GWTG-Stroke Mechanical Endovascular Reperfusion Procedure Measures Video Transcript

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| Host: | It is now my pleasure to turn today's program over to Ms. Mary Paulson. Ma'am, the floor's yours. |
| Mary Paulson: | Thank you, and welcome to today's webinar. We're very pleased to have Dr. Lee Schwamm as our presenter today. Dr. Schwamm is the executive vice president and chairman of Stroke/TeleStroke Services, department of neurology and director of TeleHealth, Massachusetts General Hospital Professor of Neurology, and Harvard Medical School. Professor Schwamm's played a pivotal role in the development and leadership of our Get With The Guideline program. Dr. Schwamm, the floor is yours. |
| Dr. Lee Schwamm: | Thank you so much, Mary, and thanks to everyone who's joined the presentation. I'm really excited to share with you a brief review of some of the data supporting the use of what we call endovascular reperfusion therapy, sometimes called mechanical thrombectomy, mechanical endovascular re perfusion. Bunch of different names for it, but it's all the same stuff. |
|  | I'm going to walk you through a brief review of the science and AHA recommendations behind this so you really understand and can speak to the folks at your institution about this with some content and some background, and then share with you the measure set and the tool updates that will support this. This has been a long time coming. We've been working on this for maybe close to six months to a year and that's in part because it's really tricky and getting it right required a lot of consensus among experts. We've done a lot of leg work to get it right. I hope we got it right, but we'll be looking to you from the field for feedback to help us refine this once we launch these elements. |
|  | Then what I'll say is, and just I'll amplify what the introducing host said when we started, if you have questions, you can either scribble them down and then share them at the end of the talk, but I'd encourage you just to put them in the Q&A panel and then if they seem highly relevant to the section we're in, I may try to get to them between each section break. If I can't, I'll get to them at the end of the talk, but if you write them down when they're fresh in your mind, sometimes it's easier to remember them. I would encourage you to put in as much detail in your question as possible so we really make sure to answer it. |
|  | The most important thing to remember as we all get excited and caught up in the success of endovascular thrombectomy is that the brain and the heart are different organs and in the heart, studies have clearly shown that going to angioplasty first in lieu of fibrinolysis, meaning intravenous tenecteplase or tPA or whatever is the litic of choice, reteplase ... In the heart, it doesn't work, and it increases the complications. That's probably because in the heart, the vast majority, 90% or more, of disease is caused by athero at the site of the vessel occlusion and with activated plaque. There's a significant risk of re-occlusion in the setting of fibrinolysis and it increases the complication rates of the catheter-based procedure. Direct to STEMI is what you do and adding a fibrinolytic actually does not produce better outcomes. It may increase complications and worsen the outcomes. |
|  | In stroke, the vast majority are actually due to embolization into a previously healthy vessel, so tPA actually likely facilitates the success of stentrievers unless it prolongs the time to treatment in such a prolonged manner that it actually leads to decreased re perfusion rates and further infarc development over time. That's going to be the balance, but all of the experts and the guidelines agree that patients eligible for tPA should receive tPA first even if endovascular treatments are being considered or planned. |
|  | You need to treat all eligible patients with tPA as fast as possible and get them to the catheter suite as fast as possible. This is not an invitation to skip the tPA because you think you can get into the suite faster because it turns out, as you may know, up to 20% of patients who are thought to have a proximal occlusion on imaging, so they meet the qualifications to be in these trials, when they go to the cath lab and put in the catheter, the proximal occlusion had resolved. You don't want to deprive people of the chance for tPA treatment because then they get nothing. That's just reinforcing that same message. tPA eligible get the tPA. |
|  | Clinical trials, though, have now shown that it's not some patients but within this selected group of patients with proximal occlusions, if they have a proximal large artery occlusion, and it's called an LVO, symptoms are severe enough, so NIH stroke scale greater than or equal to six, their imaging looks favorable, so a noncontrast ET greater than or equal to six, and the time from the last known well to the puncture is less than six hours, those are the candidates. I think about that as 666. Greater than or equal to NIH is six, greater than or equal to ASPECTS of six, less than six hours treatment. That's the mnemonic that helps me remember, but I want to just also inform you that the trials use many different treatment windows and many different severity cutoffs, and it doesn't mean that every patient with an NIH of six and an ASPECTS of six is going to have a proximal occlusion. In fact, many of them won't. The higher the initial NIH, the more likely a proximal occlusion is present, but this is saying that it is reasonable to consider and you should make the evaluation and perform the treatment in patients with a stroke severity of six or more. |
|  | Now if you look at the trials, the median NIH stroke scale score was much higher than six. There weren't that many patients in the trials with an NIH stroke scale score of six because if you have a proximal occlusion, most of the time you've got a 9, 10, 12, 15, 20, 25 NIH stroke scale score, but these are the boundary points around which there was evidence of benefit in the trials and is reasonable to consider. I hope I made that more clear in that last [inaudible 00:06:36]. |
|  | What were the trials? Well there were three trials that were done with primarily giving intra-arterial tPA and with the combination of these early generation mechanical embolectomy devices. The MERCI catheter with the corkscrew and the PENUMBRA. That was SYNTHESIS, IMS III, not MS III, IMS III and MR RESCUE. MR RESCUE used perfusion diffusion imaging, an MRI or CT to help select patients. IMS III used a noncontrast CT and an NIH stroke scale score so very pragmatic design, did not incorporate CTA or MRA, and those trials really didn't show a benefit whereas the trials that were done primarily with the next generation devices, which are these stent retrievers. It's a stent on a wire that you deploy but remove. You don't leave it in there like you do in the heart. MR CLEAN was the first to show benefit, then SWIFT-PRIME, ESCAPE, EXTEND-IA, and REVASCAT were all quickly followed with expedited publications showing significant benefits of treatment in those groups. |
|  | Here's the comparison of the three predominantly non-stent retriever trials, those first generation trials. You can see that in IMS III it was a reduced dose of tPA so they were really trying to err on the side of no hemorrhage. In MR RESCUE, it was standard dose tPA followed by either one of the two approved devices. The first two trials allowed any territory involvement. MR RESCUE was restricted to the MCA and internal carotid territory. There were different age caps. At the top age you had to have tPA first for the first two trials, but in MR RESCUE, you could also enroll subjects who were not tPA eligible. |
|  | You can see the times to treatment varied substantially. There were some NIH stroke scale requirements. SYNTHESES, you had to have an NIH of less than 25. MRS you had to have a minimum of six and a max of 29. IMS III you had to have a minimum of 10 or you could have an eight NIH stroke scale if you had a visualized occlusion. Remember that was a mismatch driven trial, not a proximal occlusion driven trial. There were many varying exclusion criteria, but for the first two trials, no vascular imaging was required. These occurred at a time when CTA and MRA in the acute setting were not routinely available, and only 14% of the patients in SYNTHESES were they had a stent retriever deployed, 1.5% in IMS III and only MERCI and PENUMBRA in MR RESCUE. |
|  | This slide, which is still unfortunately very blurry so I apologize if you can't read it. This is a comparison of the five positive trials and let me just orient you to the slide. The first column ... I don't know if you can actually see my cursor on the screen. I'm not sure that you can, and I'm not sure where the tools are to let me do that, but let me just walk you through it. The very first column shows the NIH stroke scale score range and CTL stands for the placebo arm and IAT is the endovascular arm. You can see that the groups are well-balanced between treatment and control, and that the groups by and large had an NIH stroke scale score of around 17 or 16 or 18, so around 17, although there were some imbalances with more mild strokes in the control arm of the extend trial, and tPA was given to 100% of the extend IA patients, 98% of SWIFT PRIME, that contributed a large number of cases, then 90% of MR CLEAN, 70% of ESCAPE and REVASCAT. A bit of a spread, but 75% or more of the patients in all these trials got tPA first. The TICI 2b/3 is the extent of almost perfect or perfect reperfusion, and you can see that the rates here range between 60 and 88%. That just tells you that we finally have effective devices. |
|  | Now, what did people look like at 90 days? The proportion of patients who got back to functional independence and ranking of zero to two, at 90 days was 33% in the treated group, 19% in the control for the first trial, 53 versus 29, 71 versus 40, 60 versus 30, 44 versus 28, so different proportions of patients to a certain extent dependent also on their initial stroke severity, but major differences in the treated versus control, which is what matters because the differences in the patients between the trials may account for some of the percentage of good outcome but not for the difference between treatment and control within a trial. |
|  | You can see that the hemorrhage rates were highest in MR CLEAN in lower in the other trials. MR CLEAN was predominately a drip and ship trial. The others were largely enrolled from the original institution the patients presented to, and mortality was not really different between the groups except for ESCAPE and EXTEND where there were pretty substantial differences of lowered mortality. |
|  | All right, on the next slide, we can see the time from when they were last known well until groin puncture. You can see that there are some pretty significant differences and that the proportion of favorable outcomes looks different in the groups that got treated started earlier versus later. You can see the proportion of the black line, the proportion with great reperfusion is better in the earlier treatment than the later treatment, and that the proportion of patients with a good outcome is better early than late but the delta between the two gray bars is still substantial for everything, and I think this reinforces once again that time is brain, and the sooner we treat, the better patients do. |
|  | These five studies have shown consistent and persuasive benefits of intra-arterial thrombectomy when using advanced technology in patients with stroke because of intracranial large artery occlusion or proximal vessel occlusion. Stroke teams, including practicing neurologists caring for patients with stroke, should now provide this option for the subset of patients with acute ischemic stroke, persistent distal ICA or M1 occlusions who can get treatment started within six hours. Further research is needed to enhance these gains. |
|  | The other thing I would say that is happening in all of your communities I'm sure is that there's a lot of conversation about prehospital triage routing algorithms for these patients with suspected large vessel occlusion and we're trying to figure out what additional PMT elements, the patient management tool elements, might we need to collect from the prehospital providers to help us understand these trends. Might we need a field that says, Was the patient rerouted to your facility for thrombectomy versus another nearby hospital, or might we want to know, for example the door in, door out time that the patient experienced if they went somewhere else first. |
|  | If you got the patient from Saint Mary's and Saint Mary's ... No Saint Mary's intended by the way. If you have a Saint Mary's in your community, ignore what I'm saying about Saint Mary's because we don't have a Saint Mary's in Boston. That's why I use that name. If they got to Saint Mary's right away and that was 45 minutes closer than your hospital, but they spent two hours in the Saint Mary's emergency room getting tPA, getting stabilized, before being transferred, that's very different than if they spent 90 minutes or three and a half hours before they got to you. |
|  | Endovascular recommendations in the latest guideline update, eligible patients for IV tPA should receive IV tPA even if endovascular is being considered and it's a Class I, Level of Evidence B recommendation, and patients should receive endovascular with a stent retriever if they meet all of the following criteria. These are the criteria. A pre-stroke Rankin of zero to one, meaning that they were not disabled prior to treatment. If you have a pre-existing disability and then have another stroke, it's unlikely then that endovascular treatment will make you better than you were before. There is some conversation in the community about whether people with a Rankin of two or three should be treated. That's not what this is saying. This is saying if they meet all of these criteria, you definitely should offer treatment. It doesn't say what other groups you could consider treatment for. |
|  | tPA within four and a half hours of last known well is not an exclusion. They don't have to have received tPA within the last 4.5 hours of being last known well, but if they have received it, it doesn't preclude you from providing the treatment. |
|  | Causative occlusion of the ICA or MCA means that they have a blockage of one of those two vessels that's the cause of their stroke disability. Again, age 18 and over ... Now again, these catheters, unlike tPA where when you're younger and younger than 18, we don't know what the right dose is, with the catheters, the only issue is the size of your arteries, so again this recommendation is for adults, but it doesn't mean that you should exclude patients who are 17, that they are ineligible for treatment. It just means they're not a Level 1A recommendation for treatment. NIH stroke scale score greater than or equal to six, ASPECTS greater than or equal to six as we said, and treatment started within six hours. |
|  | To ensure benefit, reperfusion to TICI grade 2b/3 should be achieved as early as possible and within six hours of stroke onset. I think actually this should say the treatment should start within six hours of stroke onset, not that reperfusion should be achieved. Ideally you want to achieve reperfusion as fast as possible, but treatment can start within six hours of stroke onset. I'll have to look at that guideline again myself, but I'm pretty sure that that's actually the proper way it's framed. |
|  | This is an important caveat. This is a Class III meaning you should never do this. Observing patients after IV tPA to look and see if they get better before going to endovascular therapy for patients with a large vessel occlusion is not required for the beneficial outcome and is not recommended. It's not a wait-and-see strategy. Just like you don't wait in the ER to see if the patient's going to get better on their own before deciding to give them tPA, if they have a disabling deficit when they arrive, they get tPA. If they still have a disabling deficit and a proximal occlusion, you go right to IA. Worst that comes to worse, when you get into the suite and they're ready to put the catheter in, if the patient suddenly talks and lifts their arm off the table, you can abort the procedure, but that happens in a minority of patients. |
|  | What about imaging? Emergency imaging of the brain is recommended before initiating any specific treatment for acute stroke, and in most instances a non-enhanced CT, a plain CAT scan of the brain, provides the necessary information to make decisions about emergency management. You should not delay IV tPA getting all sorts of fancy imagining, mismatch, vessel imaging ... Get your non-con, get your tPA started, then, if patients have severe disability and you suspect a proximal occlusion, it's strongly suggested that if you have the capability that you do an intracranial vascular study, and that's almost always CTA or MRA. For most patients in most U.S. hospitals now, unless they're going directly to MR in the first place, it's a CT, CTA. I would again encourage all of you, CT, tPA, CTA. Don't wait for the tPA bolus because invariably everyone gets distracted by the CTA images, the reconstruction, what does it show, is it a proximal occlusion and time is ticking for the tPA to start infusing. |
|  | At our hospital, we actually pull people out of the scanner temporarily ... We do the CT, we have the [inaudible 00:19:20] come back, we push the bolus, start the infusion, and then push them back in for the CTA. |
|  | All right, so let me pause there, in coming to this next section of the PMT updates, and I'm going to go over to the question section. First question from Saint Mary's. I'm sorry Saint Mary's. Does your organization have a process for interventional or endovascular evaluation for patients transferred to your ... I'm trying to ... I can't read the rest of the question. Mary or someone, can you read the rest of the question out loud for me? It's clipping it at the bottom of that. |
| Mary Paulson: | Transfer to your organization after IV tPA? Does your organization have a process for interventional or endovascular evaluation on patients transferred to your organization after ... |
| Dr. Lee Schwamm: | Yes. Yes. For us, just given where our hospital is physically located in a downtown city with other large teaching hospitals, a lot of our volume actually comes from transfers as opposed to coming right to our front door. Hospitals that see a lot of front door cases are generally those university hospitals in a city where there's really only one or maybe two big hospitals. We have not only an approach to evaluate every patient who's received IV tPA that comes to us, we've been involved in many of those cases before they get to us so we're ready, and in some cases where we have been directly involved, and through our TeleStroke network where we have actually looked at the CT already, we sometimes go direct to the angio suite. We actually don't even check in in the emergency room. We just go directly to the angio suite to try to keep our door to treatment and onset to treatment times as short as possible. I strongly suggest that you work on that to streamline that process. |
|  | Next question- |
| Mary Paulson: | There's a couple pieces to that other question, Dr. Schwamm. The last part, does neurology or teleneurology see the patients in the ED, IR suite, or ICU? |
| Dr. Lee Schwamm: | I am guessing what that question is asking is where are the patients located at the other hospital, and generally it's in the emergency room if that's where the patient's located because that's usually where acute strokes are detected and treated. Occasionally patients are inpatients at the time, and then it really depends on where the patient is physically located or if they are transported to another location in that hospital once they're determined to be having an acute stroke emergency. |
|  | The next question then is from DHSS. How do you determine last known well time? Last known well time is actually very close to what it sounds like in English. It's what was the time that the patient was last known to be well or at their pre-stroke baseline? You go to bed at 8:00 p.m., you wake up at midnight to go to the bathroom, on your way back from the bathroom you fall and hit the ground in the bedroom, waking your spouse. What's the time of last known well? It's 8:00 p.m. Now, could you say, oh no, it's right at that time when they hit the ground. Well, only if you're certain that they were perfectly normal when they got out of bed. |
|  | If when they got out of bed you said, "Honey, are you okay?" and they said, "Yeah, I'm fine. I'm just going to the bathroom," then odds are the onset is when you saw it and they fell to the ground, but if they go to bed at eight o'clock and the first time you discover their symptoms is 7:00 a.m. the next morning, their last known well time is 8:00 p.m. the day before. Their symptom discovery time is 7:00 a.m. This idea about witnessed or unwitnessed [inaudible 00:23:11] is I think very confusing, and if we just stick very simply to when was the last time you knew for sure they were well and when was the time you first discovered that things weren't right, then we're in good shape. |
|  | For that symptom detection time, it's pretty reliable. That doesn't change very much, but the last known well time can change dramatically as you get phone calls from family or coworkers or other people who may have seen the patient. If the patient was last seen well at 8:00 a.m. when you went off to work and they stayed at home in the kitchen having breakfast, and then when you find them at ... when you come home at 3:00 p.m. and find them aphasic, your last known well time is 8:00 a.m., but then if your brother calls into the emergency room and says, "Oh no, I spoke to Mom or Dad at noon because we had a whole long conversation. They were fine." Suddenly the last known well time changes. |
|  | All right, next question. TPA in trials, was it the three-hour window or did it include up to 4.5? In the tPA trials in the original trials, it was zero to three hours, but in the European trials, the [inaudible 00:24:21] three and the IST, there was treatment allowed up to four and a half hours, so this data is robust for tPA up to four and a half hours, and there are AHA guideline recommendations for the subgroup of patients who can be safely treated in the three to four and a half hour window. |
|  | The next one is, did the Modified Rankin Score not improve significantly for those patients who had early ... I'm sorry. Can you read that to me Mary because again it's cut off and I don't know how in this tool to actually display the full text. It's not letting me see the full text. |
| Mary Paulson: | It's actually at the bottom, if you can enlarge your [crosstalk 00:24:56] |
| Dr. Lee Schwamm: | Ah, I see it there. Okay. Versus those with later door to groin time. Did the Modified Rankin Score not improve ... No, I think the difference there is in the patients with later onset to puncture times or the reperfusion times, their chances of a good recovery are less than the patients who showed up early, but they're still greater in proportion to the patients who showed up late and didn't get treatment. The treatment effect is preserved but the magnitude of the benefit decreases the longer the time goes on, and we see the same thing in intravenous tPA. |
|  | Next slide. Can a CT perfusion take the place of the ASPECTS in determination for endovascular? No, and the reason is that CT perfusion is telling you a dynamic snapshot of where the blood is going right now. The noncontrast CT tells you the damage that's accumulated in the period of time since the stroke started. If you just tried to calculate a ASPECTS score on the CT perfusion image, you might over-interpret areas that were not getting blood right now but were still preserved. If I did a CT scan of your brain and had a perfectly normal ASPECTS score and then two seconds later I occluded your middle cerebral artery and I repeated the perfusion scan ... We know your brain is normal because it was normal two minutes ago, but if I tried to do an ASPECTS score on the CT perfusion, it would look terrible because you would have no perfusion to big parts of your brain. You really do need a parenchymal image and a blood flow image. |
|  | All right, next question. "Our CTA is simple to do with our CT and we're giving tPA while we're getting CTA ready. I worry about delaying the five-minute quick scan in order to take the patient out of the scanner while the tPA is getting prepared. This can be done simultaneously. I patients go direct to the scanner from EMS." I think if your times ... Again, everyone's workflow is different, but if your times are short already and you're doing well, I think ... Obviously you can't give the tPA any sooner than it's ready, but if your tPA is ready, I wouldn't delay giving it because you're waiting for the CTA to be performed or the CTA results. If your CT's already done before your tPA is even mixed or you've even decided to treat the patient, then obviously you can't, but I would guess that you could speed up your decision making about whether or not they're appropriate by getting more information from prehospital, by accompanying the patient as they get into the scanner, getting your stroke team, doing the NIH stroke scale score in the scanner, which we often do. Those are just thoughts and suggestions. |
|  | How do you document if bleeding occurs if it's post tPA or post IR? You can't. You just have to sort that out on the backend. You just have to document that bleeding occurred and then understanding how to attribute it is not possible but you can ... Again, if the initial NIH stroke scale score was mild and the expected rate of bleeding from IV tPA is low and you see bleeding after the endovascular treatment, it could be reperfusion injury or it could be a catheter related injury. If you see subarachnoid hemorrhage after the treatment then that's not a complication of the tPA. That's actually a complication of the catheter procedure, which could be made worse with tPA on board. |
|  | Do you have set response times for your team, meaning STEMI targets for MD arriving at 30 minutes, etc. There are recommendations from various national societies. I don't think we have a harmonized set of recommendations yet, but picture to puncture of either 60 to 90 minutes has been proposed by various societies and I think we're going to see that kind of shake out. |
|  | Maybe the last question that we'll answer right now is, do you have a process to treat wake-up strokes for intervention? Great question. In fact, we have a clinical trial that we just completed, multi-center clinical trial to ask that question of whether it was safe to treat wake-up strokes of all types. There's an ongoing trial called DAWN which is looking at endovascular treatment in wake-up strokes with proximal occlusions and there's diffuse three which just launched which is using perfusion mismatch to identify patients who might benefit up to six, from six to 16 hours after last known well and some of those patients will be wake-ups as well. An important topic and we're actually about to submit another grant this cycle to the NIH for a multi-center trial of looking at this with intravenous tPA. |
|  | All right, so let's shift gears and ask ourselves a little bit about the PMT updates that are coming. Mary, can you remind me when these are going to launch? |
| Mary Paulson: | The measures launched January 20 ... The data points launched January 21st. The measurements will launch quarter two of this year. |
| Dr. Lee Schwamm: | Perfect. Okay. Depending on whether you're a regular get with the guidelines platform, comprehensive stroke center platform, a [inaudible 00:30:17] platform, a Coverdell platform, these things might be viewed slightly differently, but what you need to do is if you do any endovascular treatments, in order to capture the important and relevant information, you need to go to your community page, select "update stroke site characteristics," and then say "yes" that you provide mechanical endovascular procedures because that will enable the mechanical vascular reperfusion tab, which will allow you to collect the necessary data and run the measures. |
|  | It's an optional form group, but the AHA guidelines I think are pretty clear on this, which is if you're providing this treatment, you ought to be doing it according to the recommendations and guidelines and monitoring your quality and this is what's going to help you do that. If you're a comprehensive center, you've been needing to monitor this and now it will all be in one place for you. |
|  | Under the hospitalization tab, you'll see some new ... We call it MER for mechanical endovascular reperfusion because that's a mouthful. Under the MER tab, you'll see that some elements have been added to the brain imaging section, and to help you determine whether any advanced vascular imaging was performed and was there a target lesion identified, meaning a proximal occlusion that is a target lesion for endovascular therapy. Was vascular imaging CTA ... It's not really MRI. It should say CTA or MRA, performed, and the answer is yes or no. Then was a target lesion identified? Here you as abstractors, you're going to have to answer the question, what vessel was blocked? If the notes say occlusion of the cervical intracranial carotid artery, cervical internal carotid artery, or the ICA terminus or T lesion, then you can check one of those two boxes. |
|  | If it just says ICA occlusion and there's no detail as to where in the ICA the occlusion was located, you would just check the parent box of ICA. Same thing if it just says MCA occlusion and doesn't tell you which branch of the vessel, you check MCA. But if you know that it's the M1 or the M2 branch, you can just check that box. If they said it's an M1, M2 occlusion, you could check both of those boxes. This is a multi-select. It might also be that the intracranial carotid is involved and one of the M2 branches, so you could check ICA terminus and M2. Basilar artery, obviously the other big proximal vessel in the brain, and then other would be if there are other arteries or other names that you can't sort out, you could always check that box. |
|  | Once you turn it on, the MER tab pops up after core measures and before other measures. If you look at that MER tab, if you're in the comprehensive stroke version, there will be some overlap. Again, we're having to please a lot of different audiences here so in round one, there's going to be some duplication. We're working with the joint commission to reduce that duplication and with Coverdell, so what we've done for now is if you answer the required elements, the other companion element will auto populate. If you answer some questions that are in the hospitalization tab that relate to IA treatment, they'll auto-populate the MER tab elements. Answer the hospitalization tab elements first. There's some that are still lingering there. We're going to consolidate them all in the next release. |
|  | If you're not using the comprehensive version, all of your variables will be living in the MER tab. As I said, we're going to harmonize these to try to make them all appear only once in the tool. |
|  | On the MER tab, the first question is going to be, did you attempt to do a reperfusion during this episode of care at this hospital? If they went to the suite, they punctured the artery but they couldn't pass the catheter up into the brain, the anatomy was too difficult, they had to abort the procedure, the patient got hypotensive, whatever happens, it's still a yes because you went to the suite to perform the procedure and you punctured the groin or the artery, if you for some reason were going through the radial artery or some other artery. It doesn't have to just be the femoral artery. In that circumstance, you tried to treat them with MER. If you went to the suite and on the way in the room they suddenly had resolution of their deficits and you never punctured an artery, then you would say no. |
|  | Then, are there reasons for not performing the treatment? Here are reasons that we could infer from the guideline. It doesn't mean that performing MER is inappropriate if one of these is present. This is just like the tPA reasons for non-treatment. It's got to be documented by a physician, an advanced ... a nurse practitioner or a PA and the reasons here are not, I said, meant to supersede judgment as to who should get the treatment, but they're all things you might want to look for as the abstractor if someone didn't get treated and had a big stroke within six hours with a good-looking CT. Pre-stroke disability, no evidence of proximal occlusion, NIH less than six, brain imaging was not favorable so there was hemorrhagic transformation or the ASPECTS score was low. You couldn't get the groin puncture done in time, an anatomical reason that made you unable to access the occluded artery, patient refused, someone did MER at an outside hospital ... Unlikely, but we have to include that. Equipment-related delay, no specialist available, delay in diagnosis, vascular imaging not performed, advanced age, or other. You can capture those, but they won't get you out of the measure like we have that's similar in the tPA thing. |
|  | The coding instructions, again I think I went over these. Just so you know, examples of the endovascular devices that are currently out there, there's the Solitaire system, which is a stentriever, the Trevo, which is a stentriever, the Merci Retrieval System. There are different flavors of Merci. I think most of the time now everyone is using endovascular stent retrievers but there are some circumstances where other systems might be used. Penumbra has an aspiration catheter that is a little easier to maneuver into small branches and some providers prefer that or like to do one pass with that first. There's a technique called ADAPT, which is Direct Aspiration First Pass Technique, which can be done with a variety of catheters and is not a stent retriever. It's a clot aspiration, sucking the clot out maneuver. Some, again, centers like to do that as a first step. Those are all still mechanical endovascular reperfusion procedures. |
|  | We talked about the reasons for not performing the procedure and again, yes, there's a documented reason and you pick what it is. No, there isn't a specific reason that you could find and again operative notes, radiology reports, or other physician notes would be places to look. |
|  | The coding instructions here, and again, this is a list of all the reasons that I mentioned before, and the AHA stroke update is listed here in this complex-looking URL, which we could probably refine, Mary, to a simpler URL. This looks like a search string as well. But this is the article that emphasizes the endovascular updates. |
|  | On the MER tab, there's also the type of treatment that was provided. What did you use? A retrievable stent. That will be what you check most often. Other mechanical clot retriever device, so if you used something other than a stent, you check that box as well. Someone did ADAPT first with suction and then a stent, both of those boxes would be checked along with clot suction device. Intracranial angioplasty, with or without permanent stent. If they had to do an angioplasty in the artery to move some athero away so they could get to the occlusion, you would document that, or if they did angioplasty in the internal carotid because there was a tight carotid stenosis, which was the cause of the embolism to the brain and they had to again do angioplasty or stenting to get through there. |
|  | Now, you're not going to know this if you're an abstractor probably. You're going to have to work with your interventional team to make sure that they are documenting in a way that would be helpful, and I would suggest that while we may come up with one of these on our own to provide you, like a sort of a template of best practice for providing the information necessary, you might want to just share with your interventional teams what this form looks like. I think that might help drive best practice capture so you shouldn't need to be guessing at what this is, if that makes sense. I think that we should be providing you with the tools you need to abstract successfully. |
|  | Skin puncture or the sort of arterial puncture, so date and time. That's usually pretty well-documented in the procedure suites in the OR so I think you'll be good there. If you can't find it, select unknown, but that won't be the problem. The harder problem will be the first pass of the device. When was the time of the first attempt when they tried to puncture the artery ... After they punctured the artery, when they passed the device up. A lot of times they take a picture when that happens and there's a timestamp. Again, you probably want them to document that explicitly for you while they're in the case. Sometimes the circulator or the scrub will write that down. If you can't tell that, then at least copy down the earliest time that there's evidence of a device being used. We'll ask them to say what was the first snapshot where you can see the device is deployed in the artery, and most interventional teams document this through snapshots in the angio procedure. |
|  | Then the other thing that we've done is we've set a benchmark, and this answers the previous question you get with the guidelines, we've started by saying, you really ought to be initiating the treatment within 120 minutes after the patient arrives at the hospital. Just like we have 60 minutes for tPA, we have a door to arterial therapy of 120 minutes, and the reasons why you might not is you may have ... Again, this is very similar to the reasons for non-treatment with IV tPA, but actually ... |
|  | Mary, this is the wrong slide. Hypertension requiring aggressive control with IV medications. These are the ... This is actually the list for IV tPA, not for IA tPA, so I apologize for those on the line. This is an inaccurate slide. There's a separate list of reasons why you wouldn't get intra-arterial therapy, and maybe we can circulate those corrected version of these slides afterwards. |
|  | You're also asked to document the last NIH stroke scale score prior to treatment. If you come in with an NIH of 10 and you go to the CT and you go up to the procedure suite and you get the procedure done, it's 10, the initial NIH, but if you got a subsequent NIH because they came in at a six and then they worsened to a 10 or they started at 15 and got better to a 12, here you would document the best score or the worst score, but the score closest to the start of the treatment because we want to be able to assess whether people worsened or improved after the treatment. |
|  | Then at the end of the procedure, how good was the reperfusion? 2a, 2b, 3, and your procedure list will definitely provide that information. The date and time of the first post-reperfusion TICI grade that was 2b or 3, this is a little hard to understand, but basically I start treating Mrs. Jones, I deploy the catheter, I get a great result, so 20 minutes after starting the procedure I have a TICI 2b, so I write that down. Then unfortunately I go in to try to clean things up and I get a re-occlusion and despite my best effort, at the end of the procedure, I'm only at a 2a. This is designed to help us understand, how quickly did you get the first result that we know leads to benefit and was that enduring or better at the time you completed the study? |
|  | I think I've already gone through these notes for abstraction, and the coding instructions here. I don't think you're going to be interpreting the TICI grade. You need to see a note in the abstraction that an expert told you what the grade was. You shouldn't be looking at the description of the result and saying what the TICI grade is, and if it's not there, ask your interventionalist to write it down. |
|  | Then I think I already explained this to you as well. It's just the date and time of the first reperfusion. |
|  | Then there is a requirement for all of your cases that undergo endovascular treatment if you're a comprehensive center to make note of their three-month outcomes. Now this form is available although it's in a much simplified version of the old stroke follow-up form, which was quite complex and not very utilized, but in this case the form is perhaps going to be more useful to you. Not that many sites are using it at the moment, but I think with this new rollout of the MER, you might find this very helpful. |
|  | Then this is what the form looks like. What's the Modified Rankin Score, and then this is the actual Rankin scale of zero to six. No symptoms, no disability, slight disability, moderate, moderate to severe, and severe. Then option seven is you are unable to contact the abstractors after three attempts is sort of when we basically say that the effort has been made, and then abstractor option number eight is you can't tell. There's information, but you can't determine the Rankin Score. Then you enter the date of the follow-up score there, and that's necessary for us to calculate whether it was within the three months, whether it was one day later, whether it was two years later. |
|  | The MER Measures are going to be launched in quarter two of this year, and they'll be available for any sites that have the MER tab enabled, and so I think that will allow you to track these very important aspects of endovascular care. |
|  | What are those MER Measures? Before I jump into those, let's go back to the Q&A tab. Actually, let me just finish these and then we'll go to the Q&A tab. It'll be the mechanical endovascular therapy for eligible patients so what proportion of eligible patients got treated. The median ... the proportion of patients who had an arrival to start of revascularization within two hours, and then a median version of that, an arrival to ... I'm not sure I understand what row four is. I think it's just median door to start of revascularization. The next is door to puncture, median door to puncture, and a range of times. Picture to puncture times within 60 minutes. You show up at the door and if you get a puncture within 90 minutes, did you get a picture to puncture within 60 minutes? Then puncture to start of revascularization. |
|  | The start of revascularization is not when you puncture the groin. It's when you actually do that first pass with the catheter. Then you can see again we have basically multiple different ways of displaying these gaps, these time intervals, between puncture, arrival, puncture ... Sorry. Arrival, picture, puncture, and reperfusion, and then the final assessment, which is the rates of patients with reperfusion and that's the TICI grade scores. We also look at the 90-day outcome scores, following the endovascular procedure, and the discharge disposition of those patients, so where are they going at the time of hospital discharge. |
|  | With that being said, I'll go to the questions section. |
| Mary Paulson: | Dr. Schwamm, before you load up more questions, will you go back to slide 16 and I'll just talk through that a second. We're getting a lot of questions on that while you look at those [crosstalk 00:48:07] |
| Dr. Lee Schwamm: | Slide 16. |
| Mary Paulson: | Slide 15 will show you how to activate the MER tab- |
| Dr. Lee Schwamm: | Okay, got it. Yep. So you go ... Sorry. You go to your community page and when you have that loaded up, along, I believe it's the left-hand column of the screen, you can see there's a whole bunch of information like who's your AHA contact, recent communications ... If you scroll down under my hospital characteristics, you'll see a hyperlink called update stroke site characteristics. You click on that link, it will open up a new screen, and then when you open up that screen, there will be some settings and with radio buttons, yes, no, and you go and click the button from no to yes and click save changes. Correct me if I'm wrong, Mary, everyone who's a comprehensive stroke center will have this turned on by default automatically? |
| Mary Paulson: | Yes. |
| Dr. Lee Schwamm: | If they're in the joint commission comprehensive stroke center layer, if that layer is turned on, MER is automatically turned on. The only people on the call who have to turn this on manually are hospitals that are either primary stroke centers, acute stroke ready, or non-certified, or maybe state certified but not using the comprehensive tab, will have to turn this on manually. Is that helpful Mary? |
| Mary Paulson: | Yes, thank you. Now we can do more of the clinical questions. |
| Dr. Lee Schwamm: | Let's just see here. Okay. What's the ... Okay. How about having an MRI for all patients? In my facility the protocol is changing but the argument is to have MRI to save the lives of patients above the 12 hours. I think what this person is saying is that they're using MRI for selected patients who are outside the window for regular treatment. I would say that is not a guideline recommendation. That is individual physician judgment deciding whether or not to offer this treatment on a compassionate basis to patients who arrive late in the window but his MRIs look preserved, and I would strongly encourage sites to participate in clinical trials that are testing this question that is not an approved treatment or one that is known to be efficacious. |
|  | Next slide, what about someone who's dizzy at 8:00 a.m., resolved at 8:30, then dizzy again at 1:00 p.m.? It's a great question, and the answer is if the imaging suggests that the stroke, the infarction, is not ... Sorry, let's just run this through. They arrive at your hospital at 1:30 and the question is, is their stroke half an hour old or five hours old? If you did a CT scan and there was no evidence of parenchymal injury and you felt that the imaging and the story were consistent with complete resolution of a TIA followed by a stroke, you could cite that and treat the patient. If, however ... They would have to of course have symptoms that would get them an NIH of six and being dizzy doesn't do that. Dizzy with right-sided paralysis and a gaze deviation or disconjugate gaze. The other things is, if this is a basilar artery occlusion, we don't currently know if this treatment is effective in the basilar artery, but I think most hospitals would treat that patient even though that's not ... The Level 1A guideline recommendation does not cover patients with basilar arteries, it's still reasonable to treat those patients. |
|  | If you can believe that the symptoms correspond with the most recent onset time and especially if you have MRI to confirm that the lesion is not several hours old, then I think it's quite reasonable to reset the clock. |
|  | Is there a recommendation to obtain CT and CTA at the same time? Often our LVO transfers have had their imaging separated by up to 30 minutes, thus delaying LVO identification and call for transfer. Yes, strongly believe that if you're a hospital that's going to transfer patients, CT ... and you can do CTA, CT, tPA, and then some cutoff. If NIH is greater than six or greater than eight or whatever it is, CTA. One trip to radiology. Agree. Everything you can do to work upstream to your referring site to shorten time to treatment is highly valued. |
|  | Let's see. As a stroke receiving center, are you asking the sending facility to perform CTA or rapid transfer? Are patients being prior transferred to the completion of tPA infusion? Boy, those are great questions from Denise at Saint Mary's. We're struggling. Some of our sites can do CTA quickly and reliably. Others takes them way longer than 30 minutes to perform it, and sometimes what we get from them is a not well-performed CTA without good reconstructive images and so it delays the transfer, it doesn't provide us the critical information we need, and so it ends up being counterproductive. I think the secret is for us to start all training our referring sites to do CTA effectively and quickly, and that's probably the right thing to do so it's probably CT, tPA, CTA, and as soon as you know it's a proximal occlusion, get the patient in the ambulance and get them over to me. The problem is, some ambulance providers will not transport a patient while tPA is infusing, so you also have to work with your regional EMS providers to determine how to safely transport those patients so that the minimum amount of time is spent with a patient awaiting transfer for thrombectomy. |
|  | The good news is, these patients tend to show up early, the big patients with proximal occlusions, so if you get the tPA started right away, some proportion of those, 20% or more, might have a resolution of their proximal occlusion while you're waiting to transfer them. |
|  | All right, and then the last question I'll take ... Our county EMS uses a 24-hour timeframe for calling a stroke alert stroke code. Is there any evidence to support this as they are not eligible for tPA and have a higher risk of bleeding? I think if that strategy is giving you lots of false alarms and it's identifying many, many patients who are not eligible for treatment, then I worry and think maybe that's not the most productive strategy. If however, on the flip side, they're often excluding patients from treatment who are within the first few hours or minutes of symptom discovery where many of them turn out to actually have a last known well time that would have put them in the treatable range but because they didn't call a stroke alert and didn't transport them urgently, you missed that opportunity, then maybe a broader window is appropriate. I think, between you and me, a six to 12-hour timeframe maybe makes more sense, given what we know about the data. |
|  | We are at the top of the hour, and I want to thank everybody for listening. In particular, I have to say the drop-off rate of this call was remarkably low, so usually we see in that last 10, 15 minutes, the numbers plummet, but you guys were all troopers and stayed to the very end, so thank you so much for joining us, and we'll make a few corrections to the slides that I mentioned throughout the talk and then well either post those somewhere or email you a link or however it is that the terrific AHA staff figure out how to get you the materials you need. |
|  | With that being said, Mary, you want to close out the session? |
| Mary Paulson: | Thank you Dr. Schwamm, and thank you everyone for attending and hope you have a great day. Thank you. |
| Host: | Ladies and gentleman, thank you for participating in today's event. This concludes our program. You may all disconnect and have a wonderful day. |