

M e d i c a l C e r t i f i c a t e

The card-iac-pen is a medical device, which was created to visualize the heart actions of the patient under conditions outside and in medical centers and accordingly to record them. Its main advantage is the immediate recording of heart associated problems, independent of the patient's location.

Concerning its construction the card-iac-pen is a one-channel-ECG-device, which visualizes ECG-registrations effectively. The recorded data can be transferred to PC, it can be edited and stored. In the hospital the device is applicated predominantly by doctors in the outpatient clinic, in the admission unit or in the wards. It conduces to acute diagnostics in the preliminary stages of a regular cardiological clarification (ECG, UCG etc.). Thereby, dysrhythmias, conditions of cardiac ischaemia, extrasystoles and other pathologiactal conditions can be discovered. If in a patient one of these conditions is suspected and not yet objectivied the device can be handed out to the patient to enable him to record an instant ECG whenever he is aware of symptoms, like, for example, palpitations.

Thus the patient can objectify his symptoms and report them to his doctor with the next consultation. This field of application permits to objectify the gravity, accordingly the existance of the mentioned medical conditions.

The advantage of the smallness and handiness of the device had been stressed by the patients several times.

The same examinations can be made in a mobile intensive care unit (MICU), or by an emergency doctor. As the handling of the device is so easy and quick, it is intended for first sight diagnosis before other standard devices come into action.

The easy handling allows, that as well doctors as specialised medical staff and also patients can use the device. The card-iac-pen device is robust, has a low weight and runs off batteries. Within the registration procedure an exact deduction appears on the display, also the heart rate is shown.

Concerning the handling of the device no problems appeared. One exception was a patient with chronic polyarthritis, who as a result of his deformations at the finger joints could not execute the examination / registration by himself, however with support of his wife they were able to carry through the needed registration directly via chest application. Altogether the patients were more content sometimes only because of the fact, that they could record an ECG whenever they were aware of symptoms. In some patients extrasystoles according to intermittent dysrhythmias had never been objectified during medical examinations, the patients were happy about the fact, that finally the existing problems had been verified and objectified and treatment could be started as a result of the application of the device.

Interestingly in some patients with diabetes, autonomic neuropathy and absent angina awareness ST segment lowering was first diagnosed with the cardiac pen and ischaemic heart disease was confirmed by coronary angiography.

In some patients who had been diagnosed to have a normal heart function with the classic diagnostic procedures, in their normal home environment and under individual stress conditions an ST segment lowering could be detected, and ischaemic heart disease could be objectified by cardiac catheterisation.

[In summary:](#)

Modern medicine is aiming for diagnosis and treatment of diseases at an early stage. The Card-iac-pen is a device which in some patients can immediately show pathologic conditions of the heart and can help to shorten the time from symptom to diagnosis. Especially when the classic devices (ECG etc.) so far failed to objectify symptoms as in patients with diabetic autonomic neuropathy and absent angina awareness, or in patients with intermittent arrhythmias this device is very helpful.

The device is small, easy to handle and safe.