運用基因演算法建構急病預測模型之研究-以睡眠呼吸中止症候群為例

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摘要

呼吸睡眠中止症候群被認為是二十世紀所發現最重要的睡眠障礙，也是睡眠醫學最重要的研究方向。一般來說，患者並無立即病痛與不適且大多患者都不自覺，容易造成延誤就醫且睡眠多項生理檢查需耗費相當昂貴的成本與人力，目前國內的醫療資源並無法做全面的性的篩選，就預防醫學的角度而言，建立一套可以優先準確篩選出中度與重度睡眠呼吸中止症候群的預測模型有其必要性。本研究將以病患就醫過程中產生的相關問卷資料為基礎，再運用基因演算法來解決複雜的問卷變項問題，建立一套可以準確預測出中度與重度睡眠中止症候群診斷系統，提供高危險群簡便準確的預測模型，讓醫療人員及早針對不同嚴重程度的患者提供適當的治療與建議，預防其併發症與後遺症的發生，進而達到預防性醫學的目標。

關鍵字：睡眠呼吸中止症候群、疾病預測模型、基因演算法

Abstract

Sleep apnea syndrome is regarded as the most important sleep disorder discovered in the 20th century as well as the significant research direction for sleep medicine. Generally speaking, most of patients are unaware of sleep apnea syndrome for its painlessness and none- discomfort, which will delay treatment. Moreover, it requires for high costs and personnel expense on polysomnograph（PSG）examination. We could not do overall examination according to the contemporary medical resources. In the aspect of preventive medicine, it is necessary to establish a set of prediction model to accurately give preference to moderate serious sleep apnea syndrome. In this study, by means of computerized analyzing the laboratory data of the patients during medical visits we use Genetic Algorithms（GA）to solve complicated problems from changeable items of questionnaire to establish a system that can accurately predict moderate serious sleep apnea syndrome. The system can provide high-risk populations with convenient and precise predictive model so as to help medical personnel that they could propose the proper treatments and suggestions for patients according to various degrees of disease.

***Keywords**: Sleep Apnea Syndrome, Disease Predictive model, Genetic Algorithm.*