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• 計畫英文名稱	--		
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• 中文關鍵字	心率異性分析; 慢性腎衰竭; 自主神經病變		
• 英文關鍵字	Heart rate variability; Autonomic dysfunction; Chronic renal failure		
• 中文摘要	<p>心率異性分析(Heart rate variability, HRV)對評估心臟自主神經調節功能已被證實為非侵入性且有效的工具。慢性腎衰竭患者接受長期血液透析治療造成不可逆之自主神經病變可由心律變異性降低來評估。為了能即時得知心率之變化，本研究使用 5 分鐘心電圖做時域及頻域之分析，取得時域及頻域之各項參數，並就透析前後電解質濃度與心律變異性參數比較並找出其相關性。本研究包含 26 位長期接受血液透析治療的患者(男性 13 位，女性 13 位，平均年齡 56.7±13.8 歲)收集患者年齡，血液透析前後 5 分鐘心電圖，鈉離子、鉀離子、鈣離子、磷酸根離子、氯離子的血中濃度。收集之心電圖用電腦程式處理後取得時域及頻域之各參數，並與電解質濃度做相關性之統計分析。研究結果顯示，血液透析後磷酸根離子濃度降低會使交感神經活性降低。鈣離子濃度增加會使副交感神經活性降低。鉀離子濃度降低則會影響到交感-迷走之交互作用。血液透析前後電解質及 LF/HF 比例有顯著之意義，其他心率變異性參數並無顯著之差異。</p>		
• 英文摘要	<p>This study is aimed to explore the relationship between heart rate variability (HRV) parameters and electrolyte concentrations in both pre- and post-dialysis. 26 chronic renal failure patients (13 women, 13 men, 56.7 ± 13.8 years) receiving maintenance hemodialysis therapy were included in this study. Patients were measured 5-minute ECG at rest. Calcium, phosphate, sodium, potassium, and chloride concentrations were collected before and after hemodialysis. HRV parameters are computed from RR-intervals of surface ECGs. Five frequency domain and two time domain parameters of HRV are calculated: (1) LF: power in LF (low-frequency), range (0.04~0.15Hz); (2) LF norm: LF power in normalized units; (3) HF: power in HF (high-frequency), range (0.15~0.4 Hz); (4) HF norm: HF power in normalized units; (5) LF/HF: Ratio LF /HF; (6) MeanRR: average of RR intervals; (7) SDRR: standard deviation of all RR intervals. Results showed that there is no significant relationship on HRV parameters, except LF/HF ratio, before and after hemodialysis but the longer</p>		

duration of hemodialysis might increase SDRR, LF, and HF before hemodialysis. In the relation between HRV and electrolyte's concentration, we found that LF/HF decreased with a reduced potassium level, a reduced phosphate level decreased sympathetic activity and an increased calcium concentration resulted in a reduction of the vagal modulation after hemodialysis. This result may indicate that the electrolyte concentrations have contributions to autonomic regulation of the heart in patients receiving hemodialysis.