

EUROTIMES

Ophthalmic biomarkers to become routine part of practice

The role of diagnostic biomarkers in ophthalmology is continuing to increase and they will soon become a routine part of clinical practice, with many more exciting potential developments coming down the line, said speakers during a dedicated session on “Biomarkers: from inflammation to genetic disease”, held during the second day of the 38th Congress of the ESCRS. Biomarker tests are increasingly being used in diagnosis of disease, but also have significant potential for disease monitoring, predicting disease progression and facilitating more personalised treatment, noted session co-chair José Benítez-del-Castillo MD. However, key issues currently include knowing when and how exactly to use such tests, specificity, costs and the need to identify many more useful biomarkers. Some speakers during this session emphasised the role of inflammation as the key pathway in the number of ocular surface disorders, and how biomarkers are very useful in detection of this. Rohit Shetty MD spoke about the currently available point of care tear fluid diagnostic tests looking at inflammatory markers in keratoconus such as LOX levels, which are easy to use, but said that translation kits are needed to fully realise their potential.

The future of successful biomarker use is going to include combining imaging, demography, molecular markers and predictive modelling with “artificial intelligence to ensure we have a very, very robust point of care kit”. Elisabeth Messmer MD, speaking about the detection of inflammation in dry eye, pointed out that while inflammation is a significant pathogenetic factor, it can often be subclinical making diagnosis a challenge, “so we need to test for inflammatory markers in the tear film (eg, MMP-9) as direct evidence of inflammation or hyperosmolarity of the tear film as indirect evidence of inflammation”. However, inflammation is also the key pathway in allergy and differentiating dry eye disease from allergy is a diagnostic challenge.

IMPROVING ACCURACY A number of ‘bed-side’ tear film tests are currently available, which are helpful to identify patients with significant ocular surface inflammation and autoimmune disease, which may facilitate clinicians to institute anti-inflammatory treatment, she said. However, none of the currently available tests are perfect and more work needs to be done on improving accuracy and refining the use of such tests, said Dr Messmer. Also speaking during this session was Marlies Gijs

MD, who gave a fascinating presentation on the latest research on the potential diagnosis of neurodegenerative diseases through the eye.

There remains a key need to diagnose these diseases sooner to allow a better chance at successful treatment. Given the close relation between the brain and the eyes, and the fact that ocular symptoms and changes in functional vision can be among the first early signs of many neurodegenerative diseases like Alzheimer's and Parkinson's, there is now increasing interest in the potential of eye-based scans and tear fluid analysis to help diagnose these diseases quicker, she explained. There have been some useful early lab findings to date, but a lot of work remains to be done before such diagnostics will be made available. Meanwhile, other speakers in the session included Marc Labetoulle MD, who discussed the detection of ocular viral infections, saying that combining PCR with antibodies in tears could be useful in diagnosis, while Jesus Merayo Lloves MD spoke about moving biomarkers from the laboratory to clinical practice, and the challenges therein.

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