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

EPISODE 1:

TRIAGE: OPTIMIZING STROKE PATIENT TRANSPORT TO THE RIGHT CENTER

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TRANSCRIPTION PROVIDED BY:

CAPTION ACCESS

The broadcast is starting. Attendees are in listen-only mode.

>> Welcome. Thank you for joining us for a four-part series. This is part 1. [Reading title.] I'm Aurora Quigley, the portfolio advisor for the ASA.

This program is jointly presented by ASA and society for vascular intervention in neurology.

CEs are not available.

[Reading overview points.]

If your issue isn't resolved following the refresh, please contact the person on the email you received.

You can submit questions by typing them in to the questions pane. You can send them in at any time. We'll collect them and address them at the end of the session.

Dr. Jadhav is one of our presenters. He completed his degrees at Harvard. He is associated editor of Neuro intervention journal. He services on different councils.

Jeanie Luciano is the other moderator. She'll be moderating questions. You may hear from here.

Dr. Jadhav will now introduce our panel.

>> Hello, everyone. Our first panelist is Dr. Robin Novakovic-White. She is committed to patient care and strives to improve care. She's on the advisor of the regional stroke committee and governor's Council. She's vice chair of [Inaudible]

Dr. Panagos is a professor of emergency medicine and neurology in St. Louis. He's interested in stroke care and research.

Dr. de la Ossa. She's interested in IV therapies and stroke care. She uses the [Inaudible] scale to identify stroke in the pre-hospital setting.

Dr. Martins is a stroke neurologist and professor of neurology in Brazil. She's chief of neurosurgery in her hospital. She holds several officer positions.

We'll start with Dr. Novakovic-White.

>> Thank you have having me present today. I was asked to talk about our experiences in Texas. We recognized that pre-care is more than triaging to the right hospital.

[Reading slide.]

The ASA endorses development of stroke systems of care.

[Reading slide.]

In Texas, we are divided into regional advisory councils. In my region, of which I am the chair, we have 44 stroke facilities. [On screen.] This area covers 7.3M people.

We asked for a benchmark group for comparison between regions and nationally. 42% of arriving patients arrive via EMS.

We developed the 2020 Regional Stroke Plan for triaging in the facilities and during transfers.

We outline how patients should be attended to and stabilized if needed.

The document goes on with how to obtain history. We also ask them to obtain mobile #s for next of kin and witness.

We identify how to identify signs of stroke and teach them about stroke mimics.

The document allows them to outline additional history items. We ask them to look out for head trauma, recent surgeries. We ask if they have an allergy to contrast. This information can be valuable if we are trying to obtain quick information. We also ask about medications they may be on, especially if they are on anticoagulants.

It looks like the talk has gone done -- can someone open that up?

We also ask them to identify what the last dose taken may have been.

Next, we point out to them how to screen for a stroke. We ask them to apply a stroke assessment tool. We identified these by looking to the guidelines about the recommended stroke screening tools.

All strokes are not created equally. It's important [Inaudible]

In our regional stroke plan, we outline the stroke severity tools to use based off of guidelines and give options for EMS agencies to ID what works best in their region. [On screen.]

We also identify how to manage and best treat these stroke patients in the field. [On screen.]

We identify the best IV fluids, like those without dextrose and how to manage hypoglycemia. We ask them to place the IV in the right arm so we can get better CT angio imaging. We ask for blood samples for the receiving facility to be used for stroke labs. We ask that time on-scene be no more than 10 minutes and that there is pre-notification.

This is what we ask for. [Reading slide.]

That way, the receiving team can start the workup and reach out to family members before the patient arrives.

The other panelists will talk about algorithms use. We use a mission lifeline algorithm. It breaks it down by occlusion of vessel, transport time, time it would take to get to thrombectomy center for a patient with a large occlusion.

One thing that we do emphasize is that it's not only about the pre-hospital setting. We want to outline best care for patients having interfacility transport. We've outline best practices for them. This came from one of our EMS agencies. We've outlined the best practices for documentation.

We recognized that we had a breakdown in communication. We had a need for interfacility stroke terminology. This way, it identifies one common language -- what are the urgent and emergent transfers?

I can't emphasize enough the importance of QA in the region to make sure what you do is improving the process.

Thank you.

>> Thank you, Dr. Novakovic-White. That was a great talk. It's my honor and pleasure to be talking about something so near and dear to my heart. Our advantages and outcomes weigh heavily on our ability to get the right patient to the right hospital quickly and without delays. You'll hear many differences in our presentations based on our experiences, geography, etc.

Much is known and unknown. I hope you walk away appreciating the uncertainty with selection. With that comes opportunity for moving the patient with symptom onset to the right hospital.

EMS is the first contact for the patient into the medical system. EMS is our eyes and ears. They determine if there is a stroke, determine severity, and transport them to the right hospital.

Many of us have taken ACLS. We are due for an update in 2020. We know that stroke chain of survival depends on everything falling into place. The chain is only as good as its weakest link.

[Reading list.]

We can have the best center and care, but if we don't get patients there quickly, they won't achieve the desired outcome.

On the right is the draft we'll see soon. Release date is 10/21.

For many years, since thrombolysis approval, there haven't been a lot of changes with the algorithm with ACLS. We will now be pushing out the international healthcare community that there are IV and mechanical thrombectomy options. It's incumbent on use to make the stroke systems of care work for our patients.

This outlines recommendations for the establishment of stroke patients. [On screen.]

These are the flagship guidelines. It outlines what's best recommended for the pre-hospital setting.

What about limitations? There is a lot that is imperfect. [On screen.] We recognize that. [Reading list.]

We are learning about advances in the pre-hospital environment daily.

Different areas have different challenges.

Let's talk about these.

Stroke ID tools are very important. Unless you have the suspicion of stroke and it's ID'ed, you won't bring the patient to the right center, and that will result in delay of care.

No scale is perfect.

The CPSS is the one familiar to most of us. Easy training with good sensitivity. It does miss many stroke symptoms.

The LAPSS is longer. It incorporates an exam and glucose testing.

The Cochran Review recommended that the Cincinnati scale is preferred, but the MAS and ROSIER were good.

Pick one, and track performance.

Once you've ID'ed a patient having a stroke, our duty is to determine severity. Patients neuro injury will benefit from care in a stroke center.

Several regions use LAG.

Many regions use RACE. It's based off the United Stroke Scale.

The C-STAT is derived from NIH and NINDS and IMS III charts. It has go sensitivity and specificity.

The FAST ED is another one.

Put them all together and compare them. There is no one dominant severity scale available.

Again, just pick one and use it.

Priority transport. There are still disparities in stroke care in the United States and internationally. These are centers certified by national accreditation. We need to maximize the resources we have. Stroke systems of care is the way to do that.

How do we do that. We have many tools available. [On screen.]

There are many variables that determine where these patients end up.

What about triage? We are in the area of precision medicine. This is the first attempt to give guidance at a 10k-foot level. Literature supports that destination counts. We know that from STEMI and trauma.

There are many examples. I put a couple up there. This is the greater Cincinnati and northern Kentucky area. How to get the right patient to the right hospital is always a challenge.

Next is the LA area. You can see significant areas of need within LA County. This led to the development of a thrombectomy center.

Finally, this is a map from a paper published in Rhode Island. These patients had a stroke and were closer to primary centers but were triaged to comprehensive centers. Their outcomes were better after 90 days.

There is a paradigm shift in stroke care. We have appropriate ways of triaging. The future is here. We must get these patients to the right stroke centers. Thank you.

>> Hello. Good morning. I'm Dr. de la Ossa. Thank you for inviting me to participate in this webinar from Catalonia. I'm happy to share our experience with you re: pre-hospital stroke care.

I'd like to introduce this talk. Outcome of stroke patients has changed over the last years thanks to [Inaudible] and intervention. Years ago, we analyzed the outcome of patients regarding the way they arrived to the hospital. We know that when others alert the EMS system, the probably of having good outcomes is 3x higher. They receive treatment and neuro attention in a shorter amount of time compared to patients who arrive by their own means.

The main goals of EMS systems -- first, it's important to make the diagnosis. Second, decide the hospital of destination. It's also good to have good communication and notify the center that it will receive the patient. It's important to record all of the data and have continuous quality control and make sure everything is working in an optimal way.

Peter has talked about the diagnosis. We have several tools to evaluate patents -- FASTS, Cincinnati, LAMS, etc.

Sensitivity is ~80%.

We know that patient with posterior stroke and partial anterior stroke, especially patients with only aphasia for example are not identified by pre-hospital systems. It's important to direct the training and education to these professionals attending to patients in the hospital settings to be able to ID these stroke patients.

Apart from doing a current dx of acute stroke, it's important to ID patients with an LVO. Different scales are available. They are mostly the same in accuracy. In Catalonia we use the RACE Scale. It's more complex than other scales but with good training, EMS professionals can perfectly do it. It includes 5 items. [On screen.]

We know that sensitivity of the RACE and the other LVO scales is good -- more than 80%.

The positive predictive value is not very high. If we use a point of 5, we are including most of the questions with LVO. We are also including several patients with false positive scoring which could include hemorrhagic strokes.

This is what we are going to get if we select RACE ≥5. Almost half of the patients have an LVO. We are including almost 30% of hemorrhagic strokes.

We may be harming patients by delaying TPA if they don't have an LVO but score high on the scales.

We've developed the RACE+ tool. It's based on a mathematical algorithm that includes RACE and other tools.

This is a 70 yo man. [Reading history and symptoms.]

This tools is free and available online. If we enter the variables, we get the probability of dx. Here, we have a high probability of having a hemorrhagic stroke.

The example of an 85 yo woman is shown. [On screen.]

This is to give you some information about the webpage of the RACE, where you have a lot of training material. It's important to offer training material, training courses, models, videos of real patients, with the RACE or other scales to give the tools for using the tools in the correct way.

Once we suspect an occlusion, especially in this group of patients who may benefit from IV treatment, where do we transfer this patient. Is it better to go to the closest center and start TPA and organize a secondary transfer or go right to the best center which may be further?

There are no randomized trials to answer this important point. The RACE CAT trial includes patients selected with 5 or more than 5 who can arrive within 7 hours. It's important that with the EMS system general medical conditions of the patients are assessed to make sure the patient can handle the long transfer. Then, the patient is included in the trial.

In Catalonia, it's important to say that the RACE CAT trial was performed in areas that were far from Catalonia. We are transferring patients using the Mother Ship protocol.

The primary outcome is at 3 months. [On screen.] We also determine secondary outcomes.

I don't have the final results, but we stopped the RACE CAT trial with 1401 patients. We'll present the final results next month at the conference.

Communication between pre-hospital and hospitals is important. The clinical information must be complete, but not too much. It's important to give the information that is relevant for making decisions.

If we give good information, it's possible to organize the in-hospital protocols and introduce door-to-needle or door-to-groin.

In this case, if they go directly to the angio screen, they can ↓door-to-groin in less than 20 min.

It's important to train the pre-hospital professionals. We saw that with training intervention, we can include information about the stroke and report this important data.

Finally, it's important to make a continuous quality control. We have a mandatory registry in Catalonia. It includes EMS information and the RACE scores. It's in the same database. Giving feedback is important to all involved in the acute stroke care. We have a weekly newsletter that is updated every week. We can compare every centers with the others or a center with the same center from the year before. It's important to have targets and to try to achieve these targets. For example, the # patients --

This quality control helps us ID when the system is not good enough. For example, with the COVID-19 pandemic, thanks to this registry, we were able to see that the stroke system was worse than it used to be. We tried correcting the problem thanks to this QC.

The goals are to make a good dx, decide hospital of distortion, communication, and QC.

The key is to have good coordination and to work together.

Thank you.

>> Dr. Martins -- we can't hear you; you are on mute.

>> Sorry. Thank you for the invitation to be here to talk about international perspectives on stroke triage in Latin America. I need the control, the mouse control please.

>> You should have it. Try clicking forward for us.

>> It's not working for me for some reason.

>> Let's try again.

>> Yeah.

>> We are 20 countries with 570M inhabitants with many differences.

Only 20% of the population has private healthcare insurance. We have huge developed cities and private hospitals. We also have poor cities and poor hospitals. Sometimes, in the same city, rich and poor people live next to each other. Sometimes, there is a wall separating the rich and poor.

10% of strokes are in people less than 45 yo.

We put together 13 countries to discuss the gaps with the minister of health.

[Reading slide.]

In the publication, we show the situation. Only 2 countries have plans for stroke -- Chile and Brazil, and now Columbia. Access to care is very poor in the region.

We started the Global Stroke Alliance this year. We discussed the best strategies for implementing basic interventions in continuous levels of care. This was from 3/11/20, the first day of the pandemic.

We discussed the improvement in the region over the past 2 years with 11 countries represented.

We have different initiatives. You can see here in Mexico and here in Costa Rica. This is Ecuador. This is Brazil. We use SAMU.

We have a World Stroke Campaign for one month of the year.

This is how we perform. 32% of countries have a government program for stroke.

[Reading question on slide.] Half of the countries.

[Reading question on slide.] Less than 50% of the country have EMS organized for stroke care. That is a huge problem.

[Reading questions on screen.]

88% think stroke care has improved.

Countries are trying to improve stroke care and EMS. We know that is very important for acute stroke care.

This is Brazil in 2008 with 35 stroke centers. Today, we have 192. Thrombectomy is available in the centers marked with red.

Here, we have areas without any stroke centers in the country. One reason is because we don't have enough specialists to assist acute stroke patients. We can use apps for this. We can create several groups. You can see the patient and discuss the patient in real time with low cost.

We use this information to connect with pre-hospital. We use Fast ED for triage for large vessel occlusion. EMS can evaluate the patient and the score provides the probability. When you finish this call, you click here and see the comprehensive stroke centers in the region with thrombectomy available. You can click here and connect with pre-hospital through the triage app.

This is sent to the stroke team. You can see and track the ambulance going to the hospital. This ↓door-to-groin time by 20 min. and thrombectomies.

Here, the EMS doctor is evaluating the FAST score.

We have created a telestroke program. We have 2 hubs with 4 stroke neurologist. They consult in real time for 12 hospitals in Brazil. We have 160 patients. You can give information for thrombectomy in these hospitals.

[Reading conclusion.] [On screen.]

We have a few minutes and time for a quick panel discussion.

>> That was a fantastic panel. It is impressive to see how different regions are tackling EMS and triage.

How do local considerations determine transport of patient.

>> We have 2 urban areas side-by-side and 11 comprehensive stroke centers in our region. Aside from that, there is a plethora of stroke centers for EMS to choose from. For outlying zones, we have to instruct on time metrics for ground vs. air for transporting patients.

>> Are you aware of best practices in keeping EMS competent?

>> We lost sound.

>> That question could apply to any panelists. How do you maintain the competencies among your EMS personnel for RACE?

>> It was easy to do when the RACE CAT trial was ongoing because it was inclusion criteria. Not that the RACE CAT has finished, we are lucky because our EMS system in other regions is organized by the same company. We don't have different companies for every part of the region. They follow the same protocol and training program. We are in close contact with them to see the metrics. They integrate the protocol. Once you do that, it's difficult to lose it.

>> Another question is about the RACE+ scale. Is that an app that is available?

>> Yes. We developed this app with almost 1k patients, but now it's important to validate it in real-time in the field. I have to validate the protocol and share it with you and others using the RACE. Then, we can validate it from the same app. You calculate the probability and give the final dx once the patient arrives to the hospital. It's free and available for everyone.

>> We are out of time for today. I appreciate all of our panelists and moderators for sharing your time and expertise. This webinar was recorded and will be available prior to the remaining webinars.

[Reading upcoming opportunities ]

You'll receive an email with a short three-question survey. Please complete that and provide your feedback. Thank you for joining us today. Have a great rest of your day.

[End of program.]