Introducing R-MAPP: a remote screening tool to identify nutritional risk & loss of muscle mass & function in adult patients

Featuring : Ione de Brito-Ashurst, RD, PhD

TRANSCRIPT

Imogen: Hello and welcome to the Abbott Nutrition Health Institute podcasts. I'm Imogen Watson and I'm here today on a call with Dr. Ione de-Brito-Ashurst, Head of Therapies & Rehabilitation at the Royal Marsden NHS Foundation Trust in London. Today we'll be discussing the Remote Malnutrition Application for Primary Practice, also known as RMAPP.

RMAPP is a simple remote screening tool developed by a group of European clinical nutrition experts to screen patients for malnutrition and sarcopenia. It was developed during the COVID-19 pandemic to ensure that every patient has access to nutritional care as part of primary healthcare services, even if social distancing measures are adopted. This tool can also be used moving forward, beyond the COVID-19 pandemic, to screen patients for malnutrition and muscle loss, ensuring appropriate nutritional interventions are in place to improve outcomes.

Imogen: Ione, in your experience, how has COVID-19 changed the healthcare landscape?

Dr de Brito-Ashurst: Okay, so we know that COVID has changed the healthcare landscape. And in an effort to deal with this unprecedented situation, the healthcare world had to just switch from face to face to virtual care. And this was essentially not just to protect our staff, but also to make sure that we continue providing care not only to the COVID patients, but to all of our other patients as well in the community. So, the use of virtual healthcare is now acknowledged and recommended by WHO and it is becoming the adopted model of care by NHS England. This is a model that I think is here to stay. So for patients it is a far better model. They don't need to travel, they don't need to wait for transport. For healthcare professionals as well, it's a model that we can see the benefits. So, basically is a patient centred approach that is cost effective.

Imogen: Can you outline the continuing significance of malnutrition and explain the consequences?

Dr de Brito-Ashurst: This is a global, costly problem that is unfortunately often neglected and overlooked. In the UK at any point in time, more than 3 million people are malnourished or at risk of malnutrition, and the cost is staggering - nearly £20 billion to England. The consequences of malnutrition are devastating and one of the main consequences is muscle loss and with muscle loss, a lot comes with it. You know, you have frailty, you have morbidity, you have a high risk of mortality, you have a decline in mobility, you have a decline in function. You also have an impaired ability for wound healing, you have a compromised immune system from malnutrition, it also affects hydration status, temperature regulation, you know, mental health problems. With that loss of muscle mass, that frailty, you have a high risk of pressure ulcer, you have deconditioning. And if your patient is a cancer patient, for instance, then there is that high risk of toxicity from anti-cancer treatments.

Imogen: What are the causes of malnutrition and muscle loss?

Dr de Brito-Ashurst: The causes of malnutrition and muscle loss, several causes together. One of them is reduced dietary intake, and that reduced dietary intake can be simply a poor appetite. It can be psychosocial, depression, or even financial; the patient does not have the means to buy foods. But it can be from poor absorption, you know, the gut being affected by the clinical condition, it can be from increased requirements if the patient has some form of illness, leads to catabolism. So, requirements are increased, you have an increased energy expenditure, so all of those are going to lead to malnutrition and muscle loss. But what can be as well, you know, that reduced dietary intake, it could be because the patient is not given the adequate nutrition, is not just that they are not eating enough, is that that plan, that nutrition care plan for the patient is not really addressing their needs, is not fulfilling all their needs. So, in looking at their dietary intake, making a care plan that suits your patient, that addresses all your patient needs is extremely important.

Imogen: Ione, we've just talked about the rise of telemedicine. RMAPP is a new screening tool that can be used in remote consultations. Can you tell us a bit more about the protocol and how it can be used?

Dr de Brito-Ashurst: OK**,** So what do we want from a nutrition-screening tool? You want something that is simple, you want something that is easy to use, you want something that is quick to use, but you want a tool that is validated, you want a tool that is reliable, and that your results are reproducible.

So basically, the tool has three clear sections. A step approach to assessing the patients remotely, through video or through phone. And the sections are, first you have a setup like with any virtual clinic, you need to set up, you need to make sure that, you know, you are connecting with the patient, that your patient is there. And then, in that first section as well, we're going to see what is the clinical condition of your patient? Specific conditions will affect patients in different ways, will cause the loss of some types of nutrients. So it's really important that we establish what is the condition that the patient has.

Then the second part is about the examination. And, what they have here in this app is two validated tools. We have the malnutrition tool; we know all healthcare professionals know of this tool, widely used in the UK, validated, reproducible, reliable. Is that tool that tells us if the patient is at risk of malnutrition or not. And in addition to that, this group decided to add a sarcopenia screening tool and this is to look specifically at muscle mass and muscle strength, giving us an idea of what's happening in relation to muscle strength and muscle loss.

So, first part of any virtual consultation, is make sure that your patient is suitable for that consultation. You know, some patients are not suitable for virtual consultation, so we need to establish that.

So that first step we've covered, it is now about examination. And, we said in the examination, we have the MUST, well-known tool in the UK and abroad. And we have the sarcopenia screening test. The MUST, what we have here are three sections. We're looking at BMI, and then we give a score in relation to that BMI. So that MUST was adapted a little bit, but essentially, what the MUST stands for is to hear what is the usual weight of the patient. And again, you give a score to that and you look if the patient's nutritional intake has been affected, and you give a score to that. And then you add all of those scores together to calculate your overall risk of malnutrition; zero for low risk, one for medium risk, and two or more for very high risk.

Now, the second part that you have is the sarcopenia screening test. And what they say is that if the MUST score is above one or more then your patient has one or more malnutrition risk factors, and you should check for sarcopenia. I would say I will check for sarcopenia for every single patient even if your MUST score is zero, because this is looking at muscle loss, is just not looking at malnutrition, at the weight, is looking specifically at muscle strength, at muscle function. So, I would do the sarcopenia screening test for every single one of your patients.

Dr de Brito-Ashurst: Very simple to use, you know, some very simple questions. The first one is about strength, asking about the patient's difficulty to lift and carry 4.5 kilos. Assistance with walking, how much difficulty do you have walking across the room? So you need to establish a score for that, for the patient as well. Rise from the chair, how much difficulty the patient is having transferring from a chair to bed, climbing a flight of 10 stairs, you know the difficulty that patients have and then falls, you know, number of falls. So you're going to add all of those scores in, if your score is equal to or greater than four, it is predictive of sarcopenia.

Imogen: And what are the recommendations following the examination?

Dr de Brito-Ashurst: OK, so we've done the examination, now we are onto that part that is about deciding and acting on it. So we know that if the MUST score is equal to one or zero, and SARC-F is below 4 then the patient is not at risk of malnutrition. And, it's about observing and repeating the screening. And I will say, repeat this screening, follow the policy for your institution, if it's weekly, if it's monthly, so you need to repeat that to make sure we are monitoring the patient.

That MUST score is 2 or above and/or the SARC-F is 4 or above, then your patient is obviously at high risk of malnutrition. So, we need to think of eating for that patient, we need to think of a care plan that is going to address those patient's needs, we need to think of what supplements we want to give to the patient to support that. And we should not neglect physical activity. Physical activity and proteins work beautifully together. So we should always have those together, if we can. And then what is provided here for you as well is requirements, just generic requirements for the patient. So 25 to 35 calories, proteins over 1 gram per kilo a day and micronutrients to meet daily recommendations. The patients, they don't need more than a normal adult in the community unless there are losses, and they need replacing.

Imogen: And how do you download R-MAPP?

Dr de Brito-Ashurst: So, to download, very easy, I did that myself, you know. You go to www.rmapptool.com and you will find R-MAPP and well, you will see is just picture there in the phone, you then press the start. And when you press the start, you're given the option of saving the app as an icon on your phone, or you know, your computer, your tablet. So you can click into this option and then save the icon there so it would be easier to access.

Basically, this protocol was made into an app to really support this new digital era, to really support the remote screening of the patient. The app is going to enable you to save the results as a PDF. You know the app does not store any patient data, really important as well to tell you that Abbott does not have access at any point to that patient data that we're entering.

Imogen: How can you assess nutritional status and muscle mass and function, particularly in a virtual consultation?

Dr de Brito-Ashurst: So, we know there are several ways to assess a patient's nutritional status. We know that the most common way is BMI, is the loss of mass, is the loss of weight. I'm sure you all know as well that weight *per se* does not tell us a lot really. You can have a patient that has a BMI of 30, but is unable to do a six minute walk test, is unable to do a sit to stand test, is not very mobile, doesn't have much strength, you know, when a hand grip strength would be very poor, so weight doesn't tell us much at all. We need more to identify that muscle loss and the patient's strength and physical function.

So, what I'm giving you here are some anthropometric measurements. And the principle of anthropometric measurements are mid upper arm circumference, very easy to do, you also have triceps skinfold, you don't need to do that, the mid upper arm circumference will already give you a lot of information. So, basically, you want to fold the individual's arms. And, I'm sure you know you want to identify that midpoint, they then relax their arms, bring down the arm. And, on that midpoint you're going to measure the circumference. There is a very good correlation between mid-upper arm circumference and BMI, regardless of age, and gender.

Dr de Brito-Ashurst: Another tool, the calf circumference. Again, very easy to do. You can see the patient sit there, you establish the midpoint in the calf and measure the circumference. This European sarcopenia group identified that the cut off threshold is 33 centimetres for both men and women. So, values below 33 centimetres, identifies the patient with poor physical function and sarcopenia.

And I thought I'd give you a functional parameter. Sit to stand test can be seen as a surrogate measure for muscle mass, is used to assess endurance and strength, and it has shown a very strong correlation with quadriceps strength, with muscle mass from CT scan and with muscle mass from bioelectric impedance. Easy to do, you should ask the patients to do a bit of a warm up before, just to avoid potential postural hypotension. All you need is a chair. The patient must stand up fully and sit down by touching the bottom of the chair. This is one repetition. They should not use their arms for support to get up from the chair. The arms should be placed across the chest or down in the hips. In one minute you measure how many repetitions the patient does within that minute.

Imogen: What about dietary intake and nutritional support? What should we be considering?

Dr de Brito-Ashurst: So we talked about muscle mass assessment, it is also important that you have an idea of the patient's dietary intake, how much are they eating? What is their appetite like? How many meals do they have a day? It's really important that you get a picture of how much food they're consuming daily. It is important to establish the overall food consumption. But, also key is to see how much protein your patient is eating.

As I said, it's not just your overall food, is key nutrients, and protein is the key nutrient for muscle mass. So how much protein is your patient eating? And you want to ask about the high quality protein, those proteins that have all the essential amino acids, meats; fish, chicken, dairy products and eggs. And if you find that your patient's meal consumption is below, you know, 60%, then really, it's time to bring in oral nutritional supplements. If your patient is elderly, if your patient has a chronic condition, if your patient is at risk of malnutrition and malnourished, you should focus on protein and for your patient with chronic conditions, elderly, 1.2 to 1.5g of protein. Please don't give less than that, you would not have an impact. Don't forget that elderly have anabolic resistance as well as chronic conditions, they are catabolic, so they really need that protein.

And then there is therapeutic intervention. So it's not just about protein, it's not just about giving more food that has more protein, it's about key nutrients, it's about key essential amino acids that will make a difference. Key metabolites like HMB that we have seen in athletes, we have seen in HIV and cancer, COPD and other clinical conditions**,** that will make a difference to helping patients to gain muscle mass. It's about providing the vitamin D, and we are all deficient in vitamin D. You know there isn't much sun in Europe. The elderly patients, you know by the time they reach 75, their vitamin D levels and ability to make vitamin D is reduced by two thirds.

Nutrition support is not just important in the hospital. After discharge, in the community it is just as important. At that stage, inflammatory markers should be lower but the patient is in recovery mode, that is the time to really give that protein and to really support that physical activity. To help those improvements, to help regain strength and muscle mass.

Imogen: Nutritional support is really important to our patients. What role can oral nutritional supplements play?

Dr de Brito-Ashurst: So, oral nutritional supplement studies have shown that there is a reduction in hospital stay by 21% and length of stay is shortened by 2.3 days. 2.3 days is a long time to be in hospital. 2.3 days of lying there is quite a lot more muscle being lost, is more time immobile, is more time with poor nutrition. A lot can happen in those 2.3 days; a new infection can appear, more morbidities, other clinical conditions. So is a very long time. And, if those beds are empty, then you know there is room for all those people waiting to come in. So those waiting for surgeries that waiting can be less, so 2.3 days is a very long time in hospital.

Dr de Brito-Ashurst: Polymorbid patients, patients with chronic conditions, they really need that ONS. Remember they are catabolic, they have increased nutritional requirements. You know, not meeting their requirements, it will result in further loss of muscle mass and reduce the likelihood of the patient returning home. So, that older group in hospital loses strength and muscle function in a very short time. So you really need to make every effort to minimise that and nutrition needs to be very aggressive for that patient. For that patient as well, especially those with pressure ulcers and I would even say those at risk with pressure ulcers, go for protein at 1.2 grams a day, vitamin C, there is data to support 200 milligrams a day, some Zinc as well. Beta HMB that has been shown to support accelerated healing of pressure ulcers. So really, make sure you provide the best nutrition for that patient.

Post-discharge, again, they need to continue with their high protein supplement. Remember, that patient has anabolic resistance, aim for that patient to have at least one bolus of high quality 20 grams of protein a day. Look for the best time for it, which is immediately after physical activity and at bed time. At bed time you have a constant breaking down of protein. During the day you have protein muscle synthesis, break down, synthesis, break down that goes with meals. During the night there are no meals, it's just breaking down, so having that bolus of high protein at bed time would really support continuous protein synthesis, muscle synthesis at night.

Imogen: Thank you Ione for joining me today. You've shared some really valuable insights. If you would like any further information about R-MAPP, please speak to your local Abbott representative or visit www.rmapptool.com For more content on current important nutrition science, please visit ANHI.org.uk

Thank you for listening.