

中文摘要

鑒於台灣對於院內心肺衰竭(in-hospital cardiac arrest, IHCA)病患之急救資料記載與分析有限，故本研究著手建置一套具可近性、持續性與完整性等特性之心肺衰竭急救通報機制，本論文將敘述此一研究之過程與方法，並將以導入通報系統於急救體制中之實際推行結果與成效為討論主軸，以實際統計分析方式來呈現實質效率與成效間之提升。

本研究中與國內某醫學中心合作，系統導入後分析過去三年的資料，我們發現成人心肺衰竭恢復自發性循環(Return of Spontaneous Circulation, ROSC)的比率約 68%，存活超過 24 小時的患者約有 50.2%，與國外研究相比兩者皆有較高的表現；對於初始心臟節律的研究，本研究之心室頻脈(Ventricular Tachycardia, VT)或心室纖維顫動(Ventricular Fibrillation, VF)病人急救成功率 80.2%較無收縮心搏停止(Asystole)(58.5%, $p < 0.001$)與無脈性心電氣活動(Pulseless Electrical Activity, PEA)(68.9%, $p = 0.006$)高，VT/VF 出院比例 32.2%也高於Asystole(11.9%, $p < 0.001$)或 PEA(15.7%, $p < 0.001$)的出院比例，此一資料驗證國外研究所得，證實初始心臟節率確實對於急救成效有所影響。關於成人成效指標上的探討，我們發現在整體急救效率上均有所提升：包含心肺停止後開始急救反應時間(效率提升量為 79%)、記錄心肺停

止後心律反應時間(效率提升量為 48%)、第一次電擊反應時間(效率提升量為 35%)等都呈現縮短的現象，顯示導入此系統有正面之助益。

總體出院病人約佔 17.38%，則與國外的研究不相上下，顯示該醫學中心的急救品質已經具有國際水準。小兒心肺衰竭恢復自發性循環(ROSC)的比率約 65%，出院人數包括醫囑出院與轉院等約 26.21%，與國外的研究數據相比偏低顯示在這部份國內仍有改善之空間。

英文摘要

There are few examples about the data collection and analysis of patients with in-hospital cardiac arrest (IHCA) in Taiwan in past years. The administrator of hospital cannot monitor the whole procedure of cardiopulmonary resuscitation and find the root cause of event. This will influence seriously on performance and outcome of in-hospital resuscitation. This study has examined the feasibility of a web-based registry system on in-hospital resuscitation using the Utstein style in an oriental country. It provides a comprehensive and standardized method for on-line registry of data collection, allowing individual hospitals to track each index case and providing datasheets for quality improvement.

We collect resuscitation patient in medical center last past three years. After data clearing, 806 cases remain. The resuscitation patient with return of spontaneous circulation (ROSC) is 68%, and the case of survival after 24 hour exceeds 50%. These results are better performance than international research. An initial rhythm of VT/VF had a higher ROSC rate than those with PEA (80.2% versus 68.9%, $P = 0.006$) or asystole (80.2% versus 58.5%, $P < 0.001$). In rate of survived to discharge analysis, VT/VF were associated with a better outcome than PEA (32.2% versus 15.7%, $P < 0.001$) or asystole(32.2% versus 15.7%, $p < 0.001$).

To the best of our knowledge, this is the first web-based registry system on in-hospital resuscitation using the Utstein style, to collect data prospectively and effectively via the implementation of an on-line access web database. In the flourishing era of modern internet technology, data

collection and further analysis through web services will be more convenient and efficient than previously adopted methods of collecting from papers format or transmission by e-mail. Our study has demonstrated the feasibility of a web-based designed structure of in-hospital registry system. This system not only helps clinicians tracking CPR event more easily, but also facilitates the possibility of data analysis and comparison between different institutions. In the future, we will focus on data mining research. These technologies will help physician to detect high risk factor of cardiac arrest patient in order to improve resuscitation quality and increase survival rate.