

**ANDREW RAY:** What I'm going to present to you today is really a takeoff of what Mary, Dr. Platek, just presented when she's talking about malnutrition, cachexia, and sarcopenia. I'm more into the functional status and the frailty performance of these patients. Disclosures-- I work at Roswell Park. I'm a physical therapist there. But I also do a lot of research.

I'm going to tell you this briefly. What I did-- I went to Dr. Sing a few-- oh god, a little while ago. And I said I have a student project I'd really like to do. I'd like to characterize the frailty and the functional status of your patients before and after treatment.

Now, In disclosure, a lot of these patients are the same ones that Mary just talked about. I have oral cancer patients and some head and neck mixed in there. Just so you know, the disease site didn't affect our statistics and results and/or age of these patients didn't have an impact on their results. So I'm putting them all together for us.

So I looked at two tests. The short physical performance battery, which is made up of three specific tests-- balance, where we ask them to put their feet together semi tandem and tandem. And they get points on how well they can do this.

We also look at the gait speed-- really simple test. We have a patient walk about four meters. We time how quickly they can do that. Gait speed is really important because the slower patients walk, it's actually indicative of an increase in morbidity and mortality.

So on the last one is the sit-to-stand measure of strength. We ask him to cross their arms across their chest-- stand up five times as quickly as we can.

And the last thing-- the other thing we did was we looked at the Fried Frailty Criteria which is five criteria. We looked to see if they lost body weight. We asked them in the last-- actually six months, have you lost greater than 10% your body weight.

We look at their gait speed. If it's slow, they fail that criteria. We look at their grip strength for overall strength. There are certain cut offs that we have for a designation if someone did well or didn't do well. And we asked them a couple of-- we have a couple of questionnaires that look at exhaustion, fatigue, and physical activity.

So if they pass all those things and they have zero out of five, they're considered robust. If they fail one to two of those, they're considered in a pre-frail state which is important. If they failed greater than three of those, they move on to be what's considered frail. And once you become frail, you're at increased risk for hospitalization, increased medical costs, reduced quality of life, and everything that goes along with that.

So real quickly, I had 51 pairs that we added into this data. Roughly half of them are oral cancer. Roughly males-- and you could see the smoking status and the age. Most importantly, you could see they lost body weight and their BMI decreased significantly throughout the treatment. And roughly 20% to 25% of these patients had surgery prior to their treatment.

So with the short physical performance battery, what I didn't tell you is each one of those three things is scored on a four point scale. The higher you do, the better you are. So the higher the points, the better off.

The total points significantly reduced from a little over 10 to slightly under nine or right around nine. And that was significantly different. And if we look at where they lost points, it was in gait speed. They slowed up. And like I said to you before, the slower your gait speed, it's actually more indicative of hospitalization and other issues.

Sit-to-stand-- they didn't necessarily change our lower extremity strength. Which I thought they may based on Dr. Platek's data where she's showing the malnutrition, the sarcopenia. But that didn't change.

But importantly, balance worsened which didn't necessarily surprise me. But fall risk is a really important issue with these patients in preventing the fall from happening.

So here's the deal, I got this yellow line right here. That yellow line is at nine. Nine is the cut point for that. If you scored nine or below on this scale, your chances of morbidity and mortality go up drastically. In breast cancer women-- I know it's not head and neck, but their survival goes down tremendously if they score below nine on this scale.

And at the end of this, you could see. We were right about nine which is very important for a therapist in ways that we can intervene. We can potentially affect some of this.

Frailty-- this was the interesting part. This is what I think is really kind of cool and interesting to try and characterize patients this way. We have a robust, pre-frail, and frail at the beginning and the end of treatment-- the beginning in blue and the red.

As you can see the important part here-- I'm sorry I can't push, at the end of treatment, the majority of patients became frail. And again, when I told you when they become frail, that means the chances of readmission or hospitalization goes up drastically.

Why do they become frail is the question. Weight loss in the middle- this is a percentage of patients. Of course, a great percentage of patients lose body weight. I think we all know that.

Interesting part-- gait speed, like I said before, didn't necessarily become significantly different. It's close. Physical activity-- they all became very sedentary. And this is where, as a physical therapist, I think I can intervene on a whole body level.

Along with the decrease of physical activity, they became exhausted. And that's an important part because they're fatigued. We know that happens through treatment. Interesting again-- grip strength didn't change.

But if I can affect physical activity, I may be able to affect gait speed. I may be able to affect exhaustion. And that's the way I look at that as the PT.

Real quickly, we looked at their activities of daily living too-- bathing, dressing, eating, toileting, et cetera. And we looked at their instrumental activities of daily living. ADLs didn't really change.

IADLs-- what was really interesting to me is I didn't expect this to happen. But they became dependent on a caregiver for a majority of these tasks. And it's basically, if you're dependent, you needed help on one of those things.

So all those higher order functional tasks, these patients became dependent on a caregiver. And that's hard to see here. I'm just going to tell you there real quickly. In the post treatment phase, as the patients became more dependent-- as they became more frail, they became more dependent.

And they were counting on their caregiver to do more of their daily activities for them. And this is a big deal because that adds a lot of stress to a caregiver. And these are things that we might be able to intervene sooner to prevent.

So what I didn't say-- the ultimate goal if I was writing an NIH grant would be how can we identify which patients are going to become frail up front and what can we do to prevent it. And that's what we're working towards. This is more of a global scale as compared to the nice talk by the speech language pathologist. And that is it. Thank you.