

**MARY PLATEK:** Thank you for inviting me to come here and talk to you about nutritional status which is extraordinarily important in head and neck patients overall particularly in oral cavity cancer patients.

These are my disclosures.

And so today I think we can all agree that these patients are at high risk for malnutrition, sarcopenia, perhaps even cachexia. So what do I mean? I mean malnutrition. There's some sort of imbalance between nutritional intake and nutritional needs or nutritional utilization within the body.

Sarcopenia-- that relates to muscle mass loss. And cachexia is essentially a wasting syndrome where we may see lean body mass loss. But we also may see fat loss.

And what we know from the literature, various studies-- is that any one of these, malnutrition in particular, is going to be evident in those that have advanced stage disease. In particular, we see it among head and neck cancer patients. And for sure, something that can predict higher risk for these syndromes would be multi-modal therapy.

So in the case of oral cavity cancer patients, they're receiving surgery. And for advanced stage oral cavity cancer, they're also going to receive radiation therapy.

So I'm here to tell you a bit of a story. So that's the under infrastructure. And there are limitations and obstacles as to why we're not exactly where we need to be to manage or prevent some of these syndromes.

Out of all those three things I talked about-- malnutrition, sarcopenia, and cachexia, there's a link. And the link is truly unintentional weight loss.

So one of our limitations in dealing with this or finding how to even prevent this is that we have-- we do not have universally accepted operational definitions. We have non-standardized screening. And, quite frankly, we have limited availability of the registered dietician nutritionists in the outpatient setting.

We have a paper-- I work with a national group. The paper's in press at the moment. And we did a survey of 215 cancer centers across the United States. And the availability of a registered dietician in outpatient setting is one to every 2,300 patients.

So as I said, the one thing that we know that links those three syndromes is unintentional weight loss. And so another problem is who's presenting and how they present. So here's the typical grid that we use as dieticians to put people in-- classify them as either having a significant weight loss or a severe weight loss and then figure out treatment from there.

However, this is what we have now. During the course of the time that I've been working with these patients, very few show up underweight. Very few show up normal weight. So we have a high prevalence in society as it is, but also within our cancer patients-- a very high prevalence of overweight and obesity.

And to go back to the grid that we use to identify people who are in need to see a dietician, we really have unclear definition of clinically significant weight loss in this particular population. What we do know is that levels of BMI associated with lower survival are highly variable.

We also know that you lose weight but we don't all lose weight in the same way. So some people might have more fat loss. Some people may have more of a muscle loss. So if we think of sarcopenia as a severe muscle depletion, that has been shown in the literature to be an independently prognostic of low survival in obese patients with cancer.

So here's a pictorial of three patients who fit the three different classifications of weight-- underweight, overweight, and obese. But they all have the same amount of muscle mass. And so when we look at obese patients who have sarcopenia compared to obese patients who do not have sarcopenia, those with sarcopenia have inferior survival.

So I'm going to just talk to you-- I'm going to give you some results of a study that I've been doing. We really do not have prevalence of malnutrition in our outpatient clinic patients. And so I have been using a short form of a malnutrition risk screener that's validated for this population.

People are asked questions about weight, food intake, symptoms, activities and function, and they get a total score. That total score it leads to an algorithm. So it's scored algorithm as to how to interact with this patient-- whatever your score is.

Started it in June 2017-- I have information through July 2019. Right now, what I analyzed is 200 pairs. We're getting close to 300 pairs. Population looks like a typical head neck population with mostly males-- Caucasians in our population at our Roswell, primary tumors for the most part, squamous cell carcinoma, or pharyngeal pharynx patients with 12 percent being oral cavity, 68% of them overweight and obese.

When we look at pretreatment-- so we do the scoring pretreatment and end treatment at radiation time. When we look, first treatment they score in as 22% being in critical need for an intervention. By last treatment, 76% are critical. 85% of them never saw a dietician.

I restricted the sample to the people we're talking about today. That was about 23 pairs of people-- about 11.5% of the population of the 200 male, white, primary tumors, squamous cell carcinoma. So 83% of these are receiving adjuvant with their surgery and, for the most part, surgery and CCRT or concurrent chemoradiation or surgery and radiation.

So this is a little bit busy, but because I'm in a hurry-- so on the top are where the questions were. So there were weight questions, food questions, symptoms, et cetera. Total score is where I want your eye to go.

Beginning of treatment, end of treatment-- there are differences. In fact, the average total difference is significant at an increase of 6.3 points. It was a significant difference for food symptom scores.

And, in particular, I want to tell you what patients complain about. For the most part, it is pain. It is mouth sores. It is extreme fatigue. It is having no appetite. It is feeling full awfully quickly and difficulty swallowing.

So an interpretation here-- out of our oral cavity patients is about 26%, or critical need, at the beginning of treatment, and up to 78% needed help by the end of treatment.

17% of them did see an RD. And that is because those were in hospital consultations. Because our RDs are supplied in the hospital-- that's where they're staffed. And they all had surgery. So they were seen. And some of them had peg tubes.

When I look at nutrition support via chart review, we had about 65% who actually weren't taking in any special type of nutrition. We see unplanned hospitalizations among these 23 pairs. Five of them had one unplanned hospitalization. Two out of the five had two unplanned hospitalizations with a mean length of stay of 6.25 days.

Sarcopenia-- what we're doing now, and what we're going to do with our patients very quickly, is that we're using clinically available CT scans. So these are full body PET scans before and after radiation treatment. And we're estimating muscle mass.

We did it in a very small group. So we had 14. We had nine men. And if we just look at the sarcopenia-- and the muscle attenuation is poor muscle quality here. So at the end of radiation treatment, 33% screen in for sarcopenia when they only had one before. And we have 22% who screen in for poor muscle quality.

If we look at women-- we have to look at men and women separately. We see that women actually started out before their treatment screening in for sarcopenia. And they remained the same-- and the same thing with muscle quality.

So women-- a little different, very small sample. It was just a pilot to see if indeed we could do this because I work with colleagues in Canada who are the world experts in doing this estimation. And we needed to send them scans.

So here's where we need to be. If I'm going to be effective because I am a dietician, I need anabolic competence. I need to be able to predict when this spot is. I need to be present in the clinic.

And so if we figure-- when we look at the literature for dieticians, we need a dietician to interact with the patient somewhere between seven and eight times over a four to five month period. And that means a better patient ratio of one RDN to every 120 patients.

And what I want to bring out, because Dr. Andrew Ray is going to come out right now, is for every one of these, they had decreased in function. So important message, because I have no time to tell you my entire spiel, is diet with exercise is going to be key in the rehabilitation of these patients. All of that goes along with a comprehensive dysphasia program.