Objective: The aim of this study was evaluate the effect of different rinsing water temperature and preheated composite on microleakage of cl V restorations with two different etch and rinse bonding agents.

Methods and Materials: In this experimental study, forty extracted human molars were selected and eighty cavities were prepared on buccal and lingual surfaces. The teeth were divided into four group of ten teeth each. G1: After acid etch, cavities were rinsed with 23˚C water and they were filled with 23˚C composite resin.G2:Rinsing water of 55˚C – composite resin of 55˚C.G3: Rinsing water of 55˚C – composite resin of 23˚C.G4: Rinsing water of 23˚C – composite resin of 55˚C. The specimens were subjected to a thermal cycling regimen of 500 cycles between 5 and 55 ºC; then they were immersed in a solution of 0.5% basic fuchsin dye. Microleakage scores were analyzed with the Kruskall-Wallis, Mann-Whitney U, and Wilcoxon tests.

Results: There were significant differences between the microleakage of specimens prepared with Single bond and Prime and Bond NT only in group 1 and in other 3 groups there were no significant differences between two bonding agents. There were no statistically significant differences between the microleakage of grouped rinsed with different temperature water (P>.05).

Statistical analysis revealed significant differences between the enamel and dentin in all restorations (P<.05). Finally, there were significant differences between unheated and preheated composite groups (P>.05).

Conclusions: Preheating of composite is a valuable method in increasing adaptability and thus reducing microleakage of resin composite restorations.