Dry eye disease (DED) affects millions of patients worldwide with a prevalence ranging from 5 to 50% and increasing with age [1], and is one of the most frequent causes of visits in the ophthalmic daily practice [2]. Visual disturbances and subjective discomfort symptoms or pain can significantly impact patient’s quality of life [3]. The definition of DED given in the TFOS DEWS II (Tear Film & Ocular Surface Society Dry Eye WorkShop) consensus [4] includes inflammation as one of the key elements contributing to the onset and triggering a self-sustaining vicious circle, involving cytokine release in tears.

Pro-inflammatory cytokines in tears have been shown to exert a key role in the pathogenesis of several ocular surface diseases, including DED [4,5], and increased concentrations are associated with the severity of DED clinical parameters, such as greater corneal staining and lower tear secretion [6–8].

The search for a marker of inflammation in the tears generated a great deal of research and several papers on the levels of tear cytokines in patients with DED of different severity, before and after several therapeutic approaches, have been published. However, despite the large body of evidence of the role of cytokine in the vicious circle of DED [4], no consensus has been reached so far as regards tear collection, methods of analysis, cut-off values, and panel of cytokines more involved in ocular surface disease.

Although tear cytokines have been investigated in a large number of studies, in addition to clinical confounders such as disease severity and not homogeneous criteria for DED diagnosis, variability in assay procedures may have contributed substantially to heterogeneity found in the published studies.

The major finding of the present meta analysis is that tear cytokine research in DED needs substantial improvement for defined and applied quality standards for study design, analytical performance, stratification of patients, a bigger sample size should be investigated.

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