

Glaucoma Treatment Market Value Projected to Hit \$3 Billion by 2023

The treatment market for glaucoma will rise in value from \$2.4 billion in 2013 to approximately \$3 billion by 2023 across the seven major markets of the United States, France, Germany, Italy, Spain, the United Kingdom, and Japan, according to research and consulting firm GlobalData. This increase represents a moderate overall compound annual growth rate of 2.4%, the company said.

GlobalData's latest report states that growth will be driven by the approval of innovative first-in-class drugs such as Rhopressa and Roclatan (both from Aerie Pharmaceuticals), latanoprostene bunod (Vesneo; Bausch + Lomb), and trabodenoson (Inotek Pharmaceuticals) and by the introduction of additional fixed-dose combination (FDC) products such as tafluprost and timolol maleate (Tapcom; Santen), tafluprost and timolol (Taptiqom; Santen), and brimonidine and brinzolamide (Simbrinza; Alcon) during the forecast period.¹

According to Catherine Daly, PhD, a senior analyst with GlobalData, sales for glaucoma treatment will remain relatively flat until 2016, followed by a period of sustained growth due to the arrival of pipeline drugs.

"The six products anticipated to enter the [seven major markets] during the forecast period will collectively generate sales of \$672 million by 2023, constituting a 22.2% share of the global market," Dr. Daly said in the

report. "Aerie's Roclatan is forecast to achieve the highest sales among these drugs and is expected to generate approximately \$262 million in 2023. Significant uptake of Roclatan in the [United States], due to the drug's enviable position of becoming the first prostaglandin, analog-containing FDC product available in this large arena, will be the main overall market driver."

GlobalData's report also said that the United States will consolidate its position as the dominant country for glaucoma treatment within the seven major markets. US sales are expected to increase from \$1.7 billion in 2013 to \$2.2 billion by 2023 at a compound annual growth rate of 2.5%, with its overall market share rising slightly from 70.7% to 71.6% over the same period.

"This increase is mainly attributed to the expected introduction of several new products between 2013 and 2023 and the overall increase in glaucoma prevalence that is mostly due to an aging society in the [United States]," Dr. Daly said. "However, Allergan will lose patent protection for its FDC drug Combigan [brimonidine and timolol] in 2022, allowing generic brimonidine and timolol FDC products to enter the arena. This will negatively impact the US market value and slow the overall growth rate in the last 2 years of the forecast period."

1. GlobalData. Pharmapoint: Glaucoma: global drug forecast and market analysis to 2023. Pharmapoint: Glaucoma-Global Drug Forecast and Market Analysis to 2023. <http://bit.ly/1fCJ1L>. Accessed June 11, 2015.

EyeGate Signs Licensing Agreement with Valeant for Uveitis Treatment

Eyegate Pharmaceuticals has entered into an exclusive, worldwide licensing agreement with a subsidiary of Valeant Pharmaceuticals International, according to a news release. Under the terms of the agreement, EyeGate has granted Valeant exclusive worldwide commercial and manufacturing rights to its EyeGate II Delivery System and EGP-437 combination product ("Product") for uveitis as well as a right of last negotiation to license the Product for other indications.

EGP-437, Eyegate's first and only product in clinical trials, incorporates a reformulated topically active corticosteroid, dexamethasone phosphate, that is delivered into the ocular tissues through the company's proprietary EyeGate II Delivery System.

According to the news release, EyeGate will receive an

upfront cash payment, development-based milestone payments related to the completion of development for the indication of anterior uveitis, and an approval-based milestone payment upon the FDA's approval of the Product. Additionally, the company will receive royalties based on net sales and additional milestone payments based on the achievement of certain cumulative sales milestones. Eyegate will be responsible for the development of and associated costs for the Product in the United States for the indication of anterior uveitis. Valeant has the right to develop the Product in the field outside of the United States and has agreed to fund 100% of the associated costs.

FDA Awards ISTH0036 Orphan Drug Designation

The FDA granted orphan drug designation to Isarna Therapeutics for ISTH0036, a locked nucleic acid-modified antisense oligonucleotide, for the prevention

of scarring after glaucoma filtration surgery, according to a company news release. The FDA's decision follows the European Medicines Agency's recent orphan drug designation for the drug candidate, which is currently in phase 1 clinical evaluation in glaucoma patients.

According to the company, ISTH0036 is currently the only compound in clinical development worldwide that directly targets TGF- β 2, a core driver of glaucoma pathophysiology. In addition to glaucoma, several other diseases in ophthalmology have been linked to the modulation of TGF- β , including diabetic retinopathy, proliferative vitreoretinopathy, and multiple corneal diseases.

Sensimed Announces Product Registration and Collaboration With Japanese Company

Sensimed announced the product registration of the Sensimed Triggerfish in Japan, according to a company news release. As a result of a strong collaboration with Seed, a Japanese contact lens manufacturer, the device will be available starting in the fall of 2015.

The Sensimed Triggerfish is a noninvasive, soft contact lens-based solution that provides an automated recording of continuous ocular dimensional change over 24 hours. The contact lens is reportedly well tolerated and uses telemetry in combination with a fully integrated sensor to measure volumetric change of the eye. To date, Sensimed has published over 25 peer-reviewed articles in ophthalmic journals to support these conclusions. The measurements are reportedly highly correlated with IOP change.

In addition to preparing for the establishment of a sales structure for the Japanese market, the two companies intend to quickly accumulate clinical data from specialized medical centers focused on confirming the medical utility of the Sensimed Triggerfish in the field of glaucoma. The focus in Japan will be on the large number of patients who have normal-tension glaucoma where standard IOP measurement tools are inadequate and where there is a large unmet need for an alternate diagnostic tool. The 24-hour profiles provided by the device, linked with disease progression, will be analyzed and modeled in an attempt to confirm pathological patterns that can be used to categorize the disease state and aid personalized treatment.

Sensimed said working toward validating that ocular dimensional change over a 24-hour period has clinical significance and can be used to predict the course of the disease and aid therapeutic choices. According to the news release, early analysis of significant in-house patient data suggests features in the device's curves have the potential to be both a diagnostic and predictive tool.

Online Survey Results May/June 2015

Do you track how insurance companies categorize you to patients?

Yes 50%

No 50%

Do you believe that patients should share the cost of MIGS procedures?

Yes 61.11%

No 38.89%

First Glaucoma Patients Treated in the Netherlands With the InnFocus MicroShunt

The first three surgeries in the Netherlands using the InnFocus MicroShunt (InnFocus) glaucoma drainage implant have been conducted, according to a news release. The device is being evaluated in studies to prove it is a safe, effective, sustainable, and easy-to-perform alternative for the surgical treatment for early- to late-stage glaucoma.

"The surgeries went very well, and the patients are showing good results," Henny Beckers, MD, PhD, of the University Eye Clinic Maastricht, said in a news release. "The surgery has the promise to be a better, faster, and safer alternative to trabeculectomy or tube surgery, which could encourage surgeons to perform this procedure earlier, thus allowing patients to get off some or all of their medications quicker. We believe this technology holds great promise in the battle against glaucoma."

Patients have now been treated with the InnFocus MicroShunt in France, Japan, Spain, Switzerland, and the Dominican Republic, and more than 200 glaucoma patients have been treated worldwide, according to the news release. Enrollment in phase 1 FDA trials has concluded at 13 centers in the United States. The company said it expects the final clinical trial phase to begin subsequent to FDA review of the phase 1 data.

InnFocus recently reported results of 82 glaucoma patients for up to 3 years treated outside of the United States. Patients have reportedly experienced a mean reduction in IOP to below 15 mm Hg.

According to InnFocus, the patented microshunt is made from the innovative SIBS material to control flow. The device reportedly provides a quick and simple method of shunting aqueous humor from the anterior chamber to a diffuse bleb without the use of a scleral flap.

FDA Agrees to Modify the Primary Endpoint Range for Rocket 2

The FDA has agreed in written and verbal communications that Aerie may change the primary endpoint range of its second phase 3 registration trial of Rhopressa (Rocket 2), according to a news release. With this agreement, Aerie is changing the primary endpoint range to include patients with baseline IOPs ranging from above 20 mm Hg to below 25 mm Hg, the same range in which Rocket 1 demonstrated success. The former range for the primary endpoint of above 20 mm Hg to below 27 mm Hg will now represent a secondary endpoint range for Rocket 2.

The FDA also agreed that Aerie may use a hierarchically based statistical approach for determining whether the three-armed trial is adequately powered at the revised primary endpoint range. Aerie said it believes that, using this methodology, the new primary endpoint range is adequately powered and that there is no need to recruit additional patients into Rocket 2. The company expects 3-month efficacy results for Rocket 2 by the end of the third quarter of this year and plans to start an additional Rhopressa phase 3 registration trial (Rocket 4) in the third quarter, along with the first Roclatan phase 3 registration trial (Mercury 1).

There were originally three phase 3 registration trials for Rhopressa. Rocket 1 was a 90-day efficacy trial, the results of which were initially reported on April 23, 2015. Rocket 2 is a 12-month safety trial with a 90-day interim efficacy readout, and Rocket 3 is a safety-only study being conducted in Canada. In Rocket 1, for the primary endpoint range of above 20 mm Hg to below 27 mm Hg, Rhopressa did not demonstrate noninferiority to timolol. Rhopressa did demonstrate noninferiority to timolol at all ranges below 26 mm Hg. The primary adverse event was hyperemia, which occurred in 35% of the Rhopressa patients, among whom 80% of cases were reported as mild.

Based on the current clinical trial status, Aerie may submit a New Drug Application filing in the second half of 2016.

Bimatoprost Ocular Insert Sustained IOP Reduction for 6 Months

A single administration of the bimatoprost ocular insert (Helios; ForSight Vision5) produced a sustained reduction in IOP for 6 months, according to data presented by Ivan Goldberg, AM, MBBS (Syd), FRANZCO,

Letter to the Editor: Pharmacotherapy Update

The following letter regards Dr. Novack's article "Why Are There Not More Pharmacotherapies for Glaucoma?" which appeared in our March/April 2015 edition.

At the time I prepared my article, I was unaware that, in December 2014, Kowa received approval for Glanatec (ripasudil, previously known as K-115) in Japan. As far as I know, this is the first approval worldwide for a topical Rho kinase inhibitor for the lowering of IOP.

Gary D. Novack, PhD
San Rafael, California

Correction:

The incorrect Figure 2A ran in the article "LPI, Iridoplasty, or ECP for Chronic Angle-Closure Glaucoma?" by Shan Lin, MD, which appeared in our March/April 2015 edition. The correct figure is available at <http://bit.ly/1UZTpIG>.

FRACS, at the World Glaucoma Congress in Hong Kong.¹ ForSight Vision5 is developing noninvasive ophthalmic products to replace eye drops and provide sustained therapy for major eye diseases, including glaucoma, dry eye, and allergy.

The phase 1b data were collected from a multi-center, prospective, single-arm, open-label, pooled analysis of the bimatoprost ocular insert. In an analysis of 27 subjects, the mean diurnal IOP at washout was 23.9 mm Hg, and a mean sustained diurnal IOP reduction of 4.7 to 6.5 mm Hg was observed for 6 months. There were no reported serious or unexpected ocular adverse events.

ForSight Vision5 said it continues to advance the clinical development of the insert. The phase 2 dose-ranging study (FSV5-004) is a prospective, randomized, double-masked, controlled study designed to evaluate the efficacy, safety, and dose response of two loading doses of the bimatoprost ocular insert compared to a control arm in subjects (N = 121) with open-angle glaucoma or ocular hypertension. Enrollment for the phase 2 study is complete, the company said. ■

Ivan Goldberg, AM, MBBS (Syd), FRANZCO, FRACS, is a consultant to ForSight Vision5.

1. Goldberg I. Maintenance of IOP reduction for 6 months with a single dose of a novel topically applied bimatoprost ocular insert in patients with open-angle glaucoma or ocular hypertension. Poster presented at: The Glaucoma World Congress; June 6-9, 2015; Hong Kong, China.