Lippincott Clinical Leaders: Neuro Assessment

[PODCAST TRANSCRIPT – August 15, 2024]

[MUSIC]

Lisa Bonsall: Hello and welcome to Lippincott Clinical Leaders Podcast. My name is Lisa Bonsall. I'm the senior clinical editor for Lippincott NursingCenter. Today, I'm joined by Robin Coyne. Robin is the content editing manager for Lippincott Procedures. Robin's background includes working as the neurology consult nurse practitioner at Penn Presbyterian Medical Center, as well as working as a research assistant, supporting students as a teaching assistant for advanced pathophysiology courses and lab faculty for physical assessment courses. Thank you, Robin, for joining me today.

Robin Coyne: Thanks for having me.

Lisa Bonsall: Today, we're going to talk about neuro assessment and why it's so important for nurses to be comfortable with neuro exams. So, Robin, why is that so important?

Robin Coyne: So it's really important because if you have a patient who has a neurologic insult or injury, those can change over the course of a shift or over the course of a few minutes. And it's really important that you have a systematic way to do that assessment. So, you know, if there are any changes and if there are, what they are, and that you can communicate that to the team taking care of the patient. Also, neuro checks are often ordered and nurses don't always know what that means. They'll see an order for every 4 hours, do a neuro check every hour, whatever it might be. So it's really important that all nurses have a background in this so that they can do it if the team orders it, without confusion.

Lisa Bonsall: Okay. So we're going to go ahead and go over a quick neuro exam. So what are the need to know elements for nurses.

Robin Coyne: So the first thing that you want to assess with your patient is their mental status. And often we will talk about this or document it as alert and oriented times three or times four, depending on where you work. But that's when you're going to be asking the patient: what's their name, what's their birth date, where are we, what's the date? Can you tell us something about the world situation? So what's going on? Why are you here? Or who's the president? Any of those kinds of things.

And then the most important thing when you're assessing mental status is that you tell someone or you document what they're answering correctly and what they're not answering correctly. If I document in the chart, “Lisa is alert and oriented times two” the next nurse comes on and sees Lisa's alert and oriented times two and she knows maybe herself and where she is for me, but she knows herself and that she's in the hospital for the other nurse. That's a change and that's something that the team needs

to know about. If I didn't document what two things she's oriented to, then the next nurse is not going to know that that's a change.

And then the other part of mental status is what is your patient like? Are they calm? Are they agitated? Can they have a conversation with you? Do they seem in any type of distress?

So the next section or the next part of the neurologic exam, I kind of like to go head to toe, just helps me keep it organized, is the eyes. So your pupillary reactions and your EOMs, or extraocular movements, and those are going to be your cranial nerves two, three, four and six. So the first thing you can do to assess this is ask your patient to open and close their eyes.

This is actually going to look for two things. One is, can your patient follow commands? That gives you a little bit more information about their mental status. And then the other one is it helps you assess facial symmetry. So do they have drooping of their eyelids, do they have ptosis, which would be one-sided eye drooping? And if your patient cannot follow commands and cannot open their eyes, then you can gently open their eyes.

The next step would be looking at their pupils. You're going to use your penlight and you're going to shine in each of their eyes. You're going to look at the pupil size, shape, position, reaction and accommodation to light. Meaning: if I'm shining a light in one eye is the other pupil reacting appropriately and vice versa. And then you're also going to have them look, if they're able to follow commands, at a near object and a far object. And then if this is not something you do often or something you're not as comfortable with it, it's very helpful to have a pupil chart with you. Now, a lot of times you document that the pupils are two millimeters or three millimeters, and it's helpful to have that comparison next to you.

For extraocular movements, if they are awake and able to follow commands, you're basically going to have your finger in front of you and you're going to draw the shape of an H. You're going to ask them to follow you to all the corners of the H, and you're going to look at their gaze. Is it conjugate or is it disconjugate? And that means, did the eyes move together or does one of them not move in one direction or the other? And then you're going to look at the characteristics of the movement themselves. So are the eyes moving smoothly? Is there nystagmus or bouncing of the eyes? And that will tell you a lot about the cranial nerves.

And then to finish up with the eyes, we have visual fields. And so that's just a simple question. With the neuro check, you can do a rough assessment of the visual field. If this is your first neuro assessment of the day or if there is a more major change, then you can do a more in-depth assessment. But basically what you're going to do is have them look at your nose, put your hands out around each side of their face, wiggle your fingers, and they'll tell you when they see them. And that will grossly tell you if they're not seeing on one side or the other. If they do have a visual field cut, then you can assess each eye separately to see if it's monocular or binocular. But that is the rough way to do it.

So next you're going to do facial symmetry and strength. So that's going to be asking your patients to do things like smile. When they smile, you want to make sure you look at the nasolabial folds. So that line that you draw from the side of your nose to the edge of your lip, if one side is flattened or if one side of the mouth is drooping, obviously they have a facial droop. You're going to ask them to puff out their

cheeks. That helps you assess strength, but will help you also see if there's any kind of facial droop. Clenching and unclenching the jaw while you palpate the masseter muscle, which is right up here. So you want to be able to feel it and see it moving.

Shrugging your shoulders up and down, and then turning the head to the left and the right. You can do that against resistance by putting your hand right on the side and having them push into it. Sticking their tongue out, moving it left and right, and then you can have them put their tongue in their cheek and push against your hand. And that can help assess the strength of the tongue.

Auditory: if they're able to hear and communicate with you. I don't always formally test this, but if you're concerned or if you think there is something that might not be doing what it's supposed to do, you can do the rub finger test or the whisper test where you are whispering in their ear. So this is just if you're doing a really quick assessment.

Lisa Bonsall: Super helpful! Thank you. And thank you for demonstrating on yourself as well. So how about tests for strength, coordination and sensation?

Robin Coyne: Yep. So again, head to toe, proximal to distal. So the first thing you're going to do is just look at your patient, not even touch them. You're going to look at how they're positioned. Are they tremulous? Are they having any involuntary movements, any kinds of tics? If they look pretty comfortable in the bed and they seem to be cooperative, then you can go ahead and start your assessment, again proximal to distal. So strength we grade on a scale of 0 to 5 five being full strength, which is normal, zero is not even a flicker of muscle movement. So I usually think about it: five again, full strength against both resistance and gravity. Four is full strength against gravity and some strength against resistance. Three is active movement against gravity. Two is active movement with gravity eliminated, so within the same plane. And then one would be just a flicker.

So for the upper extremities to test the deltoid muscles, you're going to have your patient put up arms like chicken wings again. You always want to test the patient's muscles against each other, right? So you're going to test the right against the left and you're going to use a similar muscle group in your body of the same size. Because, if I'm testing the strength of, say, their pointer finger with my bicep, my biceps are always going to win because my bicep, even if it's not that big is bigger than their pointer finger.

So deltoids, you're going to have them put their arms up. You can put your hands right on top of the shoulders and try to push down. That would be full strength if they're able to resist you. Biceps, they're going to put their arm into a crawl position, you're going to pull out. Triceps, they're going to push, you're going to try to push in. Wrist extensor, you're going to lift the hand up. Wrist flexor, down. And then you can do grip strength.

A lot of times people get confused about what may be a three or two would be. How do we take gravity out? So if I'm testing biceps and they're going like this, this is moving against gravity. But if we turn the arm here and support the elbow and they're able to go like this, that's using your bicep, but that's also eliminating gravity. So you can change the position that you're testing the patient in to try to assess really where in that strength scale they are. Are they able to resist gravity or are they not able to? And then for lower extremity, same thing. With the legs, you're going to do one at a time for the hip flexors because almost no one can lift both hip flexors at the same time when they're lying down. And then

they'll bend the knee, extend the knee, dorsiflex and plantar flex, and flex and extend the toes. And you'll grade all of those on a scale of 0 to 5.

Rapid alternating movements. This really assesses the cerebellum. So the back of the brain, and that lets us see if their coordination is intact. So you can ask the patient to tap their fingers, one finger to the thumb, or you can put your finger out and have them touch their nose and your finger. And that will also let you see if they have any type of tremor. If they have an intention tremor, it'll get worse as they go to touch your finger.

And then for lower extremities, oftentimes if someone's laying in bed that it's easy to have them just tap on your hands with their toes and see if they're able to do that quickly and with the rhythm. You can also have them take their heel and slide it up and down their shin if they're able to do that in a straight line.

Lisa Bonsall: Sensation?

Robin Coyne: So for sensation, again, with a full neuro exam, you would do it a lot more in depth, But with a neuro check, basically you want to just see if there are any changes. Say you did your morning or your night exam and they had a sensory deficit, you would want to make sure that it's not changed at all. So you would use your clinical judgment to determine exactly how much of the sensory exam to do.

So there's really four pathways that we can test: pain, vibration, temperature and proprioception. But you don't necessarily have to test all four. So vibration and proprioception are governed by the same pathway and then same thing for pain and temperature. So you can have them close their eyes and move their finger, tell you if it's up or down. Same thing with the toe. That would be proprioception. And then if you have something cold, the end of your stethoscope or something like that, it's a great way to test temperature. A reflex hammer works if you have it.

Lisa Bonsall: Thank you, Robin. What should nurses know about testing and grading reflexes?

Robin Coyne: That's a great question. So where I worked as a nurse, we did not test reflexes. That was something that our providers did. So it's up to your facility and the orders that you have about that specific patient if you're testing reflexes, which ones you're testing and how often. And so that does require some clinical judgment.

Lisa Bonsall: Can you talk a bit about the Glasgow Coma Scale, please?

Robin Coyne: Of course I can! So the Glasgow Coma Scale is one of the most common scales, but you should always use what's approved by your facility. The GCS is a great way to give someone just a really, really quick picture of what your patient looks like. It tests three domains of the neurologic exam: eye opening, verbal response and best motor response.

And it's really important, just like it is with orientation, to document exactly which area gets which score, because a Glasgow Coma Scale of ten could mean two very different things depending on the different patients. And then the important thing to remember with the GCS is, if the patient doesn't have an equal reaction from motor response on both sides, say they had a stroke and they have hemiparesis, you're going to use the side that has the better strength. You're always going to give them the better score there. So basically you're going to follow the format that you'll have either in your chart or wherever you

keep it in your facility. But you're going to grade the eye opening scale if they're opening their eyes spontaneously, to verbal stimuli, to painful stimuli or not at all, and you'll give them the appropriate score.

And the same thing for their verbal response and their motor response. And it's important to follow the instructions on the scale because you want to make sure that you have a strong inter-rater reliability and you're testing things the same way other people are. And then again, to just document exactly where the patient's deficits are.

Lisa Bonsall: Thank you so much, Robin.

Robin Coyne: You're welcome. Thanks for having me.

[MUSIC]