AUTOIMMUNE BULLOUS DISEASES

VALIDATING THE BIOCHIP AND INTERRATER RELIABILITY IN BULLOUS PEMPHIGOID AND PEMPHIGUS PATIENTS

Anes Yang [1] - Rachel R Xuan [1] - Wei Melbourne [2] - Takashi Hashimoto [3] - Soner Uzun [4] - Maryam Daneshpazhooh [5] - Jun Yamagami [6] - Giovanni Di Zenzo [7] - Jose M. Mascaro Jr [8] - Hamidreza Mahmoudi [5] - Aikaterini Patsatsi [9] - Kossara Drenovska [10] - Snejina Vassileva [10] - Dedee F. Murrell [1]

St George Hospital, Dermatology, Sydney, Australia [1] - St George Hospital, Pathology, Sydney, Australia [2] - Osaka City University Graduate School Of Medicine, Dermatology, Osaka, Japan [3] - Akdeniz University, Dermatology, Antalya, Turkey [4] - Tehran University Of Medical Sciences, Dermatology, Tehran, Iran (islamic Republic Of) [5] - Keio University School Of Medicine, Dermatology, Tokyo, Japan [6] - Istituto Dermopatico Dell'immacolata, Idi-irccs, 7. Molecular And Cell Biology Laboratory, Rome, Italy [7] - Hospital Clinic And Barcelona University Medical School, Dermatology, Barcelona, Spain [8] - Aristotle University School Of Medicine, Dermatology, Thessaloniki, Greece [9] - Sofia University Of Medicine, Department Of Dermatology And Venerology, Sofia, Bulgaria [10]

Background: The BIOCHIP, a novel multiplex indirect immunofluorescence technique used in the serological diagnosis of bullous pemphigoid and pemphigus.

Objective: To validate the accuracy and inter-rater reliability of the novel multiplex BIOCHIP indirect immunofluorescence test in the diagnosis of bullous pemphigoid and pemphigus diseases.

Methods: For the validation of the BIOCHIP, sera from patients with BP (n=38), PF (n=8), and PV (n=23) were used. In addition, sera from disease control patients (n=63) and healthy control patients (n=39) were used. Sera were collected and analysed during the course of the disease at 1-5 different time points. The multiplex biochip was performed for all patients, images were captured of each incubated field and distributed to ten experienced dermatologists from around the world. There were 312 biochip slides consisting of 1872 photos in total. All patients were de-identified. The Krippendorff's alpha test was used to estimate the interrater reliability.

Results: The BIOCHIP mosaic showed a sensitivity and specificity of 86.8%, 85% for BP180 or BP230 being positive in BP and 75%, 97.7% for Dsg1 in PF and 60.9%,73.6% for Dsg3 in PV. The inter-rater reliability between the ten dermatologists was low for oesophagus, salt-split skin, dsg1, dsg3, BP180 and BP230, (α=0.2559, α=0.4155,

α=0.3911, α=0.4376, α=0.5575, α=2850 respectively).

Conclusion: The BIOCHIP mosaic-based immunofluorescence test is a simple, time and effort saving test that can aid in the diagnosis and screening of BP, PV and PF. However, there is potential for interpretation bias and a learning curve that needs to be taken into consideration.