

## The Role of Doctors of Optometry in Team-based Care of Inflammatory Bowel Disease and Colonic Malignancies

The clinical manifestations of common inflammatory bowel diseases (*IBDs*), including Crohn's disease (*CD*) and ulcerative colitis (*UC*), are not restricted to the gastrointestinal tract. *IBDs* have impact to other organs in a significant number of patients, including the eyes in 72.1 percent of patients with *IBDs*.<sup>i ii</sup>

These manifestations, known as extraintestinal manifestations (*EIMs*), associated with the eyes, include inflammatory changes in blood vessels of the conjunctiva and sclera (*i.e. white part of the eye*), and ciliary body (*i.e. underbody to the iris, the colored part of the eye*). Left untreated, these manifestations can cause temporary and/or permanent vision loss.

These minute *EIMs* that occur within the eye allow a doctor of optometry (*optometrist*) a unique opportunity to identify exacerbations of *IBDs* during a comprehensive eye examination. The comprehensive eye examination may provide an earlier definitive diagnosis of an *IBD*, which can lead to earlier and more effective treatment. Identification of bowel disease from a comprehensive eye examination is not limited to *IBDs*. Other conditions, genetic diseases and fatal bowel related malignancies, such as familial adenomatous polyposis (*FAP*), associated with Gardner's Syndrome, have been identified in the retinal examination portion of the comprehensive eye examination.<sup>iii iv</sup>

During the dilated comprehensive eye examination, doctors of optometry use ophthalmic devices such as a slit lamp and binocular indirect ophthalmoscope, together with special condensing lenses, to examine various structures and tissues of the eye under stereoscopic illuminated magnification.

During dilated eye examination, colonic malignancies with extracolonic manifestations, such as *FAP*, can be seen in the form of congenital hypertrophy of the retinal pigment epithelium (*CHRPE*).<sup>v</sup> *FAP* has autosomal dominant inheritance with virtually 100 percent risk of colonic malignancy in adult life.<sup>vi</sup> There may be other associated systemic abnormalities including extracolonic malignancy. Due to the high risk of significant sequelae, early detection of disease is highly advised and desired, such as during a comprehensive eye examination.

Inflammation associated with the bowel and *IBDs* can cause a variety of ophthalmic conditions, including but not limited to the following:

- Episcleritis
- Scleritis

- Keratoconjunctivitis sicca (*dry eye*)
- Retinal edema
- Optic neuritis (*swelling of the optic nerve*)
- Extraocular muscle nerve palsies<sup>vii</sup>

All of these manifestations can range in severity from mild to severe, can be temporary or permanent, and can cause significant loss of quality of life and be visually disabling.<sup>viii</sup> The most common ocular complication associated with bowel disease is dry eye syndrome, one of the most common diseases of the human eye.

Evaluation of the eye should be a routine component of care in patients with IBD just as it is with similar chronic co-morbid systemic conditions like diabetes.<sup>ix</sup> The doctor of optometry has the ability to provide personalized feedback to both the patient and the interprofessional health care team regarding any IBD prescribed drug therapies (*i.e. Aminosalicylates*). This feedback is important as these therapies may cause several ocular side effects, including, but not limited to change in distance and near vision. The use of systemic and topical corticosteroids in moderate IBD disease also requires close monitoring by the doctor of optometry for any associated elevation in intraocular eye pressure or optic nerve change, as these may indicate potential signs of vision threatening disease, such as glaucoma.

Systemic or multi-system diseases like IBD, which affect public health and have any amount of ocular involvement, are best approached through team-based interprofessional health care that includes doctors of optometry as a primary health care provider in the continuum and communication of care. The team-based comprehensive health care approach is in the best interest of individuals and communities.<sup>x</sup>

The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) is the U.S. agency that conducts, supports, and coordinates research on IBD and diabetes.<sup>xi</sup> The Institute supports clinical research on the diseases of internal medicine and related subspecialty fields and disciplines. To “seize full advantage of the opportunities ahead,”<sup>xii</sup> the NIDDK work should include doctors of optometry within the sphere of IBD and diabetes advisors. Due to the connection of IBDs to eye conditions, doctors of optometry may be engaged in the latest developments in IBDs and in turn lend expertise to clinical colleagues about links between eye conditions and IBDs.

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<sup>i</sup> Troncoso LL, Ophthalmic manifestations in patients with inflammatory bowel disease: A review. *World J Gastroenterol.* 2017 Aug 28;23(32):5836-5848.

<sup>ii</sup> Lee HJ, Ophthalmologic manifestations in patients with inflammatory bowel disease. *Intest Res.* 2017 Jul;15(3):380-387.

<sup>iii</sup> Troncoso, L., Biancardi, A, de Moraes Jr, H, and Zaltman, C. Ophthalmic manifestations in patients with inflammatory bowel disease: A review: *World J Gastroenterol.* 2017 Aug 28; 23(32): 5836–5848.

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<sup>iv</sup> McKay DL, Congenital hypertrophy of the retinal pigment epithelium and familial adenomatous polyposis. Aust N Z J Ophthalmol. 1993 Feb;21(1):3-6.

<sup>v</sup> Traboulsi EI. Ocular manifestations of familial adenomatous polyposis (Gardner syndrome). Ophthalmol Clin North Am. 2005 Mar;18(1):163-6, x. PubMed PMID: 15763201.

<sup>vi</sup> McKay DL, Congenital hypertrophy of the retinal pigment epithelium and familial adenomatous polyposis. Aust N Z J Ophthalmol. 1993 Feb;21(1):3-6.

<sup>vii</sup> J. Kanski, The Eye in Systemic Disease. Butterworth & Co. Publishers Ltd.

<sup>viii</sup> Troncoso, L, Ophthalmic Manifestations in Patients with Inflammatory Bowel Disease: A Review, World J Gastroenterol. 2017 Aug 28; 23(32): 5836-5848.

<sup>ix</sup> Lee HJ, Ophthalmologic manifestations in patients with inflammatory bowel disease. Intest Res. 2017 Jul;15(3):380-387.

<sup>x</sup> Pinkston, W. 21st Century Optometric Care for the 21st Century Pandemic, AOA Focus, November/December 2018. <http://aoa.uberflip.com/i/1056416-the-great-diabetes-pandemic>

<sup>xi</sup> <https://www.niddk.nih.gov/about-niddk/Pages/default.aspx>

<sup>xii</sup> <https://www.niddk.nih.gov/about-niddk/meet-the-director/Pages/meet-director.aspx>