

Title: ECO 23: Impact of Obesity on Heart Failure Outcomes

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Dr Laura Meems

"My name is Laura Meems and I'm an MD, PhD from the university in Groningen in the Netherlands. I'm currently training as a cardiologist and will work as a cardiologist from June 1st.

Obesity and the Progression and Management of HF

For both obesity and heart failure. We know that they are important problems and considered pandemics or endemics of our current time and for both it's thought that the incidence will even further increase during the upcoming years. In 2002 it was already shown that once you are obese or even overweight, meaning you have a BMI above 25, that you have a higher chance of developing heart failure. And it turns out that for every unit BMI increase there is a 5% increased risk of developing heart failure for males and 7% increased risk for females.

Medications and Treatment Approaches

Well, so far these options are only limited. There are studies who investigated the effect of exercise or dietary interventions to reduce weight and therefore to reduce the symptoms that you have from heart failure, especially one subtype of heart failure, heart failure with a preserved ejection fraction. And it turns out that although these interventions so increased exercise and dietary interventions can improve your V02 Max, so the amount of work and exercise that one can deliver that is increased, the quality of life of these patients is still decreased. So, there is no effect of exercise or diet on this parameter. My personal hypothesis and from other people in the field is that we need more robust measures to induce more weight loss and examples of this could be bariatric surgery or drugs that target weight or that cause weight loss such as GLP1 receptor analogues or the GIPs.

Weight Loss and Prognosis for HF

But that's also an interesting question and it is a little bit hard to answer because we do not have randomized controlled trials yet that investigate the effect of weight loss on heart failure outcomes. However, what we do know that's also studied that was performed in Groningen, it's a meta-analysis that showed in healthy, relatively healthy individuals with a BMI above 40 that once you give them bariatric surgery and compared to those who still have a BMI above 40 without any surgery or intervention, that in follow up. So over years those people who had a weight loss, they had a protection for the development of new onset heart failure up to 50%. So apparently by just losing weight, by losing a lot of weight, you can inhibit the progression of heart failure. What we'll do in heart failure itself remains unclear and still is under investigation. And for now, what we do know is that for example, studies in heart failure and specifically in heart failure with a preserved ejection fraction are currently enrolling obese, diabetic and nondiabetic patients and they are being treated with semaglutide to see what the effect will be on outcomes. And these results are expected by the end of this year or beginning of next year.

Obesity and Epicardial Adipose Tissue

So, in general, I think that the topic, the adipose tissue side that we should focus most on is the EAT, the epicardial adipose tissue. It turns out that patients with HFpEF, so heart failure with preserved ejection fraction, for those patients, we do not have many treatment options yet. So, it would be helpful to better understand this disease and also to see if this better understanding will result in more treatment options. It turns out that patients with HFpEF in general have higher epicardial adipose tissue volumes as patients without HFpEF, regardless of the BMI. When you add BMI to it, it turns out that those patients who are being obese with a BMI above 30 and the highest epicardial adipose tissue volumes are at highest risk for hospital admission or for mortality. So, for me personally, I believe that we should investigate this EAT further to further understand that the relationship that it may have to HFpEF does it do something to the surrounding myocardium? Or is it just a pseudo-tamponade that it caused because of the restrictive layer that is being surrounded around the myocardium? And I think if we understand

these phenomena further and even better, it may also render novel treatment options for these patients suffering from HFpEF.

Challenges and Opportunities

Well, I think there are plenty. First, it starts with the recognition of a patient that is at risk. What kind of heart failure patient is at risk? Is that everyone who is obese, meaning everyone with a BMI above 30? Or is there a difference between those people? For example, not everyone with a BMI of 30 has the same amount of fat on the abdomen or the same amount of fat on the hips or what can also be the case the same amount of fat surrounding the heart, which is called epicardial adipose tissue. So, the EAT, epicardial fat. We're currently studying this phenomenon of the different sites of excess adipose tissue, and we believe that these different adipose tissues may also have different properties, disease properties. And it could well be that those people with more EAT, so more epicardial fat, are at higher risk of developing heart failure than those with more visceral or subcutaneous adipose tissue. So I think this is one of the caveats that we have to look into to recognize our vulnerable heart failure patients and make sure that is one that needs attention. Also, what I believe personally is that cardiologists are not so keen on recognizing obesity. They're not so keen on treating obesity. They consider this something that should be done by another doctor, by an internal, someone from internal medicine, an endocrinologist, or a GP, just a house doctor. Since many of the cardiologists believe this is not something that we should do. For me, personally, in 2023, I believe this is something that we must change. We should make sure of a paradigm shift where cardiologists also become aware of the impact that obesity may have on the development of heart failure. And it is important for us as cardiologists to recognize the vulnerable heart failure patient, the vulnerable obese heart failure patient, and start treating them.

Take-Home Messages

First, obesity and heart failure, they are both huge problems. They're severe problems, and we need to get aware of the intertwining of these two problems. With an increased weight with obesity, you're more likely to develop heart failure. So, as stated before, I

believe that in 2023, we need a paradigm shift. Cardiologists should also become aware of the impact obesity may have on our patients, and we should start to recognize them and treat them as such. I truly believe that with the new drugs that we have, the new weight modification drugs, that there will be a lot of change upcoming and that there will be interventions possible. Not only bariatric surgery, but also medical interventions. To tackle this huge problem that we have these days with obesity and to improve quality and perhaps also mortality rates of our heart failure patients.”