

·基础与临床研究·

不同 pH 环境下椅旁用玻璃陶瓷的摩擦磨损行为

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【摘要】 目的 探究不同 pH 环境下椅旁修复用长石质增强型玻璃陶瓷 (VM)、白榴石增强型玻璃陶瓷 (EC)、二硅酸锂增强型玻璃陶瓷 (EX) 和氧化锆增强型二硅酸锂玻璃陶瓷 (VS) 的摩擦磨损行为。**方法** 采用微动摩擦磨损测试仪对 VM、EC、EX 和 VS 4 种玻璃陶瓷分别在酸性、中性和碱性环境下进行磨损测试, 测试参数为法向载荷 (Fn) 50 N, 往复幅度 (D) 500 μm , 往复频率 (F) 2 Hz, 循环次数 (N) 10 000 次。通过白光干涉三维形貌仪获得磨损深度, 通过扫描电子显微镜观察磨损形貌和损伤特征, 分析磨损机制及耐磨损性。**结果** 4 种玻璃陶瓷的平均摩擦系数在酸性环境下最低, 在中性环境下和碱性环境下差异无统计学意义。不同 pH 环境下 4 种玻璃陶瓷的最大磨损深度 VM 最大, 其次是 EC, VS 和 EX。**结论** 在不同 pH 环境下, EX 最耐磨, VM 最不耐磨, 该研究可为临床选择修复材料提供参考。

【关键词】 玻璃陶瓷 摩擦磨损 pH 环境

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Friction and wear behavior of dental chair side glass ceramics
under different pH environments

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【Abstract】 Objective The aim of this study was to evaluate wear resistance of different crystalline reinforced dental chair side glass ceramics, feldspar reinforced glass ceramic (VM), leucite reinforced glass ceramic (EC), lithium disilicate reinforced glass ceramic (EX), zirconia reinforced lithium silicate glass ceramic (VS) under different pH environments. **Methods** In vitro two-body wear tests were performed on VM, EC, EX and VS samples with the ball-on-flat configuration using a reciprocal horizontal fretting tribometer in acidic, neutral and alkaline pH environments. The parameters of load force (50 N), reciprocating amplitude (500 μm), frequency (2 Hz), and the test cycle (10 000 cycles) were selected. Wear scars were observed by 3-D profile microscopy and scanning electron microscope (SEM). **Results** With regard to the same ceramic at different pH environments, four kinds of glass ceramics under acid environment experienced higher average friction coefficient than under neutral and alkaline environment. The maximum worn depth of glass ceramics under different pH environments is VM>EC>VS>EX. **Conclusion** Wear resistance of the investigated glass ceramics under different pH environments is EX>VS>EC>VM, providing references for clinical selection of restoration materials.

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