

Letter to Editor

Retinopathy of Non-Communicable disease origin: Bringing the screening services close to the community

Running Title: Community screening services for retinopathy of NCD origin

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Abstract

Diabetes mellitus (DM) and Hypertension (HTN) are associated with micro-vascular complications like neuropathy, nephropathy and retinopathy affecting the quality of life of the affected individuals. Retinopathy due to DM & HTN is an important complication associated with various degree of ocular morbidities including total loss of vision. Screening for retinopathy, a preventable complication leading to blindness due to DM and HTN, is not done or often ignored especially due to lack of logistic for screening or lack of skilled manpower to do this job. In a resource poor setting like India, it is also not feasible to have an ophthalmologist at the PHC level for screening of retinopathy. A trained medical officer can screen retinopathy using direct ophthalmoscope which is simple and easy to operate device. Screening services at PHC level will improve the patient compliance for regular follow up for retinopathy, in addition of reducing the burden on tertiary care hospital.

Keywords: Non-Communicable Disease, Diabetic retinopathy, Hypertensive retinopathy, Screening, PHC, Medical officer, Tele-medicine

The burden of non-communicable diseases (NCDs) has outgrown the communicable diseases in developing countries like India. Diabetes mellites (DM) and hypertension (HT) contribute significantly to the burden due to NCDs [1].

DM is a growing challenge in India with an estimated 8.7% diabetic population in the age group of 20 and 70 years as quoted by the WHO 2016 Diabetes India report [2]. According to NFHS 4 data by the Government of India, 7.5% of Indians are hypertensives [3]. The rising prevalence of

DM and other non-communicable diseases is driven by a combination of factors like rapid urbanization, sedentary lifestyles, unhealthy diets, tobacco use, and increasing life expectancy. Obesity and overweight are the most important risk factors responsible for diabetes.

Both DM and HT are associated with microvascular complications like neuropathy, nephropathy and retinopathy. To prevent morbidity and mortality, the National Program for Prevention and Control of Cancer Diabetes Cardiovascular Diseases and Stroke (NPCDCS) recommends early detection of complications through screening annually and appropriate referral or counselling. Retinopathy due to diabetes (DR) and hypertension (HR) is an important complication associated with various degrees of ocular morbidities varying degrees including total loss of vision [4]. Due to the lack of proper screening and treatment facilities mainly at the primary and secondary care level, many undiagnosed and uncontrolled diabetic patients become blind.

NCDs clinics are run at the primary health centre level to provide comprehensive primary health care including referral services to manage the NCDs appropriately and optimally. Managing complications of NCDs requires prompt and early referral through early detection. Certain components of DM and HT complications are managed in PHC. Like the nephropathy part is screened by biochemical markers including blood urea and serum creatinine, the neuropathy part is screened by fine touch, pressure and sensation test, and cardiovascular component by ECG. But, retinopathy is often not touched upon.

Screening for retinopathy, a preventable complication leading to blindness due to DM and HT, is not done or often ignored, especially due to lack of logistics for screening or lack of skilled manpower to

do this job. In addition, there is a misconception that only ophthalmologists can screen DR as it requires the operation of a high-end instrument (like a direct/indirect ophthalmoscope).

A direct ophthalmoscope is simple and easy to operate. A trained medical officer can screen for retinopathy due to NCDs [5]. The medical officer can be imparted the skill of operating a direct ophthalmoscope and interpret the findings to decide on the referral of the patient to a higher centre for management of retinopathy. Also, telemedicine screening may be undertaken to screen patients with DR and HR. A major advantage of having digital technologies is the ability to transmit images to a centralized reading centre/tertiary care centre for grading. This process involves a remote imaging system, a centralized grading centre and a data storage system. A significant increase in the rate of retinopathy surveillance and the rate of laser treatment for retinopathy can be achieved by implementing retinal image technology like hand-held fundus cameras in the primary health care setting. Medical officers can also be trained to capture the fundus image for the same [6]. Both ophthalmoscopy and hand-held fundus camera are as good for screening DR and HR by medical officers [7].

In a resource-poor setting like India, it is not feasible to have an ophthalmologist at the primary health centre (PHC) level for the screening of DR. Also, the diagnostic and treatment facilities are limited to urban tertiary care centres which are unable to meet the needs of the entire population of India.

The screening will prove to be beneficial at any stage of the long latent phase of the disease and will also help avoid blindness among 90% of patients. Screening for retinopathy is cost-effective when compared with disability loss for people going blind in the absence of a screening program.

So, the early diagnosis at PHC not only can be cost-effective but also improve patient compliance for regular follow-up for DR and HR. In addition, this will reduce the burden on tertiary care hospitals concerning DR and HR screening services.

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