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Correlation of diabetic retinopathy with gut microbiota in type 2 diabetes mellitus

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Introduction: The retina is a light-sensitive nerve layer located at the back of the eye that creates images of objects. These cells kept alive by getting oxygen and nutrients from tiny blood vessels in the eye. Retinopathy is a disease of the retina that is more prevalent in type 2 diabetes mellitus T2DM patients. Diabetic retinopathy DR is a leading cause of blindness because hyperglycemia weakens retinal capillaries, resulting in leakage of blood into the surrounding space. This bleeding can result in the formation of scar tissue, which can cause tractional retinal detachment and maculopathy (Proliferative DR). Recently, it has been proven that the human resident microbiota plays roles in health maintenance. Chronic inflammation associated with resident microbiota has been found to contribute to the T2DM occurrence. As one of the most concerned obesity-related disorders, T2DM is associated with abnormal energy metabolism and low-level chronic inflammation in fat tissues. Moreover, the microbiota is altered in the development of T2DM and its associated medical complications as diabetic and renal retinopathies. DR usually developed in more than 60% of T2DM patients and hence is related to gut microbiota imbalance.

Purpose: To find the relationship between the Diabetic retinopathy with the overgrowth of certain gut bacterial strains.

Materials & Methods: This study will involve thirty subjects subdivided into three groups: group I: twenty healthy controls, group II twenty T2DM with background DR, and group III twenty diabetic T2DM with non-proliferative DR. All subjects undergone full ophthalmic and fecal microbial examination.

Results: This review summarizes the current knowledge concerning the altered microbiota in the pathogenesis of T2DM and its related complications, which provides novel insights into these diseases and the potential intervention strategies from the microbiology point of view.

Recent Publications

1. May Ibrahim AlKhudair , Rania Medhat Fahmy and Ahmed A Al-saleh (2014) Comparative study of corneal biomechanical properties between myopes and hyperopes. *Austin Journal of Clinical Ophthalmology* 1(1):5.
2. Fahmy R M (2016) Pterygium Resection with Amniotic Membrane Grafting in a Patient with Xeroderma Pigmentosum. *Austin Journal of Clinical Ophthalmology* 3(2):1066.
3. Fahmy R M (2016) Correlation between anthropomorphic measurements and ocular parameters among adult Saudi females. *Austin Journal of Clinical Ophthalmology* 3(2):1070.

Biography

Rania Fahmy has been a full-time Academic Professor at King Saud university since 2011. She has been cross-appointed to the Department of Ophthalmology at the Kasr Al Aini Hospital in Cairo University Egypt, as a Consultant Ophthalmologist. She is a known specialist in ocular anterior segment disorders and refractive surgeries in both children and adults.

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