

In the evaluation of the tear film, the examination of the lipid layer through interferometry plays a very important role. In addition to NIBUT which provides us with information on the duration of the tear film on the corneal surface and which can be altered both by a poor production of the aqueous component (lacrimal gland) and by a poor production of the lipid component (meibomian glands). To deepen and arrive for a precise diagnosis of dry eye it is important to proceed with the evaluation of the lacrimal meniscus, meibography and interferometry. Sometimes even morphologically altered glands can produce an adequate amount of lipid layer, while at other times an apparent normal meibography is associated with an altered and poor production of Meibum.

This is the reason why I believe it is very important to associate the examination of interferometry and the thickness of the lipid layer with the evaluation of meibography. In fact, we know that a thin lipid layer is associated with excessive evaporation of the tear film and consequently with low NIBUT values.

Usually when I have to examine a patient's tear film and ocular surface health status, either because I suspect a dry eye problem or in the case of presurgical screening, I perform all the tear and ocular surface tests with different tools that I have available in the clinic; In fact, I believe that the evaluation with different tools can increase the reliability of the results acquired, although a tool like Idra can alone guarantee accuracy and reliability of the data obtained.

Speaking of interferometry, the two tools that provide this examination and that I have available in the clinic are the Idra by SBM Sistemi and the Lipiview by Johnson & Johnson.

In the last year I have evaluated more than one hundred patients using both devices and the values are absolutely similar and comparable, taking into account that the measurements can however vary within a certain range between one blink and another or between one execution of the exam and another. As well as NIBUT, interferometry cannot in fact provide data that are exactly the same either by comparing them between the two instruments or by acquiring them with the same instrument: the values in nanometers of the thickness of the lipid layer change according to the type of blink of the patient, as well as the distribution of the lipid layer (and consequently its thickness) change according to the instant of measurement and the degree and type of opening and closing of the eyelid rim. A strong blink can in fact squeeze the glands and increase the expression of the Meibum, as well as a different closing and opening of the eyelids can generate a different distribution of the Meibum on the surface of the tear film. These are the reasons why it is difficult to have exactly superimposable results both by using the two instruments but also by repeating the measurement with the same instrument. The data must therefore be considered within a range which, on the other hand, remains absolutely reliable and superimposable between the two devices: below 15nm, between 15 and 30 nm, between 30 and 60 nm, between 60 and 80 nm and over 80-100 margin no. The value obtained, within a range, reflects the quality as well as the quantity of Meibum produced by the Meibomian glands. In this way, the interferometry associated with the examination of the meibomian glands and NIBUT acquires a fundamental value for understanding and diagnosing the type of dry eye and above all to help us define a specific and effective therapy.

Luca Vigo, MD

