Stroke and the Covid19 Pandemic

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Talking Points:

- Triage of acute stroke patients
- The problem of acute stroke patients delaying or avoiding care
- Covid19 and increased risk of stroke



Triage of acute stroke patients

- Strategies to limit spread of infection to stroke unit and other vulnerable patients and staff * * PPE
 - How and were imaging should be done
 - Covid19 unit for Covid19 positive patients
 - Stroke unit for Covid19 negative patients
- The need to minimize delay in treatment ⋇
- Identifying hemorrhagic vs ischemic stroke
 - * Thrombolytics
 - * Thrombectomy

Begins with activation of EMS to identify those who maybe infected and prepare accordingly

The problem of patients with acute stroke symptoms delaying care

- Stroke is treatable but the treatment window is narrow
 - * Thrombolytic treatment window is4.5 hours
 - Thrombectomy window is 6
 hours, up to 24 hours if there is a perfusion mismatch
- Estimates are that there are 20-30% fewer strokes being seen in hospitals world wide

- * People are afraid they may get infected
- Symptoms are mild or go away (TIA)

The problem of patients with acute stroke symptoms delaying care

Stroke is a treatable condition

- * Acute treatment
- Secondary prevention measures
 require identification and mitigation of risk factors
 - * Hypertension
 - * Hyperlipidemia
 - * Diabetes
 - * Obstructive sleep apnea
 - * Use of tobacco

- * Alcohol abuse
- * Atrial fibrillation, PFO, other sources of cardioembolism
- * Carotid stenosis
- * Coagulopathy
- People with a history of stroke are at risk of recurrent stoke



People infected with Covid19 have an increased risk of stroke

- * Arterial and venous occlusion
- Coagulopathy and/or vasculopathy
- * Young people without risk factors are getting strokes * 30's, 40's and 50's
- # Has been seen with other Covid pandemic (SARS)

Stroke Management Resources

1. Oxley, Thomas J., Mocco, J., Majidi, Shahram, Kellner, Christopher P., Shoirah, Hazem, Singh, I. Paul, De Leacy, Reade A., Shigematsu, Tomoyoshi, Ladner, Travis R., Yaeger, Kurt A., Skliut, Maryna, Weinberger, Jesse, Dangayach, Neha S., Bederson, Joshua B., Tuhrim, Stanley & Fifi, Johanna T.. 2020. Large-Vessel Stroke as a Presenting Feature of Covid-19 in the Young. New England Journal of Medicine e60. doi: 10.1056/NEJMc2009787. https://www.nejm.org/doi/full/10.1056/NEJMc2009787

2. Young people with coronavirus are dying from strokes - The Washington Post. https://www.washingtonpost.com/health/2020/04/24/strokes-coronavirusyoung-patients/

3. Feature | Thrombosis and COVID-19: FAQs For Current Practice - American College of Cardiology. https://www.acc.org/latest-incardiology/articles/2020/04/17/14/42/thrombosis-and-coronavirus-disease-2019-covid-19-fags-for-current-practice

4. Zhang, Yan, Xiao, Meng, Zhang, Shulan, Xia, Peng, Cao, Wei, Jiang, Wei, Chen, Huan, Ding, Xin, Zhao, Hua, Zhang, Hongmin, Wang, Chunyao, Zhao, Jing, Sun, Xuefeng, Tian, Ran, Wu, Wei, Wu, Dong, Ma, Jie, Chen, Yu, Zhang, Dong, Xie, Jing, Yan, Xiaowei, Zhou, Xiang, Liu, Zhengyin, Wang, Jinglan, Du, Bin, Qin, Yan, Gao, Peng, Qin, Xuzhen, Xu, Yingchun, Zhang, Wen, Li, Taisheng, Zhang, Fengchun, Zhao, Yongqiang, Li, Yongzhe & Zhang, Shuyang. 2020. Coagulopathy and Antiphospholipid Antibodies in Patients with Covid-19. New England Journal of Medicine 382: e38. doi: 10.1056/NEJMc2007575. https://www.nejm.org/doi/full/10.1056/NEJMc2007575

5. Frontiers | Triage of Acute Ischemic Stroke in Confirmed COVID-19: Large Vessel Occlusion Associated With Coronavirus Infection | Neurology. https://www.frontiersin.org/articles/10.3389/fneur.2020.00353/full

6. AHA/ASA Issues Guidance for Optimal Stroke Care During COVID-19 Pandemic - Neurology Advisor. https://www.neurologyadvisor.com/topics/stroke/guidance-for-optimal-stroke-care-during-covid-19-pandemic/

7. COVID-19: Are Acute Stroke Patients Avoiding Emergency Care?. <u>https://www.medscape.com/viewarticle/928337</u>

8. COVID-19 Linked to Large Vessel Stroke in Young Adults. <u>https://www.medscape.com/viewarticle/929345</u>

9. Acute Stroke Treatment Preparedness and COVID-19: A Perfect Storm of Challenges – Consult QD. https://consultqd.clevelandclinic.org/acute-stroketreatment-preparedness-and-covid-19-a-perfect-storm-of-challenges/









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10. Dafer, Rima M., Osteraas, Nicholas D. & Md, Jose Biller. Acute Stroke Care in the Coronavirus Disease 2019 Pandemic. Journal of Stroke and Cerebrovascular Diseases doi: 10.1016/j.jstrokecerebrovasdis.2020.104881. https://doi.org/10.1016/j.jstrokecerebrovasdis.2020.104881

11. Driggin, Elissa, Madhavan, Mahesh V., Bikdeli, Behnood, Chuich, Taylor, Laracy, Justin, Bondi-Zoccai, Giuseppe, Brown, Tyler S., Nigoghossian, Caroline Der, Zidar, David A., Haythe, Jennifer, Brodie, Daniel, Beckman, Joshua A., Kirtane, Ajay J., Stone, Gregg W., Krumholz, Harlan M. & Parikh, Sahil A. 2020. Cardiovascular Considerations for Patients, Health Care Workers, and Health Systems During the Coronavirus Disease 2019 (COVID-19) Pandemic. Journal of the American College of Cardiology doi: https://doi.org/10.1016/j.jacc.2020.03.031. http://www.sciencedirect.com/science/article/pii/S0735109720346374

12. Zunt, Joseph. Accessed: April 15, 2020 from: https://blogs.neurology.org/global/global_stuff_archive1/invited-commentary-neurology-during-the-coronavirus-2019covid-19-pandemic-lessons-learned-at-the-initial-u-s-epicenter/

13. Baracchini, Claudio, Pieroni, Alessio, Viaro, Federica, Cianci, Vito, Cattelan, Anna M., Tiberio, Ivo, Munari, Marina & Causin, Francesco. 2020. Acute stroke management pathway during Coronavirus-19 pandemic. Neurological Sciences 1-3. doi: 10.1007/s10072-020-04375-9. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7141930/

14. Caso, Valeria & Federico, Antonio. 2020. No lockdown for neurological diseases during COVID19 pandemic infection. Neurological Sciences 1-3. doi: 10.1007/s10072-020-04389-3. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7138901/

15. Nath, Avindra. 2020. Neurologic complications of coronavirus infections. Neurology 10.1212/WNL.000000000009455. doi: 10.1212/wnl.00000000009455. https://n.neurology.org/content/neurology/early/2020/04/09/WNL.0000000000009455.full.pdf

16. Filatov A, Sharma P, Hindi F & Espinosa P. Neurological Complications of Coronavirus Disease (COVID-19): Encephalopathy. Cureus 12: e7352.

17. Onder, Grazlano, Rezza, Glovanni & Brusaferro, Silvlo. 2020. Case-Fatality Rate and Characteristics of Patients Dying in Relation to COVID-19 in Italy. jama.com.

18. Houman Khosravani, Phavalan Rajendram, Lowyl Notario, Martin G. Chapman & Bijoy K. Menon. Protected Code Stroke. Stroke 0: STROKEAHA.120.029838. doi: doi:10.1161/STROKEAHA.120.029838. https://www.ahajournals.org/doi/abs/10.1161/STROKEAHA.120.029838



