社会人口学特征及炎症因子水平共同预测胸背部皮瓣修复四肢烧伤创面的效果及临床验证

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[摘要]目的：分析讨论社会人口学特征及炎症因子水平共同预测胸背部皮瓣修复四肢烧伤创面的效果，并建立预测方程，进行临床验证。方法：选取2018年1月-2020年12月笔者医院就诊的胸背部皮瓣修复四肢烧伤创面的患者172例，其中97例患者作为建模队列，根据美学修复效果，将患者分为显效组、有效组和无效组，对比不同组间社会人口学特征及炎症因子水平，并建立回归方程预测创面修复效果。另外75例患者作为验证队列，进行预测模型的验证。结果：建模队列患者的年龄在显效组最低，无效组最高，但文化程度本科及以上所占比例在显效组最高，初中及以下所占比例在无效组最高，差异均有统计学意义（P＜0.05）。CRP水平和IL-6水平在显效组最低，异常增高比例分布小，但其在无效组最高，异常增高比例最大，差异有统计学意义（P＜0.05）。多因素Logistic回归显示，IL-6水平增高、CRP水平增高、年龄增长为无效的危险因素，文化程度增高则与无效呈现负关联，回归方程为：Y=-8.249+0.070X1+0.023X2+0.641X3-0.024X4。对验证队列应用模型进行验证，当Y≥-0.608时有效，Y＜-0.608时，倾向于怀疑无效，该模型在验证队列预测概率值的ROC曲线下面积为0.823（0.678～0.968，P=0.000），具有较好的区分度；Y=-0.608时，模型的灵敏度为（98%），特异度为（95%）。结论：社会人口学特征及炎症因子水平与胸背部皮瓣修复四肢烧伤创面美学效果存在关联，临床可考虑使用年龄、文化背景、CRP和IL-6水平来预测美学修复效果。

[关键词]烧伤；四肢；性别；年龄；CRP水平；IL-6水平；预测模型；胸背部皮瓣；美学效果；验证

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Effect Prediction and Clinical Verifi cation of the Combination of Sociodemographic Characteristics and Infl ammatory Factor Levels in Repairing Burn Wounds of Extremities with Chest and Back Skin Flaps

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Abstract: Objective To analyze and discuss the eff ect prediction of the combination of sociodemographic characteristics and infl ammatory factor levels in repairing burn wounds of extremities with chest and back skin fl aps,,and establish a predictive equation for clinical verifi cation. Methods A total of 172 patients who received chest and back skin fl aps to repair burn wounds of extremities from January 2018 to December 2020 were included in the study. 97 patients of them were selected as the modeling cohort, and divided into the markedly eff ective group, eff ective group and ineff ective group according to the aesthetic eff ect of wound repairing. The sociodemographic characteristics and infl ammatory factor levels of modeling cohorts in diff erent groups were compared, and the regression equations to predict aesthetic eff ect was established. Another 75 patients were chosen as the verifi cation cohort to verify the prediction model. Results The age was the lowest in the markedly eff ective group and highest in the ineffective group, but the proportion of undergraduate education and above was the highest in the markedly eff ective group, and the proportion of junior high school and below was the highest in the ineff ective (P＜0.05). The eff ective group had the lowest CRP and IL-6 level with small ratio of abnormal increase distribution, but the ineff ective group had the highest CRP and IL-6 level with large ratio of abnormal increase distribution (P＜0.05). The results of multivariate logistic regression analysis indicated that increased IL-6 levels, CRP levels and age were the risk factors for cosmetic inefficiency, and higher education level was negatively correlated with cosmetic ineffi ciency. The multi-factor Logistic regression equation was Y=-8.249+0.070X1+0.023X2+0.641X3-0.024X4. The verification cohort was used to verify the prediction model, and the aesthetic eff ect was eff ective when Y≥-0.608, but the aesthetic eff ect tended to be ineff ective when Y＜-0.608. The area under the ROC curve of the predicted probability value in the verification cohort with the above model was 0.823 (0.678-0.968, P=0.000), indicating the good discrimination of model. When Y=-0.608, the sensitivity of the model was (98%) and the specifi city was (95%). Conclusion Sociodemographic characteristics and levels of infl ammatory factors are related to the aesthetic eff ect of thoracic and back skin fl aps in repairing burn wounds of extremities. Clinically, age, cultural background, and serum levels of CRP and IL-6 can be considered to predict the cosmetic repair eff ect of patients after skin grafting.

Keywords: burn; limbs; gender; age; CRP level; IL-6 level; prediction model; chest and back fl ap; aesthetic eff ect; verifi cation