In silico comparison between RFA and PFA

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Abstract: Pulsed Field Ablation (PFA) has been recently developed as a novel ablation technique for treating cardiac arrhythmias. This aims to become a safer and faster treatment modality than the reference technique, Radiofrequency Ablation (RFA). Numerical simulations have been proven to be an extremely useful tool to understand, develop and improve the RFA technologies and will play a key role in the development of PFA as well. Despite the shared foundation of delivering electric current to target tissue in both methods, unlike the Joule heating in RFA, the principle in PFA relies on the non-thermal electroporation phenomenon, thus, resulting in distinct set of simulation considerations. In this session we are going to review the conditions typically considered in RFA treatment simulations and compare them to the PFA approach. The outcomes of the simulations will provide insights into the distinctive characteristics and essential factors for effective PFA simulations.