Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Letter to the Editor

Covert COVID-19 complications: Continuing the use of evidence-based drugs to minimize potentially lethal indirect effects of the pandemic in stroke patients

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Stroke and cardiovascular diseases are the world's biggest killers, globally accounting for over 15 million deaths each year (https://www.who.int/news-room/fact-sheets/detail/the-top-10-causes-of-death). Since the Coronavirus Disease 2019 (COVID-19) outbreak in Wuhan, China and its rapid spread to other countries, as of April 272,020, there were about 3 million cases with over 190,000 deaths worldwide. However, actual situation might be even more dire, since such statistics likely do not fully display the entire impact of COVID-19, especially with regard to its influence on patients with a history of stroke who need to take cardiovascular drugs regularly to prevent recurrent vascular events. Although there is currently a lack of definitive data, it is conceivable that several of these patients are unable to receive their cardiovascular preventive medications, especially if they live in most COVID-19 ravaged areas with medical systems overwhelmed, and/or are restricted to their homes.

Most stroke patients with atrial fibrillation need to take an oral anticoagulant regularly. Clinical trial evidence shows that stroke patients with atrial fibrillation assigned to apixaban, a novel oral anticoagulant, compared with aspirin, had a substantially lower risk of recurrent stroke or systemic embolism (2.4% vs 9.6% per year, hazard ratio 0.29, 95% confidence interval [CI] 0.15 to 0.60) [1]. The safety advantage for novel oral anticoagulants over warfarin may be even larger during the COVID-19 pandemic, because it will be challenging for stroke patients with atrial fibrillation who take warfarin to receive regular blood tests to monitor international normalized ratios, and therefore it may be prudent to prescribe novel oral anticoagulants instead of warfarin to stroke patients with atrial fibrillation during this crisis period. On the other hand, a large cohort study showed that discontinuation of aspirin was associated with a 40% increase in the risk of ischemic stroke compared with continuation of therapy in people taking aspirin for the secondary prevention of cardiovascular or cerebrovascular events [2]. It would be a disaster if stroke patients cannot continuously take their prescribed antithrombotic agent during this pandemic.

An Italian cohort study showed that in first-ever ischemic stroke patients who were 18 to 45 years, discontinuation of antihypertensive drugs was independent predictors of recurrent cardiovascular events [3]. A Taiwan nationwide cohort study showed that discontinuation of statin therapy during chronic stage of an index ischemic stroke was associated with a higher risk of recurrent stroke (adjusted hazard ratio 1.42, 95% CI 1.28 to 1.57) within 1 year after statin discontinuation [4]. Discontinuation of antihypertensive drugs or statin therapy in stroke patients is likely to be associated with the increased risk of future cardiovascular events and should be avoid in any circumstance.

Based on currently available information, there is about a 2.5-fold increase in odds of severe COVID-19 illness with a history of stroke [5]. Government agencies such as the U.S. Centers for Disease Control and Prevention are advising high risk patient groups to take precautions, including requests for extra supplies and mail-order options from their healthcare providers, in case they must stay home for a prolonged period. Local pharmacies may provide delivery services, drive-through services, or authorization forms that allow family members to pick up prescribed medication. These are examples of steps that could be taken to prevent discontinuation of vascular drug treatment in case of quarantine or city lockdown. Government efforts in securing the supply and dispensing necessary medications generally, but especially for those with a history of stroke who are at higher risk for severe illness or dying with and without COVID-19 than the general population, need to be escalated to properly mitigate the potentially looming threat of drug shortages, and associated poor clinical outcomes.

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Declaration of Competing Interest
None.

Disclosure
None.

References

[1] H.C. Diener, J. Eikelboom, S.J. Connolly, et al., Apixaban versus aspirin in patients with atrial fibrillation and previous stroke or transient ischaemic attack: a predefined subgroup analysis from AVERROES, a randomised trial, Lancet Neurol. 11 (2012) 225–231.
[2] L.A. Garcia Rodriguez, L. Cea Soriano, C. Hill, S. Johansson, Increased risk of stroke after discontinuation of acetylsalicylic acid: a UK primary care study, Neurology. 76 (2011) 740–746.

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0022-510X/

[3] A. Pezzini, M. Grassi, C. Lodigiani, et al., Predictors of long-term recurrent vascular events after ischemic stroke at young age: the Italian project on stroke in young adults, Circulation. 129 (2014) 1668–1676.
[4] M. Lee, J.L. Saver, Y.L. Wu, S.C. Tang, J.D. Lee, N.M. Rao, et al., Utilization of statins beyond the initial period after stroke and 1-year risk of recurrent stroke, J. Am. Heart Assoc. 6 (2017), https://doi.org/10.1161/JAHA.117.005658 pii: e005658.
[5] G. Aggarwal, G. Lippi, Henry B. Michael, Cerebrovascular disease is associated with an increased disease severity in patients with coronavirus disease 2019 (COVID-19): a pooled analysis of published literature, Int. J. Stroke 20 (2020 Apr), https://doi.org/10.1177/1747493020921664 1747493020921664. (Epub ahead of print).

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