

Intraocular Pressure Sensor

Integrated System to Monitor and Adjust Eye Pressure

Intellectual Property

ID Number 160

Contact

EVMS Technology Transfer
Tel: 757-446-7112
techtransfer@evms.edu

Inventors

Frank Lattanzio, PhD
Thomas Delahanty

Field

Ocular pressure monitoring

Technology

Integrated system with a valve, sensor, receiver, and software

Key Benefits

Remote monitoring and adjustment

Stage of Development

Successful animal model test
Miniaturized version in testing

Status

Seeking sponsored research and licensing partners

Patent Status

US 2009/0275924

Monitor and Adjust Pressure in “at Risk” Glaucoma Patients

This unique integrated system combines drainage control and monitoring through an implantable medical device. A valve controlled by a pressure sensor allows constant monitoring and non-invasive adjustment of intraocular pressure (IOP) by the treating physician after initial implantation.

Description of the System

The design includes a miniature telemetric valve (automated measurement and data collection with transmission to remote receiving equipment), pressure sensor, and adjustable monitoring software.

Market

Glaucoma is a serious chronic degenerative disease that increases with an aging population. It is the second leading cause of blindness with an estimated incidence of over 60 million worldwide.

Ocular Hypertension, an IOP greater than 21 mm Hg, is estimated to affect 3 to 5% of the population over 40 years old. An Ocular Hypertension Treatment Study found that the conversion rate to glaucoma is 9% over five years in untreated patients, compared to 4.4% in treated individuals. Risk factors for conversion to glaucoma increase with age, higher IOP, larger cup-to-disc ratio, and thinness of the central cornea.

Glaucoma medications are expensive, needed daily, cause side effects, and may not be able to stop damage from the disease. Filtration surgery, tube shunt surgery, and laser treatments also have significant limitations. Improvements are expected in the next five years but the most promising developments are expected to be in minimally invasive devices (MIGS). These devices are expected to drive most of the growth in glaucoma surgery devices over the next five years, with revenues increasing at a compounded annual growth rate of 51%. Currently, each of the five main MIGS companies has sales exceeding \$24 million per year. MIGs are expected to generate nearly two thirds of 2015 glaucoma surgical device revenues.

The treatment market for glaucoma will rise from \$1.7 billion in 2013 to \$2.2 billion by 2023 at a compound annual growth rate of 2.5%. The pressure monitoring market, including IOP monitoring, is expected to reach over \$8 billion by 2020 from \$6 billion in 2015.

Opportunity

EVMS is seeking sponsored research and/or licensing partners to commercialize this technology.