

# THERMOGRAPHIC EVALUATION OF HEALING PROCESS ON PATIENTS AFTER SURGERY OF CATARACT WITH THE USE OF FACOEMULSYPHICATION

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## Introduction

Presented investigations are a part of an interdisciplinary research programme which covers various medical disciplines. It aims at evaluation of application of thermography in medicine.

Infrared thermography, being a non-destructive and very sensitive method seems to create new possibilities in diagnostics of some diseases and in monitoring of the healing process. The method can be used for evaluation of the circulatory system dysfunctions in inflammatory conditions, cancer diseases and many other illnesses. In presented studies, an attempt was undertaken to apply the thermographic method for evaluation of healing process and postsurgery status of patients after the surgery of cataract. Extending the range of the studies by the use of thermography can create new diagnostic possibilities, which can become complementary to presently used methods.

The studies were performed with the use of VIGOcam v50 thermographic system.

## Methods

Twenty patients were selected for the study. They had had a surgery of removing the cataract by facoemulsification method. The thermographic measurement of the operated eye was done before the surgery, in the first day after the operation and on the fifth day after the operation. The surgery of cataract consists in removing the patient's own lens with the use of ultrasounds and implantation of an artificial lens. The results of thermographic measurements were analysed in relation to the time of surgery, time of ultrasound action, the amount of plasma substitute flows during operation and the type of anaesthetisation. All the patients were also given clinical evaluation – the measurement intraocular pressure, examination of fundus, evaluation of acuity of sight and evaluation of front part of eye. Obtained results were also compared with data of patients which had cataract operation with the use of extracapsular removing of lens. Thermographic images were compared by specially adapted computer software.

The results of the thermographic measurements can be of special value for evaluation of postsurgery inflammatory conditions and the process of healing. Thermographic method makes it possible to choose optimally parameters of surgery procedure and to evaluate the impact of the course of operation on the process of postoperative healing.

The control group of patients consisted of seven healthy persons who were also examined through thermographic tests. The results were presented in the form of thermographic maps, plots and tables.

## Results and conclusions

As was indicated earlier the thermographic method can be used in postsurgery evaluation of patients state after the operation of cataract.

This method is useful for evaluation of the impact of operation course on the process of healing. As can be deduced from the performed analyses the time of surgery and the short period of ultrasounds action as well as application of small flows of plasma substitute during the operation enable to create optimal surgery conditions which determine proper process of healing after the operation and postsurgery clinical effectiveness.