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SELF-TONOMETER SELTON

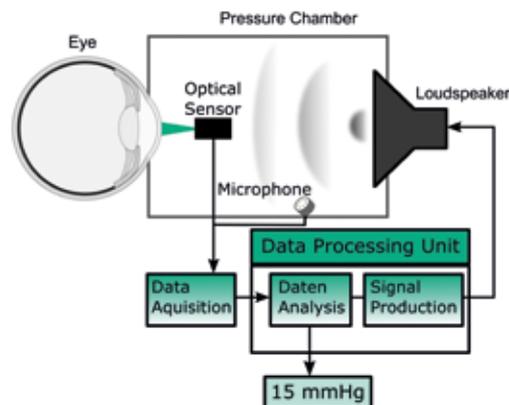
Noncontact intraocular pressure measurement, can even be done by the patients themselves (UN213)

BACKGROUND

An increased intraocular pressure (IOP) is the most important risk factor for glaucoma. For purposes of diagnostics and monitoring of the disease, ophthalmologists usually measure and follow-up on the development of IOP by applying tonometry. As the pressure varies in the course of the day, a reliable measurement requires recording a circadian pressure profile. As yet, this can only be done in a hospital.

SOLUTION

The Bremen Institute for Metrology, Automation and Quality Science (BIMAQ) of the University of Bremen developed a noncontact tonometer to measure the IOP reliably and with high precision, which does not injure the cornea. Patients can even carry out the measurement themselves, by using the self-tonometer SelTon. To this end, the appliance is positioned like an airtight measurement chamber around the eye, to which it emits a pressure wave (see Figure). This results in a brief deformation of the eyeball, the manifestation of which permits the determination of the IOP. The measurement technique has already been explored in great detail and analyzed in comprehensive tests on porcine and human eyes. The fundamental suitability of the measurement method for patients has thus been confirmed.



ADVANCES AND APPLICATIONS

As opposed to most tonometers, SelTon does not require any local anesthesia. The noncontact measurement also prevents the risk of transmitting pathogens. Prolonged measurement series as well as IOP circadian profile measurements are possible outside the hospital. Patients are able to carry out the measurement autonomously in their customary surroundings. The self-tonometer can also be applied for supine measurements.

Glaucoma predominately occurs in older age. Due to the demographic development an increasing number of incidences is expected. Consequently, a time-saving measurement technique, which can be carried out by the patients themselves, will have a great market potential. The SelTon can be applied in hospitals and ophthalmology centers, by office-based ophthalmologists, and for self-measurement in the home environment.

FIELD OF APPLICATION

Tonometry, ophthalmology

KEYWORDS

Intraarticular pressure, self-measurement, glaucoma diagnosis

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AN INVENTION OF

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