

Vol. 2

User Report

M.E.Technica, User Report



TonoVet

HAND-HELD TONOMETER

Mikuni Veterinary Hospital / Ophthalmology Clinic

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Dr. Kumiko Hata

TONOVET HAND-HELD TONOMETER

We asked vets who use medical equipment imported and sold by M.E. Technica Ltd. about their impressions and opinions of the product, and their responses are presented in these user reports.

In this second user report, we introduce the TonoVet hand-held tonometer, manufactured by Icare Finland. Measurements are taken by touching a tiny probe against the cornea, but what makes the product unique is that it does not require anaesthetic eye drops. What kind of reception has it received in the surgery?

We asked Dr. Kazunori Mikuni, Director of the Mikuni Veterinary Hospital/Ophthalmology Clinic in Sapporo, Hokkaido, and Dr. Kumiko Hata.



**Dr. Tatsuhiko Fujioka,
Director**



Dr. Kumiko Hata

Its special shape gives it a feeling of stability

Q What interested you in TonoVet?

What first interested me was its unusual shape.

It was not the shape I had imagined. When I tried using it, I realised the connection between its shape and the way it measures. With the tonometer I used to use, I sometimes dropped it if the animal moved while I was taking a measurement, because you only held it between your fingertips. Because you had to move your wrist or arm to take measurements, it was hard to keep the tonometer still, meaning that data readings could be unstable. The TonoVet is a little larger than ordinary tonometers, but it is easier to hold because the shape allows you to grip it properly with your hand. I also believe that it will produce reliable data, because taking measurements by just pressing a button means that it is easy to keep the device still and the measurement site is stable.

As it does not require anaesthetic eye drops, I tried it on myself, and it did not hurt. I decided to start using it because the short time from preparation to completion of the measurement made it very convenient, which I thought would be kinder to the animals, so that I could use it even for cases where it was previously difficult to take measurements.

Q How do you feel now that you have started using TonoVet?

I am very glad I started using it.

When I first started in ophthalmology, I used manual examination or a Schiottz tonometer to measure intraocular eye pressure (IOP). I later used a hand-held applanation tonometer, and now use TonoVet, so I have used all sorts of devices.

Owners who have been coming to the clinic for a long time and who had the impression that the older kinds of IOP measurement were time-consuming and unpleasant now say everything is 'nice and quick' since I started using TonoVet.

Anaesthetic eye drops and calibration are no longer necessary, and the number of measurements has doubled.

Q What do you think about the advantage that anaesthetic eye drops and calibrations are now unnecessary?

The shorter pre-measurement preparation time is a great advantage.

Obviously, you do not have the trouble of administering eye drops, nor do you need to worry about causing discomfort with the anaesthetic drops or about changes in lachrymal fluid levels. Nor is there any worry about long-term side effects (such as dry eye). You have to be careful when using anaesthetic eye drops in cats, so I think it is safer if you do not need eye drops.

Using older tonometers was sometimes time-consuming and frustrating because you had to keep recalibrating. If this kind of thing continues, you tend to become wary of using IOP measurement at all, but TonoVet takes away the stress of measurement, because it does not require calibration, and I have therefore become much keener to take IOP measurements - I had been negative

about them. As a result I now take twice as many measurements.

Animal hospitals require all kinds of tests, depending on each case, and it is important to be able to get these over with smoothly and quickly.

I think TonoVet is the only tonometer that meets that requirement, as it allows simple and easy IOP measurements.

It's easy to use and the data are stable.

Q How do you rate TonoVet's measurement data?

My impression is that the instrument always produces stable, highly reproducible data.

The old tonometers had a large, flat contact panel, and the measurement was taken by pressing this against the cornea, so the data were affected by differences in things such as the position of the person taking the measurement and how they pressed the instrument against the eye, or the curvature of the cornea. On the other hand, with TonoVet, I think there are fewer mistakes with the size of the eyeball, the curvature of the cornea or the angle of contact, because the probe is smaller and the measurement is taken by bringing this into contact with the cornea at a single point.

Q What do you think about IOP measurement and data for cats?

In my experience, TonoVet produces slightly higher results in cats.

The problem with cats is that the inside of their cornea is uneven, with thicker areas and thinner areas, which in my opinion influences results.

There are always differences in the way that testing equipment, not just tonometers, produce data, so it is important for the person taking the measurement to get used to the equipment and understand its peculiarities.

It is therefore important to follow a train of thought that says 'data from this equipment produces this kind of result, which suggests this kind of illness.'

Because TonoVet allows anyone to easily measure IOP, I think it makes it easier to build up a lot of experience and thus create that association.

Q What is the ratio of dogs to cats for IOP measurements?

I would say about 8:2.

If the animals are less stressed, I am less stressed.

Q How do the animals behave during the measurement, compared to when using existing tonometers?

Taking IOP measurements with animals that were previously difficult to measure has become easier.

I think TonoVet keeps the stress on the animal to a minimum, because there is no need for anaesthetic eye drops, so the measurement is quicker.

It is very important not to cause stress, because if an animal has a bad experience, it will become difficult to examine and treat next time.

I am also less stressed, because fewer animals are impossible to measure, and the preparation/measurement time is shorter.

Q Can you tell us how you use TonoVet now?

We perform all of our IOP measurements with TonoVet.

However, we still also use the old type of tonometer, to double check, when the measurement produces a figure much higher than observation suggests.

TonoVet produces reliable results even in these cases.

My assistant, Dr. Hata, can now also perform IOP measurements if I do not have time or am busy, and I can review them afterwards.

I find that, with TonoVet, the data are stable regardless of who ever does the measurement, as long as they know how to use the instrument.

At the moment, only Dr. Hata and I use it, but I think we will probably increasingly ask our veterinary nurses to perform IOP measurements.

A vital criterion in IOP measurement is the position of the animal and of the person holding it

Q Dr. Hata, have you ever used the old type of hand-held tonometer?

I used the old type of tonometer for around six months.

Q What is the TonoVet like to use?

It is easy to use for measuring animals with small eyes, such as shiba inu, because you can take a measurement even if the eyes do not open very wide.

With the old type of tonometer, there was concern that pressure on the eyeball while the eyelid was open would raise intraocular pressure, because you needed to bring a large surface area into contact with the eye.

With TonoVet you can be more confident of the measurement data, because this problem is removed.



An IOP measurement being taken with TonoVet.

Q Are there any points you have to be careful of when measuring IOP?

You need to keep the TonoVet steady, and avoid shaking it.

In that way, you can get a good measurement, because the distance between the apex of the cornea and the probe remains steady.

I think the most important thing is the position of the animal and the person holding it.

At this clinic, we usually ask the owner to hold the animal, and we explain to them that they only need to hold up its chin, rather than pressing on its neck, so that the IOP is not increased by pressure on the area around the eyeball or on the neck.

Q Do the veterinary nurses also sometimes hold the animal?

Yes, of course.

Sometimes, even when we ask the owner to hold it, they cannot because they are not used to dealing with it, or they might not be able to help if the animal dislikes being examined.

In my opinion, since we started using TonoVet, owners are more likely to come back to the clinic, and are happier to let their animal have an IOP test because the animals do not mind it and it is quick.



Holding the animal without causing it stress is key to the examination.





Sight is important for animals, too.

Q You have been involved in veterinary ophthalmology for many years, but how do you make people aware of ophthalmic care?

When I give an animal an all-over check, I ask the owner questions like, 'Do the animal's eyes get red? Do its eyes get itchy or bleary?'

In cases of this kind, or with owners of breeds which are prone to suffering from glaucoma, such as shiba inu, cocker or cavalier spaniels, shih-tzus, pugs, or Maltese terriers, when I perform a check-up along with their anti-rabies injection or vaccinations, I explain the importance of IOP tests and ask if they would like me to check the animal's eyes.

If the test results are in the grey zone, I have them come to the clinic about every three months and track their progress.

An owner once told me, 'yesterday, my animal suddenly seemed to go blind and has since been walking around bumping into things'. When I examined the animal, my observations suggested that it had probably lost sight in one eye the day before, but it had not been able to see out of the other eye for some time. It is rare for both eyes to develop high IOP at the same time.

If the problem had been noticed, we might have been able to preserve the sight in the good eye for longer.

In some cases, we can prevent blindness occurring if an early diagnosis is made, but it is a great shame that, with animals, it is often too late.

Taking IOP measurements every time an animal has its inoculations is very helpful for the early diagnosis of glaucoma.

Q Are there any particular illnesses or symptoms where you would measure IOP?

If the eyeball is protruding, we measure IOP to determine whether it this is due to glaucoma or an orbital lesion, and if the size of the pupil causes concern, we do it also take a measurement to determine whether it this is due to a neurological illness. In many cases the IOP measurement shows that it is actually uveitis.

When we prescribe eye drops for glaucoma, it is important to measure IOP to check that the eye drops are working.

After cataract operations, we measure IOP to determine the extent of inflammation in the eye or the condition of the sutures. In this case, the eyelids cannot open much, because they are sewn up to protect the suture on the eyeball.

Similarly, in cases where the eyeball is damaged, such as corneal erosion or corneal ulcers, these are very painful and it is difficult to open the eyelids and hold the animal still. With TonoVet, you can measure IOP even in cases where the eyelids cannot open properly, because of the small area that comes into contact with the cornea.

With shiba inu, it is difficult to open the eyelids, because they have sunken eyes. We used to have to check their IOP by touch through the eyelids, because it was impossible to measure with the earlier tonometers, but we have seen a lot of cases where IOP measurement with TonoVet showed that they had quite high IOP.

I have realised how unreliable my own manual examinations were. There may have been a lot of cases that I missed.

Q What kind of treatment do you use if you diagnose glaucoma early?

It depends on the situation, but we usually lower the IOP with eye drops, drips, or oral medication.

If there is no improvement using eye drops, or if the animal will not take oral medication, we either carry out a cyclophotocoagulation operation using a laser diode, or insert a glaucoma valve.



The staff



Q What are your thoughts on animals' sense of sight?

I think sight is a very important sense for animals, too.

It is often said that animals do not rely on sight as much as humans, but I have seen many animals whose eyes I have examined and who have gone blind. Animals' lives, too, change the day they lose their sight. At meal times, they head in the direction from where they smell food, but once they get close, they have to start looking around for it. Similarly, they can no longer go to the toilet in the right place.

However, other than sight, dogs and cats have much keener senses than humans, so if they gradually lose their sight, or if several months have passed since this loss of sight, they can become reasonably adept at getting around specific places, if they use their other senses to the full, and adapt.

However, I believe that they largely depend on sight to recognise objects close to them.

Q Are there any problems with TonoVet, or areas that require improvement?

I do not really have any complaints - if anything, it would help if the probes were self-loading.

I am also slightly concerned about the cost of the probes, but the use of disposable probes is the obvious way to avoid the spread of viral conjunctivitis in the clinic, and it is better to be able to get accurate measurement data by using a new probe every time.

Thank you very much, Dr. Mikuni and Dr. Hata

(Interviewer: Taichi Nikaido, Head of Sapporo Sales Office, M.E. Technica Ltd.)

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