不同烧结温度的钛硅涂层对钴铬合金耐腐蚀性能的影响

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【摘要】 **目的**　研究不同烧结温度下的钛硅（TiSi）涂层对牙科软质钴铬合金 (CoCr) 耐腐蚀性能的影响。**方法**　选用临床常用的软质钴铬合金，制作成 10mm×10mm×1mm 规格的试件 18 件，将试件随机分成 A、B、C 3 组（n=6），在 B、C 组试件表面运用溶胶 - 凝胶法涂覆钛硅薄膜，分别设定 900℃和 1000℃的烧结温度。将 A、B、C 组试件分别浸于 37℃乳酸 /NaCl 溶液中 7 天，然后利用失重法计算材料的腐蚀速度，并运用等离子体发射光谱仪（ICP-AES） 对溶液进行分析，以获得 3 种试件离子析出量的差异。**结果**　B、C 2 组试件间腐蚀速度没有显著性差异 (P>0.05)，但都低于 A 组试件。离子析出量分析显示，B、C 2 组试件的 Co 、Cr 、Ni 及总的离子析出量均少于 A 组试件 (P<0.05)，B 组试件的 Co 、Cr 、Si 及总离子析出量显著高于 C 组试件 (P<0.05)。**结论**　钛硅涂层可显著提高软质钴铬合金的耐腐蚀性能，1000℃获得的钛硅涂层抗蚀性能优于 900℃。

【关键词】 钴铬合金　钛硅涂层　烧结温度　腐蚀

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Effects of TiSi coatings with different sintering temperature on corrosion resistance of dental CoCr alloy

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【**Abstract**】 **Objective**　To investigate the effects of titanium-silicon (TiSi) coatings with different sintering temperature on corrosion resistance of dental soft CoCr alloy. **Methods**　The commonly used soft CoCr alloy was cast into 18 specimens of size 10mm×10mm×1mm. These specimens were randomly divided into three groups (group A, B and C) (n=6). Then the specimens of group B and C were coated with TiSi on the surface by sol-gel method. The specimens of group B were sintered at 900 ℃ , while the sintering temperature of group C specimens was 1000 ℃ . The specimens of groupA, B and C were immersed in a lactic acid/NaCl solution at 37℃ for 7 days. The method of weight loss was used to analyze the corrosion rate. The solutions were analyzed with ICP-AES to determain the release of elements. **Results**　In the analysis of weight loss method data, there were no significantly differences in corrosion rate between group B and C (P>0.05). The corrosion rates of group B and C were lower than that of group A (P<0.05). The specimens of group A released　significantly more ions (Co 、Cr 、Ni,and total ions) compared with the group B and group C specimens (P<0.05).　The levels of Co 、Cr 、Si and total ions were higher in specimens of group B than that in group C (P<0.05). **Conclusion**　TiSi coating can significant improve the corrosion resistance of soft CoCr alloy. The TiSi coating sintered at the temperature of 1000℃ showed better

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