
Carbon Ion to combat Heart Flicker

Carbon ions from particle accelerator could be a protective alternative to conventional catheter treatment. Carbon ions are put into use for the treatment of cancer. These can, however, also help in heart rhythm disorder as protective alternative to heart catheter or medications. Biophysicist of GSI Helmholtz Centre for Heavy Ion Research in Darmstadt and Medical personnel of the university of Heidelberg as also the Mayo clinic in the USA have therefore developed a method, as they have been reported in professional magazine Scientific Reports.

Around 350000 patients suffer alone in Germany from heart rhythm disorder. They are in danger of suffering a permanent heart damage or even sudden cardiac death. With advance flickering of heart or tachycardia therefore, heart racing, the heart comes to its rhythm cycle. Instead with upto 60 beats per minute the sinus comes to knots drives in right entry as impulse provider the pulse over to 100 beats per minute. For the treatment of the disturbance along with administering the medications often the so-called catheter ablation is inserted. With that the doctor inserts a catheter for example to the cooking vein to the heart and there fit becomes desolate with high frequency current of concerned tissues.

With high energetic carbon ions which are generated in the circular accelerator at Düsseldorf, the researchers now for the first time generate aimed from exterior the changes to the heart tissues. It prevents the further conduct of electrical signals from sinus knots. Out of one linear accelerator carbon ions are therefore served up in the circular accelerator and brought into higher energy. The so-called electrical intensity (voltage) prevailing in the accelerator stretch get always faster. The magnets hold in the circular accelerator. As soon as the particles

get the desired speed, they are conducted in the working place where they remain at the disposal of the medicinal intervention. The new methods allow us to conduct the treatment first of all to complete without executing the catheter says H. Immo Lehmann, the medicine and scientist at the Mayo Clinic. Heart tissue gets changed that the expansion of disturbing impulse is steadily broken up completes Christian Graeff manager of the working group of medicinal physics at GSI.

The radiation of tissue with carbon ions becomes bound to be protective and potentially operative that the treatment with catheter. If the methods first once technically fully ripen, then the intervention lasts only for few minutes. An important advantage lies in the unlimited depth of penetration of ions. While before all the left chamber wall of the heart is extremely thick, an effective desolation with catheter is often not possible. However straight at the location the patients with so-called ventricular tachycardia must be treated. "The carbon radiation gets inserted with operational precision for the treatment of sensible organ" rejoices Paolo Giubellino, the scientific executive of the international particle accelerator plant 'Fair' and of the GSI in Darmstadt. With the in-between established methods thousands of patients all over the world were treated in the cancer therapy. Now the experiments are planned in order to be able to get transported at the Heidelberg ions radiation therapy centre.

Ref: Medizin, VDI nachrichten 7 April 2017
Nr 14/15

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