SNAPS

Applied MedTech technologies

Telemonitoring via PA sensor

Telemonitoring is now increasingly used for remote monitoring of patients with heart failure. One possibility is the remote monitoring of blood pressure in the pulmonary artery. In the future, it is hoped that this will enable deterioration of the heart function to be detected at an early stage and thus enable a rapid medical response. But can telemonitoring establish itself as routine care for heart failure?

The answer is: YES! Patients suffering from heart failure must be monitored continuously. An increase in blood pressure in the pulmonary artery provides an indication of dangerous changes. Until now, these pressure values could only be determined by means of a heart catheter and thus in connection with a surgical intervention. A new sensor now promises a permanent and innovative solution.

Abbott Vascular developed the CardioMEMS implant, which is only a few millimetres in size and guarantees reliable, permanent and gentle monitoring of blood pressure values. For this purpose, the sensor is permanently placed in the distal pulmonary artery using a minimally invasive right heart catheter procedure in order to be able to continuously measure blood pressure. The data is read out via a specific pillow-shaped read-out device (CardioMEMS™ patient electronics system used) on which patients have to lie down for about 20 seconds every day. These patient-initiated readings are transmitted wirelessly and securely via the internet to a website (Merlin.net™ Patient Care Network), which is accessible to selected, specialised clinics and medical practices. The platform integrates remote pulmonary artery pressure data with implantable electronic system diagnostics. Sensor readings (including AT/AF load, ventricular pacing (%), patient activity, day & night heart rate, VT/VF events with antitachycardia (ATP) and shock therapies) are then monitored by trained heart failure specialists and physicians, and therapy and medication are individually adjusted as needed.

Patients then receive customised messages about monitoring, medication adjustments or lifestyle change recommendations via the system's own myCardioMEMS app. In addition, the history of sensor readings and transmission status can be viewed in real time.

Continuous monitoring allows any increase in pressure in the pulmonary artery to be detected weeks before a complication occurs.

INNOVATIVE TECHNOLOGICAL APPROACH

- **Company:** Abbott Laboratories AG
- **Product:** CardioMEMS™HF System
- **Technological basis:** PA Sensor, Deliveryx Katether, Auslesegerät, Merlin.Net
- **Prerequisite :** A lot of communication between patients and care team to derive efficient and effective treatment recommendations in a timely manner, which are implemented by patients
- **Website:** https://www.de.abbott/

Overall goal to be achieved through the use of the CardioMEMS™HF system:

- Supporting doctors to counteract the progression of the disease
- Promote patient health stability and reduce hospitalisation
- Reducing mortality and improving quality of life

Conclusion

The sensor system, in combination with the continuous optimisations in networked telemedicine, can greatly contribute to people in all stages of heart failure being able to live as healthy and normal a life as possible.

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