Outcomes of patients with successfully converted paroxysmal supraventricular tachycardia after four hours of observation in an emergency department of a district hospital in Hong Kong

在duct一地之救護區的急症室成功復率的陣發性室上心搏過速者觀察四小時後的結果

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Objective: Paroxysmal supraventricular tachycardia (PSVT) is a common problem encountered in the accident & emergency department (AED). Most patients can be successfully converted to sinus rhythm by vagal manoeuvres or adenosine tri-phosphate (ATP) or may even convert spontaneously in the AED. The objective was to test the safety of a protocol in managing this group of patients. The outcomes and recurrence rate of PSVT patients who had been converted to sinus rhythm and discharged from the AED after a period of observation using a simple protocol were studied. Methods: This was a prospective study on PSVT patients aged between 18-70 years from June 2003 to August 2005. The outcomes and recurrence rates of the PSVT patients within two periods, namely, 24 hours and 90 days after discharge from the AED, were assessed by the computerized system in public hospitals under the Hong Kong Hospital Authority. Results: A total of 42 PSVT patients after successful conversion were discharged from the AED after four hours of observation. None had recurrence of PSVT within 24 hours. Four patients (9.5%) presented with recurrent PSVT within 90 days after discharge without negative outcomes. The timing of recurrence ranged from 2 to 22 days (mean 15 days). All the four patients had past history of PSVT and three of them had already been on long term anti-arrhythmic medication. One recurrent PSVT patient was arranged to undergo radiofrequency ablation. Conclusion: PSVT patients successfully converted by vagal manoeuvre or ATP or converted spontaneously can be safely discharged from the emergency department after four hours of observation under the study protocol. (Hong Kong j.emerg.med. 2006;13:140-147)

目的：陣發性室上心搏過速是急症室經常遇到的問題，大部份病者都可在急症室利用迷走神經手法、三磷酸甘油或甚至自發地成功回復為異性心率。本研究旨在測試一個處理這群病者的診治程序之安全性：研究在急症室根據一個簡單的診治程序而成功將陣發性室上心搏過速回復為異性心率的病者，經過一段期間觀察後出院之結果及復發率。方法：這是一個前瞻性研究，由2003年6月至2005年8月期間進行，年齡由18至70歲因陣發性室上心搏過速求診的病者，透過香港醫院管理局轄下公立醫的電腦系統，以急症室出院後24小時及90日內兩個時間段來評估其結果及復發率。結果：共有42名陣發性室上心搏過速的病者在急症室成功回復及經過觀察4小時後出院，並無個案在24小時內復發；其中4名病者（9.5%）在出院後90天內出現陣發性室上心搏過速復發，但沒有不良後果，復發的時間範圍由2至22日不等（平均為15日）。4名病者全部都有陣發性室上心搏過速的病史，其中3人已長期服用抗心
Introduction

Paroxysmal supraventricular tachycardia (PSVT) is a common cardiac arrhythmia encountered in the accident & emergency department (AED). It is usually caused by abnormal electrical connections that induce short-circuit in the heart including atrioventricular nodal reentrant tachycardia (AVNRT) – which is the most common type – and atrioventricular reciprocating tachycardia (AVRT). The latter is associated with the Wolff-Parkinson-White (WPW) syndrome that may be inherited. Overdose of certain drugs such as digoxin can also cause PSVT.

Most patients presenting with PSVT can be managed by a single straightforward protocol. Vagal manoeuvres can be tried to slow the heart rate and block the short circuit. If it does not work, intravenous adenosine triphosphate (ATP) or verapamil can be tried. Electrical cardioversion is indicated for haemodynamically unstable or resistant cases. Patients who either respond promptly to vagal manoeuvres or ATP injection or whose rhythm returns spontaneously to a sinus one seldom have complications from the attack. Patients with unstable presentation, persistent or repeated attacks of PSVT usually require inpatient management with ongoing treatment. All PSVT patients should be referred to the medical team for further assessment. Some patients may need long-term anti-arrhythmic treatment or electrophysiological study to map out abnormal pathway for radiofrequency ablation.

Luber et al conducted a 4-year study on PSVT outcome after AED care from January 1993 to December 1996 in the United States. His study showed that most patients with PSVT could be safely discharged from the emergency department after short-term observation (3.8 hours) if therapy produced prompt conversion to normal sinus rhythm.¹

The AED of the Caritas Medical Centre proposed a protocol (Figure 1) to manage patients presenting with PSVT. The purpose of this study was to assess the safety of discharging patients with PSVT after a 4-hour observation in the AED when they had been managed with vagal manoeuvres, ATP or they had spontaneously converted to sinus rhythm. We stratified the risks of recurrence of PSVT into two groups – within 24 hours and within 90 days after discharge. Adverse outcomes of those patients discharged from the AED were identified. Patients who had been safely treated in the AED would be given an early medical outpatient clinic appointment.

Patients and methods

This was a prospective study to find out the outcomes and recurrence rates within 24 hours and 90 days in PSVT patients, after successful conversion and discharge from the AED. This study took place at the AED of the Caritas Medical Centre (CMC) from 15 June 2003 to 30 August 2005 for patients with a diagnosis of PSVT (narrow QRS-complex tachycardia with no discernible P waves and a ventricular rate of 120 to 300 beats per minute). The outcomes of the patients were traced by the computerised systems – Accident and Emergency Information System (AEIS) and Clinical Management System (CMS) – under the Hong Kong Hospital Authority after 24 hours and 90 days of discharge.

The study recorded the following patient information: age, sex, vital signs, cardiac rhythm, treatment, past