



Information about the use of the BEMER-Therapy for patients with pacemakers

Pacemakers are electronic impulse generators that are implanted to regulate damaged nerve impulse conductors. The most frequent indicators are impulse conductor disturbances, sinoatrial nodes and symptomatic bradycardia. These devices transmit mild electrical impulses to the heart at the desired rhythm. They are implanted in the chest or abdominal wall and connected to the heart by means of a thin wire. There are differences with respect to controlling the impulse of the pacemaker in the atrium and the heart ventricle and, after neurotransmission, in the myocardial unipolar and bipolar systems. There are more than 100 different types of pacemakers being used worldwide. They all function for years. As a rule the functionality of the pacemaker is checked approximately every six months, when the battery charge is also measured.

A subject of continual discussion is how the pacemakers react to low frequency electrical and magnetic fields. Since pacemakers are electronic devices, these effects cannot be dismissed beforehand. The pacemakers themselves are very well protected against external influence and are very sturdy. The sensitive part are the probes in the heart and their connections which, on the one hand have to record the natural signals of the heart, and on the other transmit the pacemaker's impulses to the heart.

It is not generally possible to predict whether pacemakers are affected by low frequency fields, and, if so, how greatly. It depends largely on the type and strength of each field.

Since interaction with electronic devices cannot be generally excluded, the threshold values supplied by the manufacturer are decisive. As a rule individual evaluation is required.

Basically there is no acute risk from the effects of electromagnetic fields for people with pacemakers. All modern devices switch over to an established mode in case of interference. For the patient this simply means a constant heart rhythm, regardless of the physical stress being experienced. The pacemaker automatically returns to its normal function once the patient is outside of the „fields of interference“.

A much more important question is the following: Could an electromagnetic field „irritate“ the pacemaker so that it interprets the field and frequency as heart frequency and then steers the heart with another frequency? This question cannot be definitively answered theoretically.

However, since no acute danger for the patient would occur in such a case, the manufacturers are of the opinion that the compatibility of the respective field should be tested, and avoided in cases of incompatibility.

Many, particularly in the medical profession, are uncertain as to how strong the elec-

trical and magnetic fields can be for patients with pacemakers and which physical diagnostic and therapeutic methods can be used.

Up to now the only international guidelines have been issued by the IRPA (International Radiation Protection Association). In 1990 they made a preliminary recommendation of 50/60-Hz-fields (standard power supply). The safety threshold value for pacemaker patients was set at a magnetic displacement of 5.000 μ T.

An important medical question was, for example, whether magnetic resonance imaging (MRI) could be used on patients with pacemakers. The feasibility and safety of this method was investigated within the framework of a clinical study where they worked with a displacement of 5 000 μ T. The evaluation of the data demonstrated that MRI caused no interference of the heart rhythm and no increase in pulse frequency (Radiology 2000; 215: 869 – 879). The programmed settings of the pacemakers were not affected.

Based on this scientific knowledge and long-term experience with the BEMER-Therapy, it can be assumed that pacemaker patients can use the BEMER 3000-Therapy System without limitation. The displacement reached in this system is much lower than those used in the above-mentioned studies, or the recommended threshold values for the strength of the fields. In case of doubt, use of the BEMER should be initially conducted under the guidance of a physician familiar with the process in order to make certain that the BEMER-signal does not affect the implant.

There is no indication that use of the BEMER-Therapy could lead to complications with regard to the pacemaker. In individual cases some patients complained of feelings of anxiety, restlessness and heart stuttering. In placebo tests such „reactions“ were shown to be mental caused by various fears of uncertainty and ignorance.