DETERMINATION OF COMPARATIVE SKIN TEMPERATURE: EMERGENCY DIAGNOSIS OF INTERNAL BLEEDING IN THE UPPER AND LOWER LIMBS

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It is known that a traumatic shock caused by a mechanical force that would disrupt the structural homeostasis of tissues, in most cases damages the blood vessels. This in turn causes internal bleeding, which is often not visible to the naked eye. Consequently homeostatic imbalance occurs which leads to a set of diseases with serious consequences (failure nutrients, O_2 failure, necrosis). The working principle of the device tested in this study consists of reception by temperature sensors of thermal signals from the limbs. The device is made of two sensors that are located on similar regions of both limbs. Sensors send information received in the region of the limb skin to processor, this one process the information and sends to your computer via USB cable. The proposed method, completely non-invasive, allows obtaining results within few seconds. These are displayed in the form of curves on screen. Preventive diagnosis shall be based on the temperature difference from both limbs, by comparing the data obtained from the unaffected limb against data from the affected limb. In case of internal bleeding, temperature will be higher from the affected limb, which can accurately say (75%) that a blood vessel has been damaged.

The device was tested on 80 patients who have suffered a heavy trauma in the region of a member. All patients were without visible signs of the internal bleeding. Results of the study show a difference in temperature in similar regions of both limbs in 68 traumatized patients, in 56 cases diagnosis of internal bleeding was confirmed.

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