Comments on: Glycerol-preserved corneal tissue in emergency corneal transplantation: An alternative for fresh corneal tissue in COVID-19 crisis

Dear Editor,

With much interest, we read the article entitled "Glycerol-preserved corneal tissue in emergency corneal transplantation: An alternative for fresh corneal tissue (FCT) in COVID-19 crisis" by Gupta *et al*.[1] This topic draws the heightened attention of ophthalmology fraternity, especially amidst a raging COVID-19 pandemic and we really appreciate the authors' ingenuity in discussing emergency corneal transplantation while comparing and evaluating FCT with glycerol-preserved cornea (GPC). There are however a few points that need attention in light of previously published literature.

We have put forth our thoughts on the topic.

Authors have stated that "Acellular GPC lacks antigen-presenting cells (APCs) and therefore cannot directly sensitize recipient's T-cells, making rejection a 'non-issue'."[1] We do agree that GPCs have a substantial reduction in cellularity and antigenicity, and hence diminished chances of immune rejection. However, there is neither absolute acellularity—hence, a complete lack of APCs, nor such corneal grafts are fully devoid of rejection risk.[2,3] Rejection—therefore, is definitely not a "non-issue," in GPCs.

It appears that important variables that determine antigenicity might have been overlooked. Antigenicity is variably found to be dependent on temperature during preservation, duration of preservation and presence or absence of molecular sieves.[4,5] Jinyang Li *et al*. with results of immunohistochemistry showed positive reaction for HLA-ABC antigen, HLA-DR antigen, and common leukocyte antigen CD45, which was reduced in all GPCs and was mainly located on corneal epithelium and limbus.[3] While Tripathi H *et al*. observed the positivity of GPCs for CD45 and HLA-ABC antigens similar to the fresh corneas.[4] Moreover, it might be considered a hyperbole to state that—there is 'no risk of rejection' with the use of GPCs [Ref: Table 5],[1] especially when uniform temperature (4°C) was used in preservation. Variable temperature causing antigenicity modulation is further substantiated by the fact that, HLA-DR was significantly reduced in corneas preserved at –80°C in comparison to those preserved at 4°C; which interestingly occurred in the stromal regions of GPCs.[4] We must acknowledge that authors did mention about lower antigenicity in GPCs; however, the statements quoted earlier could leave readers adrift in grasping the fundamental difference between GPC and FCT.

Authors have published a similar article in IJO with a larger sample size.[6] Point that drew our attention in the current study is the sample size of 'test group'—which remains the same, that is, 34 while the duration of study is significantly variable. This raises some concern and needs to be addressed, for a better understanding of the message, that this study aims to convey.

"It can be effectively used for saving the eyes when FCTs are not available and gives a good anatomical outcome instead of subjecting the patient to evisceration/enucleation."[1] This conclusion seems incomplete, since the rationale for using GPC, entails tectonic and therapeutic indications and will remain unaltered irrespective of the COVID pandemic. Hence, it should not be misconstrued that during COVID—GPC may be utilized for alternative emergency indications.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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Access this article online

Quick Response Code:

Website: www.ijo.in

DOI: 10.4103/ijo.IJO_2549_20

Cite this article as: Soni D, Karkhur S, Gupta R, Sharma B. Comments on: Glycerol-preserved corneal tissue in emergency corneal transplantation: An alternative for fresh corneal tissue in COVID-19 crisis. Indian J Ophthalmol 2021;69:171.