行政院國家科學委員會專題研究計畫成果報告

NSC Project Reports

計畫編號：NSC90－2314－B002－265

執行期間：90 年 8 月 1 日至 91 年 7 月 31 日

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一、中文摘要

本研究包括兩大部分：一部份是針對一般大眾的教育，另一方面則是針對院內醫療的評估。關於第一部份，我們台大醫院神經部與台灣腦中風學會及台北科技大學一起合作，已製作出一片衛教光碟及一份衛教單張。並已於 91 年 6 月 22 日於國父紀念館所舉辦之園遊會場分發給參加的民眾。現場並回收問卷 263 份。關於第二部份，則是承續以前的研究，目的在了解中風病人在送達醫院之後，接受一系列的檢查所要花費的時間，特別是對於完成頭部電腦斷層檢查及完成抽血檢查所需的時間作觀察。關於第二部份，我們共收集 167 位病人。登錄病人之基本資料、各項危險因素、中風發生時之症狀、到院時間、所安排的檢查，及完成各項檢查所花費之時間；之後再分析是否有什麼因素會影響患者入院之後，在檢查方面所花費的時間。結果發現：以肢體無力來表現的病人，到院後做完電腦斷層掃描所花費的時間是 86 (範圍 31-378)分鐘，在星期一至星期五的平常日所需要花費的時間分別是 71 (範圍 31-117) , 69 (範圍 31-156), 139(範圍 37 - 378), 187(範圍 36-338), 61(範圍 38-84)分鐘，而於星期六、日等例假日所需花費的時間是 44 (範圍 35-53)分鐘；到院後做完抽血檢查的時間需要 125 (範圍 57-259)分鐘，在星期一至星期五的平常日所需要花費的時間分別是 155 (範圍 71-259) , 111 (範圍 57-192), 132 (範圍 103-177), 165 (範圍 159-170), 114 (範圍 71-184)分鐘，而於星期六、日等例假日所需花費的時間是 112 (範圍 103-130)分鐘。以暈眩來表現的病人，到院後做完電腦斷層掃描所花費的時間是 157 (範圍 53-378)分鐘，在星期一至星期五的平常日所需要花費的時間分別是 139 (範圍 53-303) , 154 (範圍 86-267), 378 (範圍 378), 129 (範圍 98-159), 56 (範圍 56)分鐘，而於星期六、日等例假日所需花費的時間是 83 (範圍 83)分鐘；到院後做完抽血檢查的時間需要 144 (範圍 64-313)分鐘，在星期一至星期五的平常日所需要花費的時間分別是 168 (範圍 74-313) , 166 (範圍 110-252), 128 (範圍 76-183), 85 (範圍 64-106), 184 (範圍 184)分鐘，而於星期六、日等例假日所需花費的時間是 202 (範圍 202)分鐘。意即，患者以暈眩或肢體無力來表現者，入院之後所花費的時間有差異；而平常日或例假日入院時，於例假日送達急診室的病人花在檢查方面的時間則無明顯差異。

English Abstract

Background and purpose:

Cerebrovascular disease (CVD) remains a serious cause of physical disability and death in Taiwan. Thus we think it is important to educate the public to know what are the risk factors of stroke and how they can prevent stroke. Therefore the first part of this study is to make some material for public education, including the CD-R and print. The second purpose of this study is to know the time spent in examination in National Taiwan University Hospital. As we know, acute stroke therapy has been no more nihilism since the success in thrombolytic therapy was reported. It has also been generally accepted that a prerequisite for successful acute stroke intervention with thrombolysis or neuroprotection is that the time from stroke onset to initiation of treatment must be kept to a minimum. We have studied the time

from stroke ictus to arrival at hospital and now therefore we would like to explore the factors associated with in-hospital delay.

Methods: This study actually was separated into two parts. In the first part, we cooperated with the Taiwan Stroke Society, and three students at National Taipei Technology University, using Flash 5 software, to make a CD-ROM for public education. We had made 300 CD-ROMs that had been freely sent to some Taipei citizens on 22 June 2002.

The second half of this study was performed between August 2000 and July 2002 at National Taiwan University Hospital (NTUH). The following data need special inquiry, including (1) the time of the onset of stroke,(2) the time when the patient arrived at the hospital,(3) the time spent in taking history and performing neurological examination,(4) the time spent in consultation of neurologist,(5) the time spent in collecting laboratory results and (6) the time when the result of brain CT is obtained. In addition to time recording, the sociodemographic data, clinical manifestations, laboratory examinations, and head CT/MRI findings are all recorded. The following data will be analyzed to determine the factors of in-hospital delay including age, sex, time of onset, symptoms of onset, clinical course and association with medical disease.

Results: We had made 300 CD-ROMs that had been freely sent to some Taipei citizens on 22 June 2002. Two hundreds and sixty-three questionnaires were filled out, which can be used as an observation of public attitude toward cerebrovascular diseases and stroke.

In the second part of this study, we collected 167 patients who were sent to our emergency room, and their data were analyzed to see which factors would significantly increase their in-hospital delay. In patients who presented as weakness, the average time spent in head CT was 86 (range 31-378) minutes, and from Monday to Friday were 71 (range 31-117), 69 (range31-156), 139(range 37 - 378), 187(range 36-338), 61(range 38 - 84) minutes respectively, and 44 (range 35-53)minutes on Saturday and Sunday. The average time spent in completing the biochemical examination was 125 (range 57-259) minutes, and from Monday to Friday were 155 (range 71-259), 111 (range 57-192), 132 (range 103-177), 165 (range 59-170), 114 (range 71-184) minutes respectively, and 112 minutes on Saturday and Sunday. In patients who presented as vertigo, the average time spent in head CT was 157 (range 53-378) minutes, and from Monday to Friday were 139 (range 53-303), 154 (range 86-267), 378 (range 378), 129 (range 98-159), 56 (range 56) minutes respectively, and 83 (range 83) minutes on Saturday and Sunday. The average time spent in completing the biochemical examination was 144 (range 64-313) minutes，and from Monday to Friday were 168 (range 74-313) , 166 (range 110 – 252), 128 (range 76-183), 85 (range 64-106), 184 (range 184) minutes respectively, and 202 (range 202) minutes on Saturday and Sunday.

Conclusions: According the preliminary results, we found the time spent in examination was of no significant difference between the patients who were sent to our emergency room on different weekday. However, there was difference between patients with different symptoms. Patient with vertigo would spend much more time in completing the imaging and biochemical examinations than patients with weakness.

Key words: emergency room, in-hospital dalay, acute stroke, vertigo

Subjects and Methods

This prospective study was performed at a medical center, National Taiwan University Hospital (NTUH) that is a 2,000-beds tertiary medical center located in the southern part of Taipei municipality, primarily serving the emergent medical network of the 6 nearby administrative districts. Due to the geographic location and convenient transportation system in Greater Taipei (Taipei City and surrounding Taipei County), NTUH is also the referral center for nearby cities of Taipei County.

This study actually was separated into two parts. In the first part, we cooperated with the

Taiwan Stroke Society, and three students at National Taipei Technology University, using Flash 5 software, to make a CD-ROM for public education.

In the second stage of this study, patients with acute stroke that are sent to the emergency room of NTUH were recruited into this study. The criteria for stroke and TIA diagnosis have been described in details elsewhere according to WHO definition. Stroke was classified into the following categories: cerebral infarction, cerebral hemorrhage and subarachnoid hemorrhage. Cerebral infarction was classified into 5 subtypes: large artery atherosclerosis, lacunae, cardioembolism, other less common determined causes, and undetermined cause according to the diagnostic criteria modified from TOAST classification. The following data need special inquiry, including (1) the time of the onset of stroke, (2) the time when the patient arrived at the hospital, (3) the time spent in taking history and performing neurological examination, (4) the time spent in consultation of neurologist, (5) the time spent in collecting laboratory results and (6) the time when the result of brain CT is obtained. In addition to time recording, the sociodemographic data, clinical manifestations, laboratory examinations, and head CT/MRI findings are all recorded. The following data will be analyzed to determine the factors of in-hospital delay including age, sex, time of onset, symptoms of onset, clinical course and association with medical disease.

Results

We had made 300 CD-ROMs that had been freely sent to some Taipei citizens on 22 June 2002. Two hundreds and sixty-three questionnaires were filled out, which can be used as an observation of public attitude toward cerebrovascular diseases and stroke.

In the second part of this study, we collected 167 patients who were sent to our emergency room, and their data were analyzed to see which factors would significantly increase their in-hospital delay. In patients who presented as weakness, the average time spent in head CT was 86 (range 31-378) minutes, and from Monday to Friday were 71 (range 31-117), 69 (range31-156), 139(range 37 - 378), 187(range 36-338), 61(range 38 - 84) minutes respectively, and 44 (range 35-53) minutes on Saturday and Sunday. The average time spent in completing the biochemical examination was 125 (range 57-259) minutes, and from Monday to Friday were 155 (range 71-259), 111 (range 57-192), 132 (range 103-177), 165 (range 59-170), 114 (range 71-184) minutes respectively, and 112 minutes on Saturday and Sunday. In patients who presented as vertigo, the average time spent in head CT was 157 (range 53-378) minutes, and from Monday to Friday were 139 (range 53-303), 154 (range 86-267), 378 (range 378), 129 (range 98-159), 56 (range 56) minutes respectively, and 83 (range 83) minutes on Saturday and Sunday. The average time spent in completing the biochemical examination was 144 (range 64-313) minutes，and from Monday to Friday were 168 (range 74-313) , 166 (range 110 – 252), 128 (range 76-183), 85 (range 64-106), 184 (range 184) minutes respectively, and 202 (range 202) minutes on Saturday and Sunday.

Discussion

Cerebrovascular disease (CVD) remains a serious cause of physical disability and death in Taiwan. At present, stroke is the second leading cause of death. Acute stroke therapy has been no more nihilism since the success in thrombolytic therapy was reported. It has also been generally accepted that a prerequisite for successful acute stroke intervention with thrombolysis or neuroprotection is that the time from stroke onset to initiation of treatment must be kept to a minimum. We have studied the time from stroke ictus to arrival at hospital and thus in this study we would like to explore the factors associated with in-hospital delay.

In patients who presented as weakness, the time spent in head CT was less than that spent in completing biochemical examinations. This finding was out of our expectation. However, from Sunday to Saturday, we found no significant difference between the patients who were sent to our

emergency room on different weekday. Although the variation of time spent in head CT was greater than that spent in biochemical tests.

In patients presented as vertigo, the time spent in finishing head CT was as twice much as the time of those patients presented with weakness. Alike weakness, we found no significant difference between the patients who were sent to our emergency room on different weekday. The time spent in biochemical tests had no significant difference between the patients with vertigo and weakness.

According the preliminary results, we found the time spent in examination was of no significant difference between the patients who were sent to our emergency room on different weekday. However, there was difference between patients with different symptoms. Patient with vertigo would spend much more time in completing the imaging and biochemical examinations than patients with weakness.

記劃結果自評

Material for public education of stroke has been already done, and has been ready to go massive production when needed. We have achieved the first mission of this study, i.e. to introduce the correct concept of stroke to the public. According to our preliminary result of evaluation of in-hospital delay, it can hardly shorten the time spent in the same category of patient. However, in patients with different symptoms, the time varied widely. It means education for the emergency physician is necessary. The stroke unit at National Taiwan University Hospital will be up and running, we hope an intervention for education to the stroke team will give benefit to care of stroke patients. This part of mission is still going on.

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行政院國家科學委員會補助專題研究計畫成果報告

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※　　腦中風病患發病後到院及入院後各項檢查所費時間及　※
※　　　　其診斷正確性之評估：介入性分析　　　　　　　※
※　　**(Factors Associated With Delayed Arrival Time and**　※
※　**In-Hospital Delays and the Accuracy of Diagnosis in Acute Stroke：**　※
※　　　　**An Intervention Study)**　　　　　　　　※
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計畫參與人員：　鄭建興醫師

執行單位：台大醫院神經部

中　華　民　國　91　　年　10　　月　　31　日