**Title: AFSymposium 24: Long-Term Effects of Pulsed Field Ablation on Coronary Arteries**

**Participants: Dr Yury Malyshev**

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**Dr Yury Malyshev**

"So, my name is Yury Malyshev and I'm from Mount Sinai Hospital in New York.

What is known currently about the effect of PFA in Coronary Arteries? What is the importance of this topic?

Pulsed field ablation, it's already known. So while providing the same efficacy as the RF ablation, it seems to be safer. So it avoids the damage of the oesophagus, of the pulmonary veins, of the phrenic nerve. But as we moved on from the pulmonary veins and from the posterior wall to ablating at the caval tricuspid, at the mitral isthmus lines, we learned that these areas that are close to the right coronary artery and to the left circumflex artery, we learned that in these areas, pulsed field can cause proximity-related spasm of these vessels. As time went on, we learned. So first of all, that this spasm is proximity-related, as I said, so it only happens when the catheter is near the coronary vessel. We then learned that in the majority of cases, this is subclinical. There are no symptoms, no changes on the EKG, no arrhythmia, and so on.

We also learned that pretreatment with nitroglycerin can actually prevent this spasm from happening in the majority of patients. But at the same time, we saw that in the preclinical studies. So we saw that preclinical studies, they raised the concern that this intra-procedural coronary spasm can be associated with late-onset coronary stenosis, meaning that we have spasm intra-procedurally. And then later on, there was a concern if there's going to be a stenosis, which will decrease the diameter of the vessel and lead to all other issues that can be associated with that.

What was the study design and cohort?

First of all, PFA is common, and PFA is destined to become the major modality for atrial fibrillation ablation. And again, as we move to these areas in the heart that are close to the coronary vessels, we need to understand what to expect, and we need to understand if we can perform PFA near the coronaries, just in general, or is it an area that we shouldn't touch, or this is an area we shouldn't touch with pulse field ablation at all?

For this study, which was all performed in the Hamalka Hospital in Dr. Neuzil's lab, we looked at three previously published studies of patients who had PFA at the CTI and PFA at the mitralismus. And all of these studies had coronary angiography performed, pre-ablation, during ablation and after the ablation. So we knew exactly what's going on with all of these patients. With all of their coronaries. And so we combined those three studies and looked at the patients who actually developed the coronary spasm during the procedure.

What are the key findings?

So we analyzed those patients with the repeat coronary angiogram at least six months after the initial pulse field ablation. The key finding was that after a meeting of eleven months, there was no new luminal irregularities, new coronary stenosis at the sites of the previous intra-procedural spasm.

Who are the take-home messages?

Though the conclusion of our study is that PFA is not associated with routine coronary stenosis seen on angiogram, the main take-home message is that PFA still seems to be safe. But knowing this effect of the PFA and the coronary, we need to know how to manage these patients and how to talk to patients about this procedure.

What research is still needed?

In general, in terms of the coronary vessels, the research is still needed to see two things. I would say. One thing is look at the outcomes much later, maybe more than a year after the initial PFA procedure. And another thing is to look at the coronary vessels with more detail, maybe with IVUS or maybe with OCT.”