

International Perspectives on Stroke Triage, Diagnosis and
Treatment

A Webinar Series Presented by the American Stroke Association and
the Society of Vascular and Interventional Neurology

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interventional neurology and serves as the vice chairman for MT 2020.

Then Waldo Guerrero is interventional neurologist completed his narrow endovascular researcher fellowship at the University of Iowa and is currently an assistant clinical professor in the Department of neurosurgery at the University of South Florida College of medicine. Noted that he will be moderating the audience submitted questions say may receive a message from him through your attendee control panel. I will not pass it over to introduce our panelists today.

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>> ~~Topic~~ Neurohion

recommendation, one, basically patients should receive thrombectomy if they have a modified ranking scale zero-1. ICA or M1 occlusion, age over 18 years, score of six or greater, aspect score of six or greater and treatment initiated within six hours of symptoms onset in patients meeting these criteria.

And then all the other things that we many times come across such as low aspect scores, low stroke scale scores, M2 occlusions and so on and so forth these are category 2 B and NA 6-24 hour time window we have is class one category of recommendation 1 patients 6-16 hours who meet donor diffuse imaging criteria which require a sophisticated imaging infrastructure. Not every hospital can do these studies.

I want to point here there is a bit if I were to have written the guidelines, I would have said that either put 6-16 hours with patients with an stroke scale score of greater than 10 or I would have gone up preferably a bit of gone up to 24 hours the basis for this recommendation for class A or are two studies that are concurrent. -- Scores of 6-9 was only diffused and diffused did not and will scores in the patient 24 hour time window so consistency sake would've dictated that either patients with 6-9 would be excluded in the 6-16 our timTc 0 Tw 5.068 0 Td (w.003 Tc ud)-2. Tc 0 Tw ()Tj 1.701 4 0

occlusion you don't care about these things. We have a number needed to treat in the 10-14 range. And as we become more restrictive especially DAW and diffuse we have these incredible treatment effects that are very very strong but every time that we had the stream and

0-6 hour time window. There was no major safety concerns but there are still things we need to find out and these are the patients we come across in our daily practice that are outside of the guidelines.

window there is still benefit? And an optimal imaging modality for mismatch do we need the sophisticated CT, MRI etc. or do we just do away with a plain CT with an aspect score?

Is there harm in subpopulations for instance largest infarct? Are we harming them if we treat them? And there is a procedural aspect -- this is all outside the guidelines.

Coming from countries where the systems of care are not sophisticated and patients come to the hospital beyond the six hour time limit we were especially excited we felt that is going to be very important to establish the 24 hour time window because it will help a lot of patients outside of these countries with more sophisticated systems of care where patients come late to the hospital and it really breaks my heart when where used to go before the pandemic of course giving talks in China or India were never in talking to people and hearing that we don't treat patients beyond six hours because we don't have CT perfusion or MRI or automated software programs. The question is do we really need these sophisticated imaging studies? I would be better off especially in those places where there is no sophisticated imaging to just go with the plain CT and from that standpoint this is a study that I'm very excited about was recently published his work that myself together with other collaborators and colleagues from UPMC have done when I was there we looked at patients who came in and had all the sophisticated imaging modalities but we also admit otherwise DAWN criteria in the window barely hostile to aspect scores and we found that almost 80% of patients with aspect 6-10 meet the criteria in the time window so another words almost all patients with good aspect scores in the 26 hour time window meet the Dawn criteria. The mismatch diminishes with time but even at 24 hours, 25% of patients with NIH scores greater than 10 and proximal occlusion still meets the Dawn criteria making it an argument favor of treating those patients beyond 24 hours. And the proportion of positive Dawn criteria by aspect category is constant in time.

So as I tweeted about it, the bottom line is that within 6-24 hours and

especially given this incredible number needed to treat that strong benefit -
- it is reasonable to assume-- a lack of CPT or MRI should not deter
thrombectomy beyond six hours. Aspect is good enough. Challenging the
6-24 hours in terms of imaging is to find the upper limit of infarct where
there is still benefit perhaps in conjunction with age but I think that the
evidence is accumulating that just a plain CT is enough in terms of patient
selection but again it would be nice to have level I evidence in support of
that we can ever get it. Trump exceeded 4.4 hours as I alluded to there were
a lot of patients who still have mismatch before the 24 hour time window
so again at UPMC we did treat some of these patients and believe in the
concept of mismatch and we compared these patients treated beyond 24
hours with the Don intervention arm patients and found that the outcomes
are comparable and certainly better than we would've expected based on
the natural history of this disease. So in summary I would say for the ones
who are facing the problem as we do is I showed an almost the majority of
patients, the majority of patients if we include the more -- I'm outside of
the class one recommendation how shy approach the problem and keep in
mind that you have an interventional suite you have interventionalist on-
site, you have the option of offering a thrombectomy. Not treating is an
active decision. Not sending the patients to thrombectomy is also a
decision and that also can be detrimental to patient outcomes of the way I
approach this is number one is it safe? Do we have any kind of evidence
that this approach is safe. Then what is more likely? We don't have level
one evidence that we have some evidence and that is where we as
physicians come into play our own judgments. Based on the available data
what do I feel as a physician that is more likely to offer treatment? Do I
think there is benefit is it neutral or is there harm? And again am I going to
deprive the patient of a good outcome opportunity I don't treat? Are the
resources justified? Is this something I think is cost-effective? At the society
level that is an important question to answer.

And finally, always always discuss this with patients if you can or

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and be guided by the patient or their family. And with this I'm going to end. Thank you very much.

>> Thank you so much, great presentation I'm sure a lot of questions are going to come up during the discussion. Our next speaker-- also does not need introduction however I have to say a couple of nice things about him before we start. Dr. Yavagal-- that the University of Miami -- he is well-known for his research in - at the University of Miami as well as [indiscernible]. Over the last he is one of the co-authors of the 2015 vascular stripe guidelines which is a cornerstone in our field and participated in the DAWN trial. Over the last three or four years he has been concentrating on the thrombectomy treatment. A global platform that is trying to implement mechanical thrombectomy throughout the world. Thank you.

>> Thank you so much for that very kind introduction. Thanks to Ajay and SVIN for inviting me to speak on this topic, geographical disparities and barriers to thrombectomy access, a global approach to address the mechanical thrombectomy gap.

This should extend really the aim that Dr. Jovin mentioned getting more patients to benefit from thrombectomy these were numbers -- I think closer to reality than what we have from the global burden of disease statistics from 2016 which is more 13.6 million strokes but given the lack of data collection globally, the number of 17 million strokes per year is more likely and out of these anywhere from 20 to as high as 40% of the ischemic strokes here which are possibly 80% of the 17 million our large resolution strokes and these are the strokes we can substantially modify their outcome. And because

low and middle income countries that have 20% of resources. And that is a major geographical and resource disparity that mission 2020 aims to address and what we also know is that mechanical

skip a few slides here is used public health interventions and why are we take this approach? It's well established that for a treatment to be considered in need of public health intervention these are the criteria that must be met.

The large health burden and getting larger. The burden is to distribute it unfairly. Is a highly effective and safe treatment for the condition and is cost-effective and there must be substantial evidence that upstream strategies could substantially increase access to the effective treatment and I will talk about upstream strategies and such strategies are not yet in place.

This is a paper from early 2000s ~~the~~ Tc 0.004 Tw 0.265.260.003 Tc 0.003 Tw 2.846 0

and this is a work in

Specifically cost and system

higher in the district with low socioeconomic levels. And one very striking thing was that stroke was mortality in the seven years did go down but not in these districts so stroke is actually a social problem not only in Brazil but in several countries in the world.

We start by making our government a partner with us with the physicians and neurologists and the associations for stroke and for neurology in the country and in 2000, 2012, we had our ministry recognized stroke is a public health problem and to sign a line of care for stroke. This is done by many physicians and you see here many neurologists that recognized stroke is a very important problem for the country and since then at least we have payment for -- thrombolysis. In Brazil. One thing was to prove that

of health decide to act for a randomized control trial which is

could choose one intervention that we currently are not performing don't have class one evidence at this moment that you really think is going to make a main difference in the treatment of acute stroke interventions for patients with LVO. What would that be.

I would use scale to estimate large vessel occlusion or algorithms that are AI based and only using a CT scan. Just simply simplify imaging. There is a paper in the last issue of Stroke showing that when you use CT perfusion patients hospitals that use CT perfusion treat 40% less patients that when you do a CT perfusion less 40% less patients get treated. Talk about over selecting and under treating. So I don't

do without it so that is part of making it accessible so with this number to treat on the results I think it's very clear this procedure is effective in any part of the world and I invite you to come to our country and to see what kind of emergency systems we have and what hospitals dissipate in Resilience. That procedure so effective that regardless of the hospital we just have to have a system to implement and I think that is the key so systems of care and in a country like Brazil, you cannot have a comprehensive stroke center in each, you have to have a plan to make sure that all patients that have struck they have access to specific comprehensive health hospital that can do thrombectomy and this is not easy it's not easy to organize like in the city with 20 million people to map out all of the hospitals and have access. And intervention available for everyone so that is the puzzle to solve.

>> If I make it back to the comment, I clearly reimbursement is an issue but you can make a comparison between stemi the number in Brazil in China whatever compared to the number of thrombectomy, there is huge differences in that procedure they have the same perhaps payment issues that we have certainly payment is a problem they have the simpler systems of care I agree that getting these systems of care also based on simplicity is perhaps the key. Together along with payment, no question but it is a missing piece of the puzzle here.

>> I don't want to prolong this question but I will point out it took about 25 years for stemi to reach access where it has and that is the big issue is that eventually people will pay for thrombectomy also but will take 25 years so if payment puzzle is solved earlier to get that shortened to half the time.

>> In Brazil it was 14 years to get the government to pay. It's too much.

>> There is a question from the audience about training in other countries. I think this is more to speak of do we have enough neural interventionist to deal with demand for thrombectomy and if not do we have to train others to do thrombectomy?

>> It is definitely a tough question and I'm sure my co-panelist will have their views but I do think that at least my thinking has evolved to a need-based training so and regions and countries where there is hardly an interventionist for hundreds of thousands of miles but there is a non-neural interventionist already there it would behoove us as a society to train them so they can quickly start doing these procedures after proper training whereas in cities and regions that there's already a number of neural interventionist available there would make sense to keep it to neural interventionist so I think the current rate of training thrombectomy specialist is too slow to meet demand. We have to think out of the box and this is done in other fields where a needs-based rule is formulated so that we can address diverse regions with a particular way of training.

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training and manpower can be a concern but I don't see it as the biggest concern once you create that infrastructure as mentioned. You have to create the conditions for people to be treated.

>> The concept you've introduced about this possibility of

benefit and by the way, this hypothesis is going to be tested in the continuation of resilient which is a spectacular concept again you can randomize these patients because the government is not paying for the device so that is where you leverage ideally they should pay for it but if they don't at least you conduct trials and we have the answers to these questions but in the meantime that is what I use in my daily practice when doing a CT perfusion a

>> Since you are practicing in a middle income country this moment, what is your experience with that?

>> It's not difficult to solve this problem because we don't have it paid by the government yet so if a patient comes to public health system it's going to be randomized and we already have more than 10 patients included so that is the good part of it and we don't have perfusion so there is no choice. I agree there is some selection for that at a private hospital on the other hand you see the difference in cost on the public health system in the country so it really depends on the physician and on the hospital if you have a farewell organized service so most of the private health systems do have the access to perfusion so I will tell you on the other hand insurance is paying you have to be able to pay for it. I think it's a good idea to try to do it anyway there is no reason doing the perfusion study were just losing time so tell

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