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Tokyo: Corneal endothelial precursor cell transplantation methodology, employing a Nanocomposite gel sheet has been awarded a Japanese patent to Chennai-based Nichi-in Centre for Regenerative Medicine (NCRM) and their Japanese collaborators.

"This patent, when licensed to interested institutes will help large number of patients suffering from standalone corneal endothelial diseases recover from visual morbidities," said Yoshio Morozumi, Chairman of Nichi-In from Tokyo, Japan.

"Our finding gives a new hope to such patients, as it is now considered that there is no treatment available for regenerating the damaged corneal endothelial cells, except to do a corneal transplantation either fully or partially, which again is marred by the shortage of donor-corneas," he added.

Human cornea has five layers among which three are functionally vital. One such layer, the corneal endothelium which is the inner most layer, when damaged, during cataract surgery or other reasons such as aging, physical injury or infection, leads to significant jeopardy of the vision.

Almost 50% of the patients, who require a corneal transplant, have standalone corneal endothelial disease. Corneal

endothelium is considered to be one of the most fragile and sensitive tissues in the human body which is very difficult to be cultured outside the body.

In the present accomplishment, the Indo-Japan team has not only cultured them in the lab, but have been able to transplant the same on to bovine cornea using a Nanocomposite sheet jointly developed with Prof. Kazutoshi Haraguchi, presently Professor, Biomaterial department, Nihon University, Japan.

According to NCRM, the institute is planning to license the technology to interested partners, which after necessary clinical trials is likely to help thousands of patients all over the world to recover their vision without corneal transplant. In India alone, annually 30,000 patients and in Japan around 4,000 patients are likely to be helped with this feat.