Summary:

Despite the considerable advances in Restorative Dentistry and the major developments in the field of dental materials, the problem of the origin and treatment of the cervical defects remain a highly and frequently discussed topic. The failure of plastic restorations in the cervical region is more common when compared with other parts of the teeth. This is due to the fact, that cervical restorations are exposed to higher load than other restorations. Further more, the character of the filling material, as well as its characteristics and properties may highly influence the success rate of these restorations.
The aim of this study was defined to find out, under clinical conditions, the most proper material for treating cervical defects, both of caries and non-caries origin and to compare the 3 material groups most commonly used in treating those defects. Another aim was to compare, under laboratory conditions, the quality of the fillings' marginal adaptation.
The experimental part of this study was performed on extracted, caries-free human premolars with special emphasis on the evaluation of the dye penetration extent along the fillings margins. The experimental part had unambiguously proved that low-viscosity composite filling materials are the material of choice for treating non-caries cervical lesions. This can be explained by the material's physical and mechanical properties mainly by its relatively higher elasticity and lower modulus of elasticity. These properties enable the material to resist more easily the lateral forces acting upon the tooth and forming the so-called "stress lines" inside it, which by time leads to higher flexure of the tooth substance mainly in the cervical region.
The clinical part of the study was performed under the in-office normal working conditions and was based-upon monitoring and evaluating the *Ryge's & Cvar's* modified USPHS criteria. It hadn't lead to such unambiguous results as the experimental one. On the other hand, it had emerged the better properties and clinical behavior of low-viscous components when compared to conventional ones and GIC. However, these differences hadn't exceeded the determined 2% significance level and 2 degrees of equality.
Based on the results obtained from both, the experimental and clinical part of this study, it can be concluded that successful treatment of cervical defects depends not only upon the chosen restorative material, but also upon many different factors. Some of these factors are related to the practitioner, including level of expertise, experience, manual skills, time for restoration placement, and strict observation of the recommended instructions for use.
Other factors are patient related, including the quality of tooth tissues, the size of the defect caused by caries excavation, patient age and the inherent properties of the material. Furthermore, the patient's dietary habits, interest in oral hygiene and treatment compliance are other factors contributing to the restorations longevity.