

Sealing of manifest occlusal caries in the young permanent dentition – 2 years results

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AIM. To investigate the possibility of non-operative sealing of manifest occlusal caries lesions which otherwise would have been treated with conventional restoration.

METHODS. This prospective, randomized study is performed in the young permanent dentition with two parallel treatment arms. The material includes 518 occlusal caries lesions in 518 patients aged 6-17 years. All lesions were assessed to be in need of operative treatment and were limited to the outer half of the dentin. Informed consent was obtained from the patients/parents and the project was approved by the Ethics Committee. After randomization in the ratio of 2:1, 366 resin sealants and 152 resin restorations were carried out by 71 public dentists from August 2006 to November 2009. The treatments were followed by annual clinical and radiographic control examinations. Chi-square tests were applied for statistical comparisons between sealants and restorations.

RESULTS. After an average observation period of 2.0 years, the dropout rate was 4%. Of the sealants 80% were successful, 8% were repaired, and 12% were replaced by restorations. Of the restorations 3% were replaced, which was significantly different compared with the sealant group ($p < 0.005$). The radiographic assessment showed caries progression in 6% of the sealed teeth, exclusively ($p < 0.005$).

CONCLUSION. The majority of the sealed lesions and all the restored lesions were successfully arrested during the first 2 years. Thus, the results indicate the possibility of extending the criteria for non-operative sealing of occlusal caries lesions in the young permanent dentition. However, a longer observation period is needed for final conclusion, and treatments will be followed for at least 3 years.