

User's guide



2. Possible errors during IOP measuring with diaton tonometer
unreliable IOP measuring with transpalpebral diaton tonometer is mainly connected with inadequate researcher's experience and with nonobservance of the measuring methodology (table 2).

Table 2

Mistakes during IOP measuring	IOP measuring result
Incorrect patient's position: <ul style="list-style-type: none"> - nonhorizontal head position - the neck's squeeze with the collar - the prolonged throwing the head back while there's the pathology of the spine's cervical section 	IOP underestimation IOP overestimation IOP overestimation
Incorrect tonometer's position: <ul style="list-style-type: none"> - the tip is placed not tightly to the lid's front edge within the limits of the cartilage, and is behind for more than 1 mm - the tip is placed beyond the bounds of the cartilage - non-vertical position of the tonometer 	Moderate IOP underestimation IOP underestimation IOP underestimation
Incorrect eyelid's position: <ul style="list-style-type: none"> - the edge of the eyelid gets to the cornea - the edge of the eyelid is above the corneal limb - the eyelid's extrophy while pulling it strongly 	IOP underestimation IOP underestimation IOP underestimation

3. Meanings of the auxiliary information symbols on the display

Table 3

Symbol	Meaning of the symbol
"U"	Discharge of the battery
From "-1" to "-6"	The current number of single measurements
"L"	Tonometer's deviation from the vertical line during the measuring for more than 4,5°
"H"	The rod mechanism is dirty
"E"	The end of the series of 6 measurings
"A"	The averaging mode is turned ON

The present guide contains the basic principles of intraocular pressure (IOP) measuring methodology using diaton tonometer and is assigned for the convenience of the doctor in his daily work.

Attention!

So that the results of IOP evaluation with diaton tonometer will be reliable to the maximum and you can estimate at its true worth all advantages of transpalpebral scleral tonometry **your wish and some time for training in diaton tonometer usage is necessary.**

Carefully study Operation Manual (OM) of diaton tonometer and watch the training video.

Carry out several tests of the tonometer operability on the test plate paying attention to exactness of the all OM recommendations following and lack of movements awkwardness while operating the tonometer.

Work the tonometry process through on the test plate **till automatism.**

Only free usage of diaton tonometer and stable test results provide the precision of IOP measurement in your practice.

On the stage of acquiring the stable habit of diaton tonometer usage you must select patients preferably young ones which have no ophthalmopathy in the history.

For self-control of IOP measuring methodology mastering you can realize comparison tests with Goldman tonometer. In case of significant divergence of results determine your mistakes in diaton tonometer usage according to table 2. Correct the IOP measuring process.

Attention!

Because the IOP measuring error depends not only on the device error but also on the character and value of rhythmic and casual ophthalmotone fluctuations in some cases the difference with Goldman tonometer can be 4 mm Hg.

If it is difficult to carry out comparison tests with Goldman tonometer then the criteria of your diaton tonometer mastering **is receiving of mean IOP result the number of single measurements in the series being minimum** (two or three). For detailed information see OM.

Following the above mentioned recommendations you'll become the skilled user of diaton tonometer, get the necessary experience and can use diaton in your practice.

1. Measuring of intraocular pressure

Attention!

Intraocular pressure measuring is possible the patient's position being sitting or reclining.

In a **sitting** position the patient's head is placed horizontally on the

head support. In the **reclining** position the patient's head is placed horizontally on the couch's cushion or bolster (the head's throwing back is not allowed). Stand **correctly** with regard to the patient following the directions of OM.

1.1 Prepare the tonometer for work, the tonometer's tip and rod being previously **disinfected** following the directions of OM.

1.2 Place and fix the patient's glance using the test object (for instance, the patient's hand), the glance line being oriented approximately at the angle of 45°.



figure 1

1.3 Stretch the upper lid of the patient's eye with the finger of your free hand without pressing the eyeball. The edge of the lid must be a little bit higher the limbus, i.e. there is a thin stripe of sclera between the lid and the limbus (around 1mm). For this purpose, in relation to the anatomical peculiarities of a patient's eye, adjust the position of the eyeball within fairly narrow limits by moving the test-object (Picture 1).

1.4 Make sure that the tonometer is turned ON and the rod is in initial position.

1.5 Move the tonometer to the patient's eyelid holding the device strictly vertically until the interrupted sound signal stops.

1.6 Place the tonometer's tip in such a way that the front part of the tip is as close as possible **to the front edge of the upper lid** from which the eyelashes grow, **not touching the eyelashes** (figure 2). At that the tonometer must be kept **vertically** (the lack of the sound

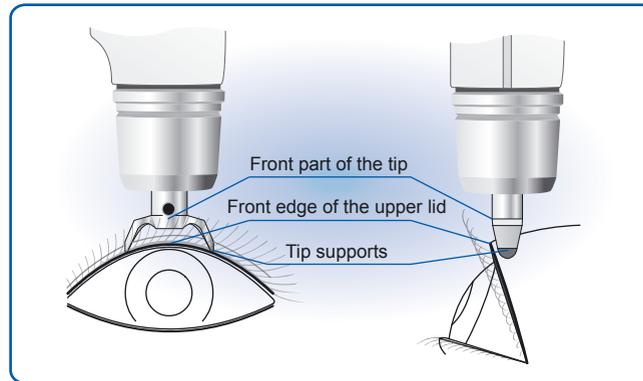


figure 2a

signal indicates the correct position of the tonometer). The influence zone of the tonometer's rod must be the part of sclera corresponding to **corona ciliaris in 12 o'clock meridian.**

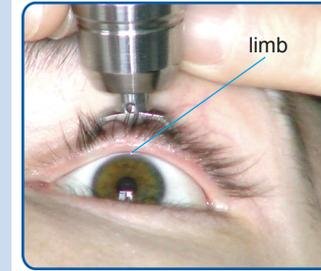


figure 2b

1.7 Fluently move the tonometer's body down keeping its **vertical position** (there's no interrupted sound signal) until the rod falls on the eyelid, which is accompanied with a short sound signal.

Attention!

Carry out the measuring transpalpebrally **only on sclera! Eyelid removal to the cornea** at the moment of the measurement is **prohibited! Do not press** on the eyelid with the tonometer.

The current number of a single measurement is being displayed and the numeric measurement result is recorded automatically in the tonometer memory.

Attention!

«L» symbol indicates the tonometer's deviation from the vertical line at the moment of the measurement. The following measurings should be carried out keeping the tonometer's vertical position.

1.8 Carry out several IOP measurings of the same eye with the interval not more than 30 sec.

When you hear a single long sound signal or two long sound signals press the OPERATION button to get the mean value of IOP measuring.

1.9 Interpretation of the mean IOP measuring values received is shown in table 1.

Table 1

Display indication	Result's interpretation	Notes
Symbol "A" and the mean IOP value in nonflickering mode	The result is reliable	The IOP measuring of the eye being studied is finished
Symbol "A" in flickering mode and the mean IOP value in flickering mode	The result should be considered as approximate , but if IOP is equal or less than 19 mm Hg., it may be considered as reliable	If necessary carry out the new measuring series strictly following the methodology
Symbol "A 00" in a flickering mode	The result is considered erroneous	Carry out the new measuring series strictly following the methodology

1.10 Carry out the IOP measurement of the other eye.