

Review of: "Evaluation of a low-resource screening strategy for ophthalmic pathologies and associated neurological morbidity in an older Tanzanian HIV-positive population"

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Potential competing interests: The author(s) declared that no potential competing interests exist.

This is an interesting cross-sectional study which aimed to determine the clinical utility of retinal images in the identification of HIV-associated neurological morbidity in HIV positive individuals in Tanzania. As a secondary objective, the study aimed to determine the feasibility of remote retinal screening with smartphone-based retinal cameras in such context. Even though the authors discuss the plausibility of a possible association between retinal changes and neurological morbidities, they conclude that Identification of such retinal changes does not appear to be a useful strategy for identifying the desired outcome due to a poor diagnostic accuracy.

The study presents some methodological issues; as stated below:

1.The definition and clinical meaning of “retinopathy”: the retinal changes used as criteria for “retinopathy” are not specific to HIV-related diseases; the study design did not allow the association of such retinal signs with direct damage from HIV or opportunistic infections. More than half of suspected HIV retinopathy patients had hypertension, and a considerable number of them had glycosuria, for example.

2.Ophthalmologic evaluation:

- since the authors did not use best-corrected visual acuity, such variable (“visual impairment”) loses clinical importance;
- visual field was evaluated by confrontation, which is not a reliable method;
- the authors mention the presence of cataracts, but no slit-lamp examination is mentioned, raising the question of how cataracts were evaluated;
- some of the retinal images were reported as having low-to-moderate quality: how was quality assessed?

3. The study lacks a control group of non-HIV individuals; possibly such individuals would present similar visual complaints and retinal findings, maybe related to comorbidities such as diabetes and hypertension.

4. Due to its cross-sectional design, the study was not powered to predict future outcomes; a prospective

study would be warranted in order to investigate retinal findings as potential predictive biomarkers.

The authors discuss some of those issues in the Limitations section.

Even though the authors found a negative result, the study highlights the importance of portable retinal cameras and telemedicine in underserved areas. Such tools are adequate in that context for addressing ophthalmological problems including ocular complications of systemic diseases such as diabetes, but currently there are no consistent evidence to recommend their use for risk evaluation of HIV-related neurological morbidity. Further studies are warranted in order to look for association of fundus findings with other prevalent, chronic diseases. A better definition of candidate ocular signs that could serve as biomarkers of systemic morbidity, as well retinal evaluation by other methods such as ocular coherence tomography, should be pursued.