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What is the Connection Between Coffee and Heart Disease?

**Welcome to the Clinician's Roundtable. I am Susan Dolan, your host and with me is Dr. Suzanne Steinbaum, attending cardiologist and the Heart and Vascular Institute's Director of Director of Women and Heart Disease at Lenox Hospital in New York, New York.**

**SUSAN DOLAN:**

Dr. Steinbaum, welcome to the Clinician's Roundtable.

**DR. SUZANNE STEINBAUM:**

Thank you so much.

**SUSAN DOLAN:**

What led to your interest in cardiology?

**DR. SUZANNE STEINBAUM:**

Cardiology is a wonderful field because many problems that people have with their heart is actually due to lifestyle choices. Many things we don't have control over, many different diseases, but within cardiology and heart disease, 80% of heart attacks are due to modifiable risk factors and this is such a fantastic thing to think about because these risk factors are within our own control and people can make lifestyle choices to actually change the outcome of the disease process.

**SUSAN DOLAN:**

Tell us about the study in the Annals of Internal Medicine regarding coffee and heart disease.

**DR. SUZANNE STEINBAUM:**

There was a study in the Annals of Internal Medicine that actually showed an inverse association between coffee consumption and mortality. What the study demonstrated was coffee even up to 4 to 5 cups a day actually decreased all caused mortality in both men and women. It was actually more significant in women. Over a 2 decade period of time in greater than 40,000 men and over 80,000 women. In fact, the amount of coffee that these people drank per day was associated with a decrease incidents of mortality and this was independent of other risk factors for heart disease. In fact, the study controlled for things like high blood pressure and high cholesterol and type 2 diabetes which we know are significant risk factors for heart disease and independent of those risk factors, coffee consumption was actually associated with a decreased incidence of death and heart disease.

**SUSAN DOLAN:**

So the study found it's okay to drink 4 to 5 cups of coffee per day?

**DR. SUZANNE STEINBAUM:**

The study showed that decreased mortality was greatest at 4 to 5 cups of coffee a day, but actually even greater than 6 cups of coffee a day, there was a decrease in mortality by about 17%.

**SUSAN DOLAN:**

Did the study address what happens when we drink more than 6 cups of coffee per day?

**DR. SUZANNE STEINBAUM:**

There were other studies that were looked at in terms of coffee consumption and another study that was cited showed that greater than 6 cups of coffee per day can actually be associated with an increased risk of death, so I think at that 6-cup mark, we have to really be concerned about overconsumption of coffee.

**SUSAN DOLAN:**

And how many milligrams are we attributing to a cup?

**DR. SUZANNE STEINBAUM:**

The milligrams of caffeine per cup in coffee is 137 mg.

**SUSAN DOLAN:**

Are you aware of any other studies on the effects of caffeine in this regard?

**DR. SUZANNE STEINBAUM:**

Caffeine and coffee intake in many different studies have shown controversial outcomes in terms of worse outcomes. It's associated with mortality and the studies over time we have heard have increased the incidents of cancers and heart disease and there have been different outcomes for many different caffeine related studies, although some studies have shown a benefit and that's what prompted this study to be done.

**SUSAN DOLAN:**

Explain the physiology of why 4 to 5 cups are okay and 6 or more cups are not okay.

**DR. SUZANNE STEINBAUM:**

What's so interesting, what is really speculated in this study is that caffeine and the drinking of coffee actually can reduce chronic inflammation and we see that in the reduction of CRP which is an inflammatory marker. It's also possible that there is a decrease in LDL oxidation and with LDL oxidation we know we have an increase in plaque instability, so this is essentially an antioxidant. Also caffeine and coffee consumption has been shown to increase glucose tolerance and in fact may be prevent the onset of diabetes.

**SUSAN DOLAN:**

Describe the negative effects of caffeine.

**DR. SUZANNE STEINBAUM:**

What we certainly know with caffeine we get an increase in heart rate and an increase in blood pressure and these are things that certainly for our heart patients in prevention of heart disease we don't want to do.

**SUSAN DOLAN:**

Is caffeine addictive?

**DR. SUZANNE STEINBAUM:**

I think for all of us that wake up in the morning and run for our first cup of coffee, we can answer that question.

**SUSAN DOLAN:**

That would be a yes! Dr. Steinbaum, tell us more about the antioxidant effects of caffeine.

**DR. SUZANNE STEINBAUM:**

One thing that was looked at is actually LDL oxidation so as an antioxidant we are looking at its effect on LDL cholesterol and certainly that's something that's reflective in the arteries of the body and there was a decrease of this LDL oxidation. What happens with LDL oxidation is we know that plaque formation develops and becomes atherosclerosis which leads to heart attacks. So when we talk about decreased oxidation, decreased LDL oxidation specifically, and decreased inflammation, we are really looking inside of those arteries.

**SUSAN DOLAN:**

And tell us more about the increased glucose tolerance effect.

**DR. SUZANNE STEINBAUM:**

What was demonstrated is that an increase in caffeine and coffee intake is that there was an improved insulin sensitivity and as we know insulin sensitivity is what's really the issue in type 2 diabetes, so with drinking coffee there was actually a demonstration in increased glucose tolerance because insulin was used more effectively.

**SUSAN DOLAN:**

What do you tell your patients about coffee consumption?

**DR. SUZANNE STEINBAUM:**

Moderation, that moderation is probably the most important thing. It's very hard to say that bases on this study have 6 cups of coffee a day when we know that there is the release of epinephrine and possibly all these potential harm that could occur with an increased heart rate and blood pressure, but what I do say to them is really if you are a caffeine/coffee drinker, it's okay, just in moderation.

**SUSAN DOLAN:**

Are you involved in any kind of research studies now at Lenox?

**DR. SUZANNE STEINBAUM:**

We are working on a study getting approved through the institutional review board actually for women who have chest pain who cannot undergo stenting or bypass surgery because of the nature of their arteries being too small or disease being too diffuse.

**SUSAN DOLAN:**

And tell us more about that study.

**DR. SUZANNE STEINBAUM:**

This study is actually using a growth factor that is injected right into the arteries and it is something that can actually help blood vessels grow and can help decrease chest pain in women.

**SUSAN DOLAN:**

How did the study begin?

**DR. SUZANNE STEINBAUM:**

Women tend to have different types of heart disease and different types of plaque than men, their disease often times is very diffuse in nature, so it's much more difficult to go in and put a stent and fix the problem because the disease happens throughout the artery and with these women who may be intolerant to medication as we all have some sensitivity to medication, there has to be other ways and other means that we can help them and with this technology in actually using a viral vectors that can be injected and help promote the growth of arteries we can help women patients with heart disease, but might not be able to use any other means of getting relief.

**SUSAN DOLAN:**

How are women reacting differently to the medications in men?

**DR. SUZANNE STEINBAUM:**

Each person is different in terms of their response to medication and some people are more or less tolerant to their side effects. I tend to see many of my women patients not tolerant to many medications. We try to medically manage heart disease as best as we can and that's limited by side effects, whether it be blood pressure or other symptoms and for these types of patients it becomes very frustrating when we might not be able to put a stent in which might alleviate using so many medications or send them for a bypass surgery which again might allow us not to give so many medications. These patients are sort of at a loss and get stuck in between the cracks of medication, surgeries, stent; there is not really a place to fit them in, so doing research on other modalities become very important.

**SUSAN DOLAN:**

Will this study be more widespread than in New York?

**DR. SUZANNE STEINBAUM:**

It's actually started, we are on phase II of this study; it's a multi-centered study and it's being performed right now in California.

**SUSAN DOLAN:**

Are there any preliminary findings you can review?

**DR. SUZANNE STEINBAUM:**

In the initial study, it showed benefits in terms of chest pain, women had less chest pain and were actually able to exercise longer.

**SUSAN DOLAN:**

Any side effects?

**DR. SUZANNE STEINBAUM:**

Well, this is our greatest concern and what we know right now is that there hasn't been any side effects, but certainly we need to study it more.

**SUSAN DOLAN:**

Dr. Steinbaum, what are the other significant differences that you observed between the men and the women heart patients?

**DR. SUZANNE STEINBAUM:**

Women tend to present very differently, the diagnosis is so much more challenging in women, not only because their symptoms are different and not only because they might just appear completely differently whether they have shortness of breath or fatigue or jaw pain, they might even have flu-like symptoms, it's hard to even know that they are having heart problems to begin with than when actually making the diagnosis because their disease is so diffuse in nature, different from the man, often times making the diagnosis is more challenging.

**SUSAN DOLAN:**

What's your take-home message?

**DR. SUZANNE STEINBAUM:**

Each woman individually needs to understand their own personal risk of heart disease, they need to know what their cholesterol is, what their blood pressure is, what their family history is, do they have diabetes, are they smoking, are they overweight, exercising, all of these different risk factors are what lead to heart disease and each person needs to know their own risk, to know how aggressive they need to be about early diagnosis. We all are responsible for prevention, we all can take care of ourselves, eating right, exercising; this is so important. When we talk about coffee and caffeine, this is one part of the big picture in taking care of ourselves.

**SUSAN DOLAN:**

And what's the best way to go about that assessment?

**DR. SUZANNE STEINBAUM:**

Having a good understanding of your risk factors means really listing for yourself what your blood pressure is, knowing what your cholesterol is, going through the checklist, what are my sugars, am I at risk for diabetes, knowing your height and weight, are you overweight, really taking a good look, what is my diet like, am I sneaking with occasional french fries and potato chips, being realistic and understanding what your risk is about is really taking a good look at yourself in the mirror and understanding who you are in the scheme of your risk for heart disease - prevention, prevention, prevention; it's the key to taking care of this and eradicating this disease.

**SUSAN DOLAN:**

Dr. Steinbaum, thank you so much for joining us to discuss caffeine and heart disease.

**DR. SUZANNE STEINBAUM:**

Thank you for having me.

I am Susan Dolan and you have been listening to the Clinician's Roundtable on ReachMD, The Channel for Medical Professionals. Please visit our website at [www.reachmd.com](http://www.reachmd.com) which features our entire library of on-demand podcasts. Thank you for listening.