate. Dent Traumatol 2008;24:272–6.

Response

Dear Editor and Reader who raised very interesting question in regard to our article: In our conclusion, it was pointed out that fracture resistance strength generally decreases over time for treated and untreated specimens but less for treated teeth. The fact that fracture resistance is decreased confirms the readers' observation that new cells are not regenerating. AT the same time, it is difficult to predict which cells will survive and for how long in the storage solution.

1 A test to determine cells and culture the remaining solutions that the teeth were stored in could be an added study to determine if, in fact, new protein is being created.

2 It is, of course, possible that some cells may be alive in the solution for some time and be creating proteins.

3 It is also possible that some proteins are more resistant to degradation in the presence of substances such as MRA and CaOH

4 Some cells may thrive and survive longer than others, and this may also be why some proteins are more prevalent.

At the present time, I cannot offer more explanation except to propose added studies.

To the reader – thank you very much again, for raising this question.

Sincerely,

Sahza Hatibovic-Kofman