BIONIC EYE

Harbuzova E., *student*; Sumy State University, gr. LS-404

In modern life there are a lot of diseases. Scientists and researchers from all over the world investigate these diseases and try to find the newest ways of treating them. One of such troubles is problem with eyes. Very often people lose vision because of damaging their eyes or degenerative disease, for example, age-related macular degeneration.

Scientists for more than ten years have been developing an optical implant. With the help of this device they wanted to restore loss of vision. At least they achieved success. The prosthetic was made at Stanford University in California. This implant was named as a "bionic eye". Officially "bionic eye" is named as the Argus II. It is a wireless communication system implanted in the damaged eye. "Bionic eye" catches images and sends them to the brain.

Special eyeglasses are necessary for this system to work. They contain a camera which is mounted on one of the lenses. This tiny camera records images and sends the information to a video processor. The next step – the video processor changes these images to an electronic signal. On the surface of the eye there is a special receiver. It accepts the information from the transmitter. Then this information is sent to an electrode array inserted in the retina. As a result electrical pulses are produced. These pulses invoke signals in the retina that pass through the optic nerve to the brain. The brain interprets the signals as light and dark spots.

Doctors can't completely restore normal vision, but the patient will be able to differentiate between light and dark dots and reveal high-contrast images.

In October 2014, Hester was the seventh person of the U.S. who received a retinal implant.

Advantage of this prosthetic is in its size. It is thin and wireless device so is easier to implant. Researchers hope that blind people will be able to identify simple features and recognize faces.

E L Adviser Nefedchenko O.