conferenceseries.com SciTechnol
15th International Congress on
VISION SCIENCE AND EYE
August 10-11, 2017 | London, UK

Nilufer Koyluoglu, Int J Ophthalmic Pathol 2017, 6:4
DOI: 10.4172/2324-8599-C1-002

Artificial vision for later stages of the retinitis pigmentosa with the argus II system

Nilufer Koyluoglu
Liv Hospital International, Turkey

Retinitis pigmentosa is a degenerative eye disease that causes progressive loss of vision. In RP, there is irreversible degeneration of the outer retina (the photoreceptors) while the inner retinal cells (bipolar cells, retinal ganglion cells) and visual pathway downstream remain intact. Affected people suffer from progressive visual loss which can be profound: 0.5% of people with RP above the age of 45 have no light perception and 25% have ≤1/10 vision in both eyes. A person who suffers with sight loss can experience difficulties relating to maintaining their independence, social isolation, activities of daily living and issues around financial support. Loss of visual field is associated with a decrease in physical mobility and difficulties in adjusting being blind. Treatment options for RP, other than for the associated cataract and macular oedema, are limited. Treatment is mainly aimed at slowing disease progression. The Argus II system is intended to treat patients at the most advanced stages of RP, for whom there are no other treatment options. It is the only CE-marked and FDA-approved option that can restore vision for end-stage RP patients. The epiretinal prosthesis: Argus II system The Argus II system works by bypassing damaged retinal cells and electrically stimulating retinal ganglion cells, creating visual perceptions (percepts) of light. This is the first example of a system, or any therapy, that has demonstrated improved visual function in the extremely low-vision range (NLP to HM) in this population. Insertion of an epiretinal prosthesis aims to restore perception of light, movement and shapes by surgically implanting an array of electrodes onto the retina The epiretinal prosthesis has two key components: The eye implant and the external camera system, comprising an eyeglass-mounted video camera and a small patient-worn computer (video processing unit, VPU) When the implant is on, the video camera in the patient's glasses records real-time images and sends them to the VPU. The VPU converts the images into data that are sent back to the glasses and are then wirelessly transmitted to the episcleral receiver unit, which in turn relays the data to the electrode array Electrical impulses are produced which bypass damaged photoreceptors and stimulate the remaining retinal cells. Visual information is then transmitted by the optic nerve to the brain, creating a visual perception. Patient selection must be careful and rigorous and the patient should be counselled to have realistic expectations: if the patient's expectations of the system are not fulfilled, the patient may stop using the system. To maximise the likelihood that patients receive benefit from the Argus II system, they should be motivated and willing to receive the recommended training and visual rehabilitation.

Biography

She graduated from Istanbul University, Istanbul School of Medicine in 1997. She has completed her residency in Istanbul Universtiy, Cerrahpasa School of Medicine, Department of Ophthalmology in 2002. She has worked in Turkish Diabetes Hospital since 2002. She has held the position of Medical Retina Specialist and Deputy Chief Physician in Dünyagöz Hospital between 2005-2016. She coordinated the initiation of the long-term partnership of Orbis which is a branch of the World Health Organisation and Dünyagöz Hospital Group. She is the ophthalmology consultant of telemedicine systems of GSM operators in Turkey. She coordinated the bionic eye treatment initiation (Argus II Retinal Implant) in Turkey, also incorporating the Frankfurt World Eye Hospital in Germany as a scientific committee and board member of Dünyagöz Foundation and Turkish Medical Academy. She initiated the projects Dunyadiyabet and Athletic Eye Health in order to contribute to 'Retina Awareness' as a clinical scientist to prevent the loss of resources that would be used for keeping patients healthy. She has been invited contribute to the Turkish Olympic Committee and is working with the Turkish Paralympic Committee. She aims that the eye would be a symbol for the preventive medicine globally, starting from athletes.

niluferkoyluoglu@gmail.com

Notes: