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Press Release

More effective treatment for atrial fibrillation: new intervention method shows promising results

Atrial fibrillation is the most common cardiac arrhythmia worldwide. While existing interventional treatment methods, such as catheter ablation, work better than medication, they still have their limitations and risks. In a recent study led by the Inselspital, Bern University Hospital, the University of Bern, and the Basel University Hospital, a new treatment method is now showing promising results: Pulsed Field Ablation (PFA) achieves a higher success rate than conventional catheter ablation, with fewer arrhythmia recurrences, while also offering a high degree of safety and a shorter procedure time.

Atrial fibrillation is the most common cardiac arrhythmia, affecting more than 100 000 people in Switzerland. Characterized by an irregular and rapid heartbeat, it significantly impairs the quality of life of many patients. If left untreated, atrial fibrillation increases the risk of stroke and heart failure. Catheter ablation is a well-established treatment for atrial fibrillation. In a minimally-invasive procedure, the heart tissue responsible for the erratic electrical signals is targeted to eliminate the source of the arrhythmia.

Studies show that catheter ablation is more effective than medication in restoring normal heart rhythm, alleviating complaints such as heart palpitation or shortness of breath, and reducing the risk of heart failure. The number of atrial fibrillation ablations has risen sharply in recent years – in 2024, more than 6 000 procedures were performed in Switzerland and over 500 000 worldwide. However, arrhythmias may recur after catheter ablation if the treated pulmonary veins reconnect electrically with the atrium or if additional foci of excitation are present. In addition, there is a slight risk of rare but serious complications such as narrowing of the pulmonary veins, damage to the phrenic nerve or injury to the esophagus.

Study compares pulsed field ablation with conventional catheter ablation for the first time

Since 2021, pulsed field ablation (PFA) has been available as a new, less invasive method for treating atrial fibrillation. In contrast to conventional catheter ablation, which employs heat or cold, PFA uses short electrical pulses to selectively switch off the defective heart muscle cells. This technique does not damage the surrounding tissue and reduces the risk of side effects. In addition, the procedure is often faster and less invasive for the patient.

A Swiss research team led by Prof. Tobias Reichlin, Department of Cardiology, Inselspital, and Prof. Christian Sticherling, University Heart Center Basel, Basel University Hospital, have now, for the first time in a randomized, controlled clinical trial, compared the efficacy and safety of PFA with that of cryoballoon ablation, a conventional form of catheter ablation. For this purpose, the researchers randomly assigned 210 patients with atrial fibrillation to one of the two treatment methods. While one group was treated with the established method of cryoballoon ablation, the other group received PFA. Subsequently, both groups were closely monitored for a year using an event recorder implanted under the skin to accurately record any recurrent cardiac arrhythmias.

Promising results with less invasive Pulsed Field Ablation

The study's results, which were presented at the annual congress of the European Heart Rhythm Association (EHRA) in Vienna and simultaneously published in the New England Journal of Medicine, show that PFA is superior to cryoballoon ablation and has a lower rate of recurrent cardiac arrhythmias. In the PFA group, 37 percent of patients experienced recurrent arrhythmias, compared to 51 percent in the cryoballoon group. The duration of the procedure using the new method was also significantly shorter (55 minutes) than with the established method, which took 73 minutes. There were very few complications in either group.

The results confirm that PFA represents a promising alternative to cryoballoon ablation. «The findings of this study will have a lasting and worldwide influence on the field of atrial fibrillation ablation», explains Prof. Tobias Reichlin, Chief Physician at the Department of Cardiology of the Inselspital and lead author of the study. Prof. Christian Sticherling, Deputy Chief Physician at the Department of Cardiology of the Basel University Hospital and the last author of the study says: «The higher success rate is indicative of a direct benefit for patients. It is to be expected that, over the coming years, PFA will prevail as the new gold standard for the minimally invasive treatment of atrial fibrillation and will

find its place in the guidelines of professional associations.» Further studies are now intended to show how ablation using PFA affects the long-term course of the disease as well as the risk of heart failure and strokes.

Links

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University Heart Center Basel

Publication

Reichlin T., et al. Pulsed Field or Cryoballoon Ablation for Paroxysmal Atrial Fibrillation. *New England Journal of Medicine* (2025). Online ahead of print.
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