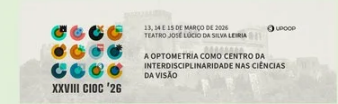


AUTOMATED ASSESSMENT OF TEAR FILM FLUORESCEIN BREAK-UP TIME AS A DIAGNOSTIC APPROACH FOR DRY EYE DISEASE



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OBJECTIVE

To assess the clinical performance of an automated software-based method for measuring tear film fluorescein break-up time (FBUT) and to determine its effectiveness in distinguishing subjects with dry eye disease (DED) from those without clinical signs of the condition.

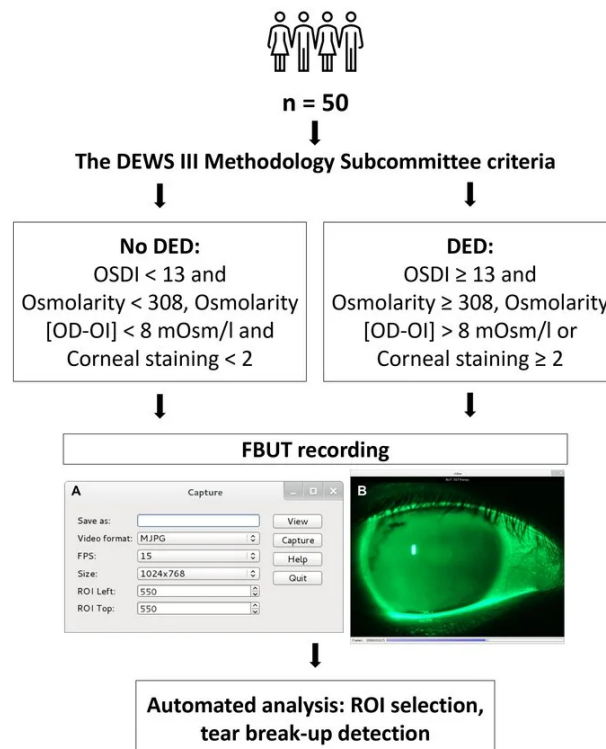


CONCLUSION

Automated FBUT analysis provides an objective and reproducible measure of tear film stability with relevant diagnostic value for DED. By minimizing examiner-related variability, this tool may contribute to improved consistency and standardization in the clinical assessment of the ocular surface.



METHODS



RESULTS

		Age (Years)*	OSDI (Score)**	Osmolarity (mOsm/l)*	Corneal Staining**	Manual FBUT (s)**	Automatic FBUT (s)**
No DED	Mean ± SD/ Median (IQR)	40.67 ±21.04	12.50 (2.28 -12.50)	305.44 ±18.48	0.00 (0.00 -0.50)	6.23 (5.75 - 10.22)	6.38 (3.07 - 8.69)
	Min.	18.00	0.00	280.00	0.00	5.42	2.47
	Max.	65.00	12.50	339.00	1.00	12.62	11.80
DED	Mean ± SD/ Median (IQR)	47.56 ±11.05	25.00 (20.83 -39.58)	319.20 ±15.41	1.00 (0.00 -1.00)	3.22 (2.29 - 4.15)	3.27 (2.36 - 5.31)
	Min.	20.00	14.58	288.00	0.00	1.33	1.34
	Max.	67.00	47.92	366.00	3.00	4.97	10.42
	p	0.365‡	<0.001†	0.023‡	0.300†	<0.001†	0.021†

Table. Descriptive stats of No DED & DED groups. SD = Std Dev; IQR = Interquartile Range; OSDI = Ocular Surface Disease Index; FBUT = Fluorescein Break-Up Time. *Mean ± SD for parametric; **Median (IQR) for non-parametric. ‡Unpaired t-test; †Mann-Whitney U test..

Optimal threshold: 6.19 s

Statistical values:

- AUC ± SD = 0.744 ± 0.094
- 95% CI = 0.560-0.928
- Significance = p < 0.023

Diagnostic ability:

- Specificity: = 90.2%
- Sensitivity: = 55.6%

