Sawbones 266: Stroke

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Intro (Clint McElroy): Sawbones is a show about medical history, and nothing the hosts say should be taken as medical advice or opinion. It's for fun. Can't you just have fun for an hour and not try to diagnose your mystery boil? We think you've earned it. Just sit back, relax, and enjoy a moment of distraction from that weird growth. You're worth it.

[theme music plays]

Justin: Hello, everybody, and welcome to Sawbones: a Marital Tour of Misguided Medicine. I'm your co-host, Justin McElroy.

Sydnee: And I'm Sydnee McElroy.

Justin: Uh, kind of a somber start for this episode, Syd. We normally try to go real high energy. You know put a little… pep. In the ep… isode.

Sydnee: Huh. That was a good twist on that.

Justin: Thanks, just a little twist.

Sydnee: Did you just come up with that?

Justin: Right this second.

Sydnee: Well, if you've been paying attention to the news lately, you may have heard the sad news that Luke Perry passed away. Um, if you are a person of about my age, you probably remember him best from Beverly Hills 90210. I was a big fan of that, back in the day. I had the doll. I had all the dolls. I had his doll, and all the dolls.

Justin: Do you remember—

Sydnee: My Barbies preferred to date my Luke Perry doll and my, uh—

Justin: Bad boy.

Sydnee: —and my Jason Priestly doll instead of Ken.

Justin: Did you remember that he was Pike in Buffy the Vampire Slayer?

Sydnee: [pauses] Yes!

Justin: Mm-hmm, mm-hmm! Yep.

Sydnee: And now—and he has been most recently in Riverdale.

Justin: That's true, that's true.

Sydnee: Um, but sadly he passed away from a stroke, and we thought this—well, for one, it was odd that we'd never covered strokes before, 'cause it's a major—it's a major thing. I mean, it's an unfortunately very common health concern. It's the fifth leading cause of death in the United States.

And, uh, it is also something that if you know more about, one, you can prevent strokes if you know what risk factors to work on, to modify. What to do.

Justin: You can help prevent strokes, maybe. You can't—not completely prevent them, right?

Sydnee: Well, I mean, yeah. I mean, if you—you can modify your risk factors so that you won't have a stroke.

Justin: Oh, okay.

Sydnee: Yeah. There are things you can do. One example: quit smoking, if you're smoking. It's a great way to help avoid a stroke. Um, obviously I don't mean they're all 100% preventable.

Justin: Sure.

Sydnee: Um, I was gonna give the stat later, but about 80% probably are preventable.

Justin: Wow. So, uh—

Sydnee: So there are things you can do, so that's number one. And two: recognizing the signs and symptoms of a stroke quickly is very, very important, and I'll get into why towards the end as we talk about like, the treatment and the management and what we do about a stroke.

But knowing more about it so that if you or a family member or a friend is experiencing signs or symptoms of a stroke and you can recognize that quickly and get help immediately, your outcomes are way better.

Justin: Okay.

Sydnee: So it's a really worthwhile thing to talk about, for multiple reasons. First of all, do you know what a stroke is, Justin?

Justin: Okay. So I was just sitting here thinking that, 'cause you always ask me that. But I think I have it confused with an aneurysm, so I need some help.

Sydnee: Well, that's okay, because there's a relationship between those two problems, so that's not—you're not totally off base.

A stroke, though, is like an interruption of blood flow to the brain. I saw in several articles they referred to a stroke as a brain attack, in the same way—

Justin: Brain attack?

Sydnee: —well, to liken it to a heart attack.

Justin: Okay.

Sydnee: So, a heart attack is when you have, for some reason, lack of blood flow to part of the heart muscle.

Justin: Okay.

Sydnee: Lack of blood flow to part of your brain.

Justin: Okay, got it.

Sydnee: It's a stroke. Uh, we also call it a cerebrovascular accident or CVA, you'll see it abbreviated that way a lot. And then you can kind of divide that up

into ischemic or hemorrhagic, and what that means is either there was some sort of blockage, so the blood couldn't get through—

Justin: Kinda like you would have in the heart.

Sydnee: Mm-hmm, because you could have a plaque, like, stuff build up in the lining of an artery and then it can get disrupted and block off the artery. Or you can have a clot thrown from somewhere else in the body, a clot forms like, in the heart.

There are some conditions where clots can form in the heart, and then they break off and can go to blood vessels in the brain. Um, those would be examples of ischemic strokes or lack of blood flow strokes. And then there are hemorrhagic strokes, which means you have a bleed in the brain.

Justin: Okay. Which is a—

Sydnee: And that would be related to an aneurysm. If an aneurysm, which is a dilation of a blood vessel, a place where it's dilated, and it's weaker as a result, if that ruptures. Then you could have a bleed.

There are other reasons you can have bleeds in the brain, but that is one example. Um, because you don't get blood flow to the brain, where there is no blood flow there is no oxygen, and cells die.

Justin: Right.

Sydnee: And you get damage to that part of the brain. What happens as a result of a stroke depends on where the stroke occurs, what area of the brain, how far down the path of the artery it is, meaning that it's, you know, less blood flow—less area that's receiving blood flow, or how close it is to like, kind of the root, so to speak, of the artery. So, how much of the brain is affected? Um, all of that will depend on what you see in someone who's having a stroke, so—

Justin: Yeah, it's always been interesting to me that, uh—and I think part of what makes them confusing to the layman, like myself, is that you seem to be affected so differently by them.

Like, you see some people who obviously pass away as a result, some people who have a big loss of motor function, like I remember Dick Clark was… it was years

before he was able to return to the New Year's Rockin' Eve, and it was still very difficult for him to speak, and some people who do okay? Like, don't get affected as much.

Sydnee: Mm-hmm. Or even have some effects, and then they actually completely resolve over time. We can see that.

Generally speaking, a stroke on the left part of the brain will cause problems on the right side of the body. Right side of the brain, left side of the body, generally speaking. That's just the way the circulation works.

Um, you can get symptoms like weakness. That's a thing a lot of people talk about. Weakness on one side of the body, you know, like your arm or leg or both—one or the other or both can be weak. You can be numb, you can have dizziness, you can have difficulty speaking.

Um, you can see—the facial droop is a very classic sign of a stroke, so like, one side of the mouth, one corner of the mouth will turn down.

Um, and then there can be some less typical symptoms like confusion or hallucinations or nausea and vomiting or passing out, even hiccups.

Justin: Really?

Sydnee: Mm-hmm. So there can be some unusual symptoms to a stroke too.

Justin: That's terrifying! Why would you include hiccups? That's miserable of you! How could you do that?

Sydnee: Well, because if you're having hiccups in conjunction with other odd signs or symptoms, it would be—

Justin: Okay…

Sydnee: You almost certainly would not have isolated hiccups.

Justin: Fair. Okay.

Sydnee: I'm not gonna say it's impossible.

Justin: You said almost certainly—oh, you're the pits! How could you do this?

Sydnee: I would not worry every time you have hiccups. I would worry if you're having a facial droop and hiccups.

Justin: Okay.

Sydnee: Uh, the long term outcomes from a stroke are based on, again, where the stroke occurs, and the extent of brain tissue that is damaged as a result. Sometimes the effects improve greatly with time, sometimes they don't. And part of that we can predict based on where the stroke happened, based on like, the pictures we take of your brain, and look at the effects. Part of that just takes time to figure out.

Now, as you may have guessed, we've known about strokes since ancient times.

Justin: Yeah, I would imagine for a very long while.

Sydnee: —because they've been happening since then. So, Hippocrates first recognized a stroke over 2400 years ago. And back then, we would call a stroke apoplexy.

Justin: Okay.

Sydnee: And actually, through most of medical history apoplexy is what you would see written in a text. So if you see that somewhere in an old medical text, they're probably talking about a stroke.

Justin: I have a feeling that that name is more, uh, scientifically accurate. That fair?

Sydnee: Uh, well, I mean, it—it comes from the Greek for "struck down by violence," so.

Justin: It was a bit of a flight of fancy, then.

Sydnee: [laughs quietly] Not necessarily. Um, but it does—it was, because it happened so suddenly and the person almost seemed to have been a victim of some sort of violent act, even though obviously they weren't. Um, Hippocrates did not know that it was happening in the brain. You wouldn't have known at this

time how everything—you know, the nervous system was still a mystery to us, so we didn't know that. He thought it had something to do with the stagnation of the blood, whereby all the motion and action of the spirits is taken away. So, the blood stopped.

Justin: The blood stopped.

Sydnee: Your blood stopped. Uh, and it could've been stopped by sharp humors.

Justin: Ahh, I thought the humors would get mixed up in here somewhere.

Sydnee: Yeah. Definitely the original concept of stroke was a variety of different humoral—humor medicine, humoral medicine-based theories. And cold humors maybe like, slowed everything down until it stopped, which is why you can't move half your body, that kind of thing.

Justin: Obviously.

Sydnee: Uh, Galen also kind of—and often did build on the theories of Hippocrates, kind of accepting that a lot of it is true. Now, he did say, though, that he thought apoplexy could be caused by anything that would interfere with the flow of what he referred to as vital spirits to the brain. So that is—that does at least involve the brain.

Justin: Yeah, he's in the right—the right hemisphere, as it were. They right, uh—third of the body, yeah.

Sydnee: He's in the top of the body.

Justin: Top of the body.

Sydnee: You don't see the word "stroke" enter the medical lexicon until 1599, and there was a treatment protocol. That was actually the place where it was first written. It was a doctor writing about a certain treatment that was recommended for stroke, which, by the way, was cinnamon water, in case you're interested.

Justin: Ew.

Sydnee: Which is not… a treatment for—

Justin: Not helpful, not—right. Is nothing.

Sydnee: —stroke. Yeah, that's not—

Justin: Except halfway to horch—

Sydnee: —I was about to say a treatment for stroke, but it's not a treatment… period.

Justin: No. It's halfway to horchata, I guess.

Sydnee: Uh, but he said that it was a prescription for, quote, "The stroke of God's hand."

Justin: Oh, like you've been—well, to use a different tense, like, struck down?

Sydnee: Yes.

Justin: By God?

Sydnee: That is exactly where the word "stroke" comes from, the concept that you've been struck, as if by some sort of supernatural or religious or higher power being, God, Goddess. Something, some force has struck you, and that is why you have the symptoms.

Justin: You can certainly see, like in Luke Perry's case for example, and of course I don't know anything about his health or what have you, but it certainly seemed to come out of absolutely nowhere.

Sydnee: Mm-hmm. Oh, and they do. Strokes can often, often seem to come out of nowhere. Now, it's one of those things where—

Justin: And younger, too. And like, a younger person.

Sydnee: That's a common myth that it only happens in older people. Um, depending on—especially with various risk factors, obviously it can happen in younger people.

But they can often seem to come out of nowhere. Now, again, I'm gonna give you a lot of things that you can do to empower you to tell you how you might—

Justin: Right, so don't freak out.

Sydnee: —look into the future and see it coming, so you don't feel like you're struck by a higher power. Um, this also reflected this idea that a lot of people started to have, that a stroke was some sort of divine act. A punishment, like a final judgment.

And this idea that a person who had a stroke was somehow responsible for it, or "Ya—ya saw it comin'." Like, that concept was very popular among laypeople, and a lot of physicians for a long time.

There was even the idea of an apoplectic habitus, meaning a certain type of like, body appearance that made one likely to have stroke.

Justin: Made God want to… you know, you can understand it though. Like, that's human nature to wanna ascribe patterns to something that terrible, that seems random. Nobody wants to think that it's, like… you wanna think that there's some reason it happened, right?

Sydnee: Sure.

Justin: Like, "Oh, he was a—he was a douchebag." [laughs]

Sydnee: [laughs]

Justin: "That's where—that's where it all went wrong." But, you know, that's just our nature.

Sydnee: And they blamed it on things that—I mean, a stroke is not unique in this way. A lot of stuff would get blamed on behaviors that were kind of frowned upon at different times in society anyway.

Justin: Yeah, right.

Sydnee: So, uh, so stroke was seen as both a physical and a moral judgment. So if you lived too luxurious a lifestyle, a stroke could be your final judgment, and they would point to things like someone who was overweight, and they would say "Well, obviously you overindulge, and so…"

Justin: "There you go."

Sydnee: I am not saying that this is true of overweight people, but this was the concept at the time. "And so that is why you have had a stroke, is because—you're being punished for this, you know, lux lifestyle that you lead."

Um, they would also point to other things, though. Like, not just something that is that clearly connected. Like, "I think that you have a lot of money, and so you must have more food than me, and so you weigh more than me."

It was also specifically people who had a short neck, a large head, a flat chest, pale skin, and then a hitch in your breathing.

Justin: A hitch in your breathing?

Sydnee: A hitch in your breathing. And that these are people who are more likely to have strokes. Uh, and so that's not necessarily, I think, as clearly connected to luxury.

Justin: No, it just seems like people that get on God's nerves.

Sydnee: [laughs quietly]

Justin: Like, for some reason God's really irritated by people. Like, for me it's people who chew with their mouths open. For God, it's these people with short necks. "Why'd I even make them? Aw, how embarrassing!"

Sydnee: Honey, I hope that God is not annoyed with people with large heads, because…

Justin: Go on.

Sydnee: The McElroy family…

Justin: Go on.

Sydnee: … you all have very large heads. You know where I'm going, I'm not gonna…

Justin: Hm, hm.

Sydnee: I wasn't—there was no nuance, here.

Justin: [exhales heavily] Ooh, first cut is the deepest.

Sydnee: You have given our children—

Justin: [hisses]

Sydnee: You've passed down this gene for large heads to our large-headed daughters. [laughs]

Justin: Et tu, Sydnee?

Sydnee: They're beautiful, perfect heads, but they are large.

Uh, some of this was related to the idea that if you had a big head, you need more blood up there—

Justin: That's true!

Sydnee: —so it made sense that you're more prone to having a shortage of blood up there, because you need so much.

Justin: 'Cause your head needs all the blood. Right, of course.

Sydnee: And so it was just hard to keep up. [laughs]

Justin: Yeah. Makes perfect sense.

Sydnee: Uh, in the—by the 1600s, we had some concept of like, circulation. Like, that blood circulated in the body, that it wasn't just like, constantly generating—

Justin: Sitting in your head.

Sydnee: —and then disappearing and sitting in our head and all that. And, uh, Jakob Wepfer found that patients—that some of his patients who he was examining who had apoplexy had bleeding in the brain, so he actually was doing dissections and found that there was bleeding, and connected these two ideas.

Um, he also found that there were patients that had blockages, so he could actually open up the arteries and see that they were clotted off or blocked off or whatever, and connect this to what we called apoplexy or stroke at the time.

Justin: I don't wanna—I'm sorry, can I sidebar you for a second?

Sydnee: Yeah.

Justin: What year did you say that we discovered about like, regenerating blood? Like—

Sydnee: The 1600s.

Justin: The 1600s?

Sydnee: Uh-huh.

Justin: It's wild to think about. There were 1600—you know you take for granted this stuff, especially with doing this show as much as we have, but like, there were 1600 years—more, I mean, like, 1600 years Anno Domini, but like, add that—for thousands of years in human history where when someone would get cut really bad and the blood would start coming out of the wound, they would look at the blood and be like, "Oh, man! Oh, no! I need that! Oh, no! What am I gonna do?!"

They would talk about it forever. If my dad got cut deeply in the like, 1500s, and lost like, a little bit of blood, he would be talking about it 10 years later. Like—

Sydnee: "My arm still doesn't have enough blood."

Justin: "I'd love to help you move, but half the arm's out—half the blood's out my dang arm!"

Sydnee: [laughs]

Justin: "Can't help!"

Sydnee: Well, and it's interesting because… you always like to find that note that we figured out that the blood circulated in the 1600s, but we continued to use bleeding—

Justin: Love that.

Sydnee: —a person as a treatment for many things, with the idea that like, "Well, there's too much blood here, we need to let some out." Knowing that it circulated by then. So even after the idea had sort of permeated as like, "Well, we think that's true. We're gonna ignore that it's true as we continue to do this treatment that does not work."

Justin: "Let us put it to you this way: we bought leeches in bulk, and [laughing] okay? That's—that's the long and short of it."

Sydnee: And that's the interesting thing is that he—he still recommended—even with all this, he said like, "Well, I saw that there was some bleeding in this one brain, and this person had a stroke, and so it must've been too much blood, so I think the next time somebody has a stroke, you should bleed them. So next time somebody's bleeding in the brain, you should bleed their arm. There you go."

He also did—he thought that the blockages, uh, the reason that those caused strokes is that they blocked animal spirits.

Justin: And he's—but—[singing] And it blocked animal spirits!

Sydnee: [laughs] I thought you'd enjoy that.

Justin: [continues to sing quietly] Got heartfelt lyrics!

Sydnee: In some cases, again, he blamed it on phlegm. It was phlegmatic. It was a cold humor that blocked off the blood. Um, and in those cases he did say, "Don't bleed the patient, cause then they'll die."

Justin: Well, there's that, at least.

Sydnee: Uh-huh.

Justin: That's positive.

Sydnee: And this distinction between different kinds of strokes that they started to make at this point in the 1600s started to lead to different, like, variations in what the treatment would be. Instead of everybody comes in with a stroke and

you bleed them, well, no, this person doesn't need to be bled. This person needs some sort of like… a very common thought was that if it's a blockage stroke, it was probably caused by eating a large meal that you didn't digest all the way, and so some of the treatments—

Justin: Got a chunk of—chunk of roast beast up there blocking the dang blood tubes.

Sydnee: [laughs] So the treatment would be… these are quotes: "A proper stimulating vomit."

Justin: A proper! Not one of these wimpy vomits! Get a real tough guy vomit goin'!

Sydnee: "A warm cordial purge."

Justin: Okay, perfect.

Sydnee: Or, if you prefer the other end, "A stimulating enema should be thrown up the rectum."

I love that they throw them up the—they always say that.

Justin: Throw them up there.

Sydnee: I mean, they don't throw 'em, but I love that they say "Throw 'em up the rectum!"

Justin: Throw them up there like a grandma tossing her Christmas ornaments into the attic. Just toss 'em!

Sydnee: Throw 'em up the rectum.

Justin: Throw 'em up the rectum. Now did we get better at strokes, Syd?

Sydnee: Not quite yet. But before I tell you—

Justin: [laughs]

Sydnee: —more about how bad we were, let's go to the billing department.

Justin: Let's go!

[theme music plays]

Justin: You know, it's tough to find really good people to work at your business. Your business is like your children. You love it more than your children, sometimes, because—

Sydnee: Wait, what? No.

Justin: —because it makes a bunch of money, and you're so successful, and you're in there doin' business every day, and you want someone that's gonna do a business just as good as you do it! And with you. For… the right price, and the person that's gonna help you find that is my cat, scratching on the wall for no reason. No! [laughing] Psyche! It's ZipRecruiter! Why did you think it would be… my—

Sydnee: Our cat probably isn't gonna help you as much.

Justin: —my cat. No, CJ won't do anything to help. Uh, but ZipRecruiter will! It'll send your job to over 100 of the web's leading job boards, but they don't stop there. They got powerful matching technology that'll scan literally thousands of resumes to find the people with the right experience, and invite you to apply for your job. Invite them, even. Not apply you to apply for your job. That would be… quite the failing [laughing] of ZipRecruiter's matching.

Sydnee: Other—other people that aren't you.

Justin: Yeah. It's so effective that 80% of employers who post on ZipRecruiter get a quality candidate through the site within the first day.

Sydnee: And right now, our listeners can try ZipRecruiter for free at—

Justin: Free?!

Sydnee: Free! At this exlusib—exclusive—[laughs]

Justin: Exclusib? Hatchi matchi—

Sydnee: [crosstalk] Exclusive—

Justin: —it's been a long day over here at Casa McElroy, folks.

Sydnee: Mm. For free at this exclusive web address!

Justin: Exclu-sive, or…

Sydnee: Exclu… [grumbles] ziprecruiter.com/sawbones. That's ziprecruiter.com/sawbones, S-A-W-B-O-N-E-S. ZipRecruiter: the smartest way to hire.

Justin: Let's say you have a great idea. Let's say you have the idea that everybody should start saying "exclusib" instead of "exclusive."

Sydnee: [wheezes]

Justin: Well, good news. You can make a site about it! Uh, with the help of your friends at Squarespace. They're gonna take that cool idea, they're gonna help you turn in into a website where you can—

Sydnee: That's called "exclusib." No, just hear me out. [laughs]

Justin: Listen. Dot com, dot org, dot gov. Uh, you can turn that idea into a website as you blog or publish content. You could sell products like a t-shirt that says "exclusib" on it.

Sydnee: [laughs quietly]

Justin: And more. And, uh, how does Squarespace do it? Well, they're gonna give you beautiful, customizable templates, created by world class designers. Everything's optimized for mobile right out of the box. There's a new way to buy domains and choose from over 200 extensions! It's fantastic, folks. Head over to squarespace.com/sawbones for a free trial. And when you're ready to launch, use the offer code "sawbones" to save 10% off your first purchase of a website or domain!

So, uh, I understood we are about to still be bad at strokes. Is that correct?

Sydnee: We're moving forward. This connection between diet and stroke, the idea that, um, you could somehow… because we still didn't have great treatments for stroke, so there was a lot of focus on, these seem to come out of nowhere, we have no idea why, a lot of the lay community was still seeing it as like, some sort of magical, supernatural, divine event. Uh, physicians did not feel that way, but they didn't have any better ideas.

So, I just like this one specific… here are some things to avoid: a diet of high seasoned meats, poignant sauces—

Justin: Poignant sauces!

Sydnee: Poignant sauces.

Justin: I love that! It's like reading Zagat's.

Sydnee: And plenty of rich wines. The finest wines known to humanity, you might say.

Justin: The finest wines known to humanity!

Sydnee: Uh, and if you eat that way, they will heighten the contractions of the vital organs, inflame the blood, fire the passions, and render the nerves extremely elastic. And when the nerves of the vital organs are wound up to the highest stretch they can bear, then the least higher impulse from either a sudden change or setting into a thorough debauch—

Justin: [laughing] A thorough debauch!

Sydnee: —may crank those noble springs of life, extremely disconcert their action, and put an everlasting stop to all their motions.

None of this is accurate, but man.

Justin: No, but it sounds good.

Sydnee: It's beautiful, isn't it?

Justin: Thorough debauch is so good.

Sydnee: A thorough debauch.

Justin: That's an album title waiting to happen. Next time when you're about to send out your wedding invites, just say it'll be a thorough debauch.

Sydnee: Can you see that—I wish our wedding invites had said "Please join us for a diet of high seasoned meats, poignant sauces, plenty of rich wines, followed by a thorough debauch." You're welcome, by the way.

Justin: You're welcome.

Sydnee: For whoever—I know somebody's stealing that. You're welcome. [laughs]

Justin: You're welcome.

Sydnee: So, they thought a temperate life was the way to go. So they would tell people, "Don't eat rich foods, don't have sex, don't get too excited, watch your physical exertion, don't smoke. Violent passions of the mind, cold weather, tight clothing around the neck, constipation, and everything in the least bit flatulent should be avoided."

Justin: [laughs]

Sydnee: Things really turned around for us in the late 1800s with the development of the sphygmomanometer.

Justin: Yes. That is the blood pressure cuff.

Sydnee: Very good, Justin.

Justin: Yeah!

Sydnee: That's right. We could begin to measure blood pressure, which was a big deal, 'cause we'd always had this concept of like, high blood, but we didn't really know what that meant. And so, we could diagnose hypertension, and then we started to notice an association between hypertension and strokes that a lot of patients who had strokes had high blood pressure. And this fit with this kind of already idea that you have too much blood or too much impulse or excitement.

That wasn't quite correct, but they liked that. That was embraced, because it seemed to fit that concept.

The treatment was still just to bleed the patient and relieve the pressure, but at least we were on the right track. There were a lot more dissections being performed in the 18 to 1900s, and that also helped with the concept of what caused a stroke, because then they started to see what we now know was cerebrovascular disease, so plaque building up in the arteries in the brain. You know, blockages in the arteries in the brain. Just like we saw in the heart, cardiovascular disease. Same idea.

We saw this in the brain, and that term, CVD, cerebrovascular disease, started to be used, so we knew that this was… this was the kind of condition that led to a lot of strokes. Not all strokes, but we knew that this was responsible for a lot of strokes.

In the late 1800s, surgeons began… actually, not in the late 1800s, in the early 1800s, surgeons began performing a surgery on the carotid arteries to try to clean out a lot of the blockages that they thought were responsible for strokes, which are, I should say, responsible for some strokes.

They thought that there were like, plaques and clots and things building up in there, the major arteries in your neck that supply blood to your brain, and so they started doing something that was called a carotid endarterectomy where they kind of went in and scraped out and cleaned out those blood vessels to try to prevent strokes. Um, but we still didn't have a lot of treatments on the back end once strokes occurred.

It was actually, by the way, 1935 before bloodletting was formally removed as a treatment for strokes.

Justin: Sheesh.

Sydnee: 1935.

Justin: That's wild.

Sydnee: That's was when it was taken out of like, the manuals as a treatment for stroke.

Justin: That's wild.

Sydnee: I don't know how many people were still doing it at that point, but it was still on the books.

Justin: Wow.

Sydnee: Um, in the 1900s we really started to focus on the causes of strokes, the treatment, what can we do? Because people still felt pretty helpless, you know? They had some ideas. High blood pressure seemed to be connected, smoking—people were still kind of putting that together, even though nobody knew why. It was more of one of those like, moral things before, like, "Don't live a wild life of smokin' and drinkin' and dancin' with the ladies!" But…

Justin: That'll kill you.

Sydnee: Some of those things were actually accurate. [laughs]

Justin: Right.

Sydnee: Um, in 1928 apoplexy was formally divided into the categories that we kind of already alluded to, the ischemic stroke and the hemorrhagic stroke, and they started to figure out like, what could cause when and the other.

And, uh, we started calling things CVAs or cerebrovascular accidents at this point. Um, instead of apoplexy.

Justin: Accidents is not—accidents I feel like is not a word that you all use a lot. Accident? You know what I mean? It's not—

Sydnee: We say CVA all the time, though.

Justin: It's wild, though. Like, you don't say "accident." It's just a—it doesn't make a very medical term, right?

Sydnee: That's true. I can see that. Well, but it sounds better than apoplexy, and it sounds better than stroke.

Justin: Yeah, but it's weird because if it's medical, it's not an accident, is it? I mean it's like—it's an inaccurate term, I think is what bothers me, because it

didn't happen by accident. It happened because of the specific conditions in the body that created that situation.

Sydnee: Well, your brain didn't mean to lose blood flow, and…

Justin: Yeah, but like, that's like saying, like… that's like saying tooting is like a gas accident, 'cause you're body didn't mean to make toots. Like, well, no, you just—it's how it works. That's what happens.

Sydnee: Well, but that's—okay, you're also talking about physiology versus pathology.

Justin: Okay. I'm making an incredible—

Sydnee: It is—I get that it's a weird—

Justin: —captivating point.

Sydnee: It is a weird name, and I saw that term used in a lot of even like, medical journals, brain attack? To like, get people to call it that instead of stroke or CVA?

Justin: Brain attack is another great—that's two great album titles from this episode alone, y'all!

Sydnee: Uh, throughout the 1900s we developed angiography, so where we can kind of inject dye into a system of blood vessels and then look at them, you know, using radiology equipment. We can look at all the blood vessels and see where the blockages are.

Justin: Okay.

Sydnee: And that was a huge advancement in stroke, 'cause then you can actually see that a stroke has occurred. That's available through like, CT angiograms, so a CT machine, a CAT scan machine with angiography, or you can do it with an MRI, now. We do this as well.

Um, and then things like blood thinners became part of the equation, too, because we figured out that clots were responsible for some of these.

And then finally in 1996, what a lot of people refer to as "the clot buster—" have you heard of that before?

Justin: I've heard you say it, yeah.

Sydnee: Clot buster? So this is TPA, tissue plasminogen activator. It's a medication that breaks up blood clots, and it was a big breakthrough for the treatment of strokes.

Because again, up to this point we didn't have a ton of stuff to do on the back end. We had some ideas about how to prevent them, but how to treat them… we still were kind of clueless.

TPA was a big advancement, but TPA is not used in all cases of stroke. In fact, I don't see it used very often in my clinical experience, because you have to get there pretty quickly for the benefits of it to outweigh the risk.

In a lot of cases, if you're not there within 4 hours of when the symptoms began, you're outside the window. You're not even a candidate for TPA. And it's just because of the risks. It's not like, a mean thing. It's just—there are very specific… so, when you administer TPA, you risk that it's gonna break up a bunch of clots and cause a bunch of bleeding, and bleeding is bad.

Justin: Oh, right, right.

Sydnee: In the brain. Which you could guess. Bleeding is very bad. Uh, so you're going to take that risk, so you wanna make sure that the benefits are all there, and in a lot of patients the risks far outweigh the benefits, so you can't use it.

So it is a good advancement and it has saved a lot of probably lives and function, but it's not for everybody.

Justin: Sure.

Sydnee: There's also what we call thrombectomy where you can go in and remove the clot. Like, actually mechanically remove it, which again, as you could imagine, is a high risk procedure. You have to have specialists of specialists to do this. Um, and so you gotta be at a stroke center where they can perform this, but

it is, again, can be life saving and function saving. You know, quality of life saving, if it is the right patient in the right place at the right time.

But all of this, again, depends on being at the hospital quickly, which is why one of the best things you can do is know the signs and symptoms of a stroke so that if they're occurring, you can get somebody… hopefully to a stroke center as fast as possible, but at the very least to a hospital as fast as possible.

Justin: So what are those signs and symptoms, Syd?

Sydnee: FAST is the easiest thing to remember. You know what that stands for?

Justin: I—man… I was gonna tell you FAST, 'cause I knew FAST.

Sydnee: Well, you tell me FAST then.

Justin: Facial drooping.

Sydnee: Mm-hmm. So look for the person's face to be asymmetrical, like the corner of their mouth drooping.

Justin: Acting weird.

Sydnee: No.

Justin: Ah—

Sydnee: Ah—

Justin: Awning—

Sydnee: Arm?

Justin: Alarming?

Sydnee: Arm?

Justin: Arm numbness.

Sydnee: No—well, I mean, that would be concerning, but—

Justin: I'm just gonna confuse people. Just tell people what it is.

Sydnee: Have them hold their arms up.

Justin: Okay.

Sydnee: Can they not—like, does one drift or drop?

Justin: Okay, so what's that? Just "arm?"

Sydnee: Arm.

Justin: Okay.

Sydnee: Yeah. [laughs quietly]

Justin: So facial drooping, arm—

Sydnee: [laughing] Did you really not know?

Justin: Facial drooping, arm. What's the S?

Sydnee: You got the next one? C'mon.

Justin: Wait. Stroke.

Sydnee: Justin…

Justin: Facial drooping, arm—

Sydnee: Speech.

Justin: Speech, right, all right.

Sydnee: Is their speech slurred? Ask 'em to talk to you.

Justin: T is talking?

Sydnee: Time.

Justin: Time.

Sydnee: To remind you that… I mean, it's just like—you know with heart attacks, they always say "time is muscle." Everybody always remembers that, right? "Time is muscle, time is muscle, you gotta get 'em in there, 'cause the longer you wait the more muscle they're losing."

It's the same idea with a stroke. The longer that those brain cells are deprived of blood flow, deprived of blood flow and therefore oxygen, the more damage is being done, so the faster you get somebody to the hospital—

Justin: The better.

Sydnee: —the better, and the more function they have the chance to regain. So, the big this is, as soon as you recognize any of these signs or symptoms in yourself or somebody else, get thee to a hospital.

And again, you can have—those are like, the big things to look for, but that you have can have other kind of strange symptoms, particularly in women. Women, just like with heart attacks, can present differently. Women with strokes are likely to present a little differently. So if somebody just passes out out of the blue, or becomes violently ill out of nowhere and is confused and maybe like, hallucinating, anything like that, anything out of the normal, out of the norm like that, it's best to go get checked out as quickly as possible, and to know when the symptoms started.

Keeping track of that exact time… if you see somebody and you think they're having a stroke, look at the clock as you call 911. Don't hesitate from calling 911, but look at the clock while you're doing it so that you can tell that EMT, "The symptoms started at this time," because the doctor at the stroke center needs to know that exact time.

Justin: Is that what the T stands for, maybe?

Sydnee: Time, that's what I said.

Justin: Like, check the time? [pauses] Like, remind you to do that, maybe?

Sydnee: Oh, maybe it is.

Justin: I guess it could go either way, I mean—

Sydnee: Yeah, I bet you're right. It does—

Justin: —listen, folks, time's important, okay?

Sydnee: In all fairness, I don't really use the FAST thing a lot. [laughs]

Justin: You're just like, a doctor. You just like, doctor it.

Sydnee: [laughing] I just like, look and go "Ah, you're having a stroke, call 911!" But like, yeah, actually, time. Note the time, um—

Justin: Let's go over it again. Can we go over it again? 'Cause I was interrupted a lot.

Sydnee: Face.

Justin: Facial drooping. Face, face drooping.

Sydnee: Uh-huh. Look at their face. Do you see asymmetry? They're drooping. Arm, have them hold their arms up. Can they not lift one arm? Is one arm drifting? Is one arm drooping? Does it appear there's weakness in an arm? Speech, ask them to talk to you. Does it sound slurred? And time, note the time. What time is it that these symptoms started? And then move quickly. Call 911, and then convey that time to the EMT.

And yeah, call 911. Don't—I mean, don't drive them. Certainly don't drive yourself. [laughs quietly]

Justin: No, what?! No!

Sydnee: Hey, listen. You never know.

Justin: I'm sure stranger things have happened.

Sydnee: Um, and some things you can do outside of recognizing the signs and symptoms and getting somebody to the hospital as fast as possible so they have every opportunity for treatment that is available to them, which again, depends

on your medical conditions and your history and your background and all that. So it's not that clear cut, but get them to the hospital.

As I said, 80% of strokes can be preventable, so there is a lot you can do. Stuff that we know. As I mentioned, smoking is a big risk factor for stroke. You shouldn't smoke. It's bad for you. Um, you shouldn't drink to excess. That's a risk factor for strokes. A healthier diet, one, a balanced diet, plenty of fruits and vegetables, leaner meats. That is an important—more and more a plant-based diet is really what a lot of medical people will tell you to lean towards. I'm not willing to give up my proteins, but I will stick with lean proteins, a lot of the time.

Exercise. Regular cardiovascular exercise is important. Physical activity, every day. It's good for your heart, it's good for your brain, it's good for your body, it's good for your lungs, it's good for your sleep, it's good for your mood. It's good for your, uh, cognition. All that stuff.

Also, if you see a doctor regularly so you can be diagnosed and managed for conditions like diabetes, which is a risk factor for stroke. High blood pressure, which is a risk factor for stroke, and something called atrial fibrillation, which is when your heart beats abnormally. The top part of your heart, the atrium, kind of flutters—or fibrillates, I shouldn't say flutter. That's a whole other thing. Fibrillates, it kind of quivers. That's a good word.

And it can—you can get blood clots forming there, because it sort of quivers and the blood clots and just kind of hangs out, and those little clots can shoot up to your brain and cause strokes.

So, if you're having chest pain or palpitations where you feel your heart pounding and fluttering and it feels weird and you don't know why, anything like that, go get checked out!

Justin: Perfect.

Sydnee: If you have a history of that, tell your doctor. These are all things that you can have managed to avoid the outcome of a stroke, um, hopefully. And again, women—it is women's history month, so I'd like to mention this. Women have a higher rate of stroke, because of some extra risk factors that can occur.

People who can become pregnant, people who take hormone replacement therapy, people who take oral contraceptives, um, and people who have migraines with

aura, all of these things are extra risk factors for stroke, and stroke kills twice as many women as breast cancer each year.

And I think it's important to say something like that, because I think we all are a little more aware and like, cognizant, if we are people who are risk for breast cancer, that we need certain screening and testing, and like, that's kind of in our minds. But stroke isn't always necessarily there, at that same level. But these are things that you can be preventing, you can have managed, you can do things to help avoid a stroke in many—not all, but many cases.

So, do those things. Get to your doctor. Know the signs and symptoms, and if you see them occurring, get somebody help as fast as possible, and know that time so you can tell that EMT, ER doctor, emergency room nurse, whoever you talk to, what that time is. Take care of yourselves.

Justin: Well, take care of yourselves, folks, and take care of each other. Thank you so much for listening to our program. Thanks to The Taxpayers for the use of our song Medicines. Their song, I guess you could even say.

Sydnee: Yeah, it's not our song. It's their song.

Justin: It's not out song, it's their song. Uh, but it's called Medicines—

Sydnee: We borrow it. [laughs]

Justin: —and we use it as the intro and outro of our program, and thanks to the Maximum Fun Network for having us on. Max Fun Drive, just around the corner. Get there! It's gonna be fun. And, um, that's gonna do it for us for this week, so until next time, my name is Justin McElroy.

Sydnee: I'm Sydnee McElroy.

Justin: And as always, don't drill a hole in your head!

[theme music plays]

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