建 議

台灣腦中風學會針對急性中風流程因應COVID-19疫情調整之建議

有鑑於近期COVID-19疫情之影響，儘管國內目前在各界努力下，尚能將確診案例控制分流得當，然神經科醫師及其他腦中風團隊照護成員在執行急性中風流程時，仍可能接觸居家檢疫之個案，甚至「無意間」接觸COVID-19 確診或疑似個案，若因此導致腦中風團隊照護成員、甚至動脈血栓移除治療（EVT）團隊都需被隔離14天，則將嚴重癱瘓中風治療之能量。尤有甚者，若因不慎造成人員的感染，造成栽培不易的腦中風治療專業人員損失，絕非國人與醫界之福。因而，兼顧腦中風照顧品質與醫療人員之防備與安全，實屬不易卻必須正視並審慎處裡的議題。

他山之石

根據World Stroke Organization (WSO)網站上的“Stroke Care and the COVID19 Pandemic” (https://www.world-stroke.org/news-and-blog/news/stroke-care-and-the-covid19-pandemic)專欄下，有世界各國腦中風照護團隊的投書，可發現此疫情對各地腦中風造成的影響。以南韓為例，面對疑似個案時會先做喉頭篩檢，此舉很可能會耽誤執行動脈血栓移除治療(EVT)的時間，因而許多時候只改作腦部CT並施打靜脈血栓溶解劑(IV rt-PA)；此外，並依照接觸史和症狀來做風險分層，使病患和醫療團隊在轉送及治療時能做妥善的防護措施；學會成員也已在討論，在緊急情況下檢查要作到多詳細、是否有**法定文件能保護醫療團隊免因耽誤治療而受咎責**、以及轉送轉院的政策。在新加坡，目前大多數腦中風中心執行的急性治療（IV rt-PA及EVT）仍繼續運作，但會著重在詢問病患的接觸史及呼吸道症狀；受到較大影響的則屬復健病房及門診的運作，以及許多醫學討論或教育需改成**線上進行**。

在最早爆發個案、處理上也經驗較多的中國來說，他們有制定一套流程來處理到急診的腦中風個案：(1) 先調查接觸史、體溫及呼吸道症狀；(2) 排除COVID-19者將照一般中風流程處理，包括抽血、**腦部及胸部CT**；(3) 無法被排除COVID-19者轉入專屬的隔離病房處理中風流程，且建議要有**專門設計的CT機器**；(4) 在治療過程中，保持與醫院感控疫情專家的密切聯繫；(5) 針對疑似個案，**在單獨病房中進行IV rt-PA**、並在**負壓或專門設計的血管攝影室**進行EVT；(6) 醫護人員一定要穿戴個人防護設備(PPE)；(7) 針對各醫院之間急性治療適應症的評估，鼓勵使用通訊診察：**遠距醫療或電話照會**。

在德國，儘管他們確診個案也很多，但海德堡中風中心的醫療常規仍能繼續維持，包括全天候的EVT治療，不過他們有把EVT團隊分成**較少成員輪班制**，以避免整個團隊不幸都受到病毒影響，並且也配合國家政策，把原本腦中風加護病房的床位減半以供其他重症病患需求。在美國有大規模個案來襲的情況下，他們已實際遭遇COVID-19確診個案發生急性腦中風的情況，在一連串的評估影像檢查及EVT治療中，遇到的問題包括：轉送過程中因為管路複雜可能增加暴露時間，盡可能設計為COVID-19個案專屬的CT或MRI room，避免增加不必要的顯影劑注射，而且負壓的血管攝影室幾乎不存在。儘管沒有一個protocol能實際應付所有情況，但重點是要盡可能「**暴露最小化**」與「**資源最大化**」。

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學會建議：

一、鼓勵各醫院自行擬定因應COVID-19疫情之**急性中風protocol**，包括stroke code如何啟動、CT如何執行、以及後續住院床位調度。Protocol應特別著重在病人分流，將高度懷疑與不太可能為COVID-19個案從急診檢傷起，就走不同流程。

二、儘管目標仍是快速治療缺血性中風病人，但目前針對COVID-19確診個案接受急性中風治療之利弊證據尚未充足，且應以保護各醫院之神經科醫護人員與EVT團隊為最大考量，針對以下兩種不同風險層級之個案分述之。

(1) **COVID-19確診個案**，應非常審慎評估特殊急性中風治療之必要性、人員安全性、傳染病傳播之風險性與醫療能量之承載能力後，可考慮於符合COVID-19傳染病感控標準之CT室、血管攝影室及相關防護設備下進行特殊急性中風治療。

(2) **COVID- 19疑似個案，或居家隔離/檢疫者**，若符合特殊急性中風治療之適應症，建議以靜脈血栓溶解治療為先，在適當防護、COVID-19傳染病傳播之風險性可控與醫療能量之承載能力可負擔下，可考慮進行動脈內血栓移除治療，惟應當於執行前審慎排除無症狀傳染者之可能性。

三、鼓勵各醫院推廣**遠距通訊診察**之功能，不論是stroke code個案、急診或病房一般會診皆然。可與醫院各科部商討如何使用手邊可用之行動通訊產品，由神經科遠距會診病患，減少不必要之暴露風險。

以上三點共識，乃依照目前台灣疫情仍以境外移入為主、零星社區個案之情境去模擬。但有鑑於疫情隨時都在變化，若將來有大規模社區感染發生時，會再調整以上各項建議。

台灣腦中風學會年輕醫師發展委員會

(台大醫院陳志昊、林口長庚劉濟弘、成大醫院宋碧姍、新樓醫院謝鎮陽)擬定

台灣腦中風學會秘書處、常務理事、理事長審定

2020年5月1日

Taiwan Stroke Society Recommendations for Hyperacute Stroke Management During the COVID-19 Pandemic

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ABSTRACT

During the unprecedented COVID-19 pandemic, balance must be made between the benefit of efficacious hyperacute stroke management and the risk of infectious exposure of stroke team members. Based on current clinical experience and experts' opinions around the world, Taiwan Stroke Society proposed temporary recommendations for hyperacute stroke management on patients with confirmed or suspected COVID-19 diagnosis, or patients under home quarantine or isolation status. We also suggest each hospital to develop protocols or algorithms tailored for local situation. The core concept is to minimize the risk of exposure and to maximize available medical resources to combat this pandemic while maintaining proper and ideal stroke management.

Even with the best efforts of many disciplines within Taiwan, due to the COVID-19 pandemic, neurologists and other members of acute stroke care teams may come into contact with patients under quarantine, or even become unknowingly exposed to patients with suspected or confirmed COVID-19 diagnosis. This may cause members of the acute stroke care team or the endovascular thrombectomy (EVT) team to be quarantined for 14 days, severely hampering the care capacity of stroke patients. In the unfortunate event of a valued member of our team being diagnosed with or even passing away because of COVID-19 would be a grave loss to our medical community and nation. Therefore, in order to maintain a high standard of acute stroke care and the safety of our team members, we must be cautious in our approach of managing the situation in this difficult time.

The Taiwan Stroke Society recommends:

1. Encourage individual health care institutions to mandate COVID-19 acute stroke protocols, including methods and timing of stroke code initiation, brain CT examination under adequate protection, and arrangement of hospital beds. The protocol should specifically emphasize patient triage, including a separation of patients with a low risk from those with a high risk of COVID-19 during ER triage assessment.
2. While our goal should always be the rapid treatment of acute stroke patients, due to the prioritization of the protection of our acute stroke care and EVT team members, we recommend risk-stratification management of the following two groups.

A. For patients with confirmed COVID-19 diagnosis, judicious evaluation must be paid to weight the benefit and necessity of acute stroke intervention, the safety of medical crew members, the risk of infectious spreading, and the capacity of healthcare resources. Specialized acute stroke treatment may be considered while adequate protection including dedicated CT and angiography rooms adherent to COVID-19 infection control guidelines, and sufficient personal protective equipment are available.

B. For patients with suspected COVID-19 infection, patients under home quarantine or home isolation, intravenous thrombolytic therapy (IVT) should be considered as the first-line treatment. EVT can be considered if adequate protection can be achieved, the risk of infectious spreading can be controlled, and the capacity of healthcare resources can be guaranteed. However, the possibility of asymptomatic COVID-19 patients or patients with mild clinical symptoms should be carefully evaluated before the procedure.

3. We recommend all health care institutions to implement telemedicine facilities on acute stroke code patients and patients who require neurological consultations, to allow neurologists to remotely evaluate patients and reduce unnecessary exposure.

We made the above recommendations with the understanding that Taiwan has a majority of confirmed cases being from abroad and has only sporadic community transmission. However, with the everchanging nature of the pandemic, should large-scale community infections occur, the above recommendations will be adjusted to protect our valued team members.