

Identifying Undetected Prevalent Disease: The First-Pass Effect in Diabetic Eye Screening Programmes

Recivall P Salongcay MD MPM, Tunde Peto MD PhD, Paolo S Silva MD

Introduction



Study Design

Comparative cross-sectional evaluation of the rates of diabetic retinopathy (DR)



Purpose

To compare rates of referable DR (refDR) identified on a rapid assessment of avoidable blindness and DR (RAAB+DR) with community-based diabetic eye screening programme (DESP)

Methods

RAAB+DR

- RAAB+DR was performed following standard methodology using random compact segment sampling
- Ultrawide field imaging (UWFI) was added to assess DR and diabetic macular edema (DME).
- RAAB+DR was performed from August to October 2017 in preparation for the implementation of the DESP.

DESP

- DESP was performed using a validated methodology of 5-field 50-degree mydriatic retinal imaging (disc, macula-centered, superior, inferior and temporal)
- Taken using mobile cameras that has been shown to have substantial levels of agreement for DR/DME ($K_w=0.79/0.81$) compared to standard Early Treatment Diabetic Retinopathy Study (ETDRS) photography.
- DESP is ongoing, and the data presented was collected from February to March 2021 and represent 10.6% of the screening target.

RefDR was defined as moderate nonproliferative DR (NPDR) or worse, any DME or ungradable images.

Results



- RAAB+DR and DESP evaluated the same target population
- Total of 1,609 individuals were evaluated in the RAAB+DR, with **341** (21.2%) people with diabetes (PwDM)
- DESP evaluated **562** PwDM

	RAAB+DR (n = 341)	DESP (n = 562)
No DR	239 (70.1%)	335 (59.6%)
Mild NPDR	38 (11.1%)	92 (16.4%)
Moderate NPDR	35 (10.3%)	51 (9.1%)
Severe NPDR	10 (2.9)	39 (6.9%)
PDR	19 (5.6%)	33 (5.9%)
With DME	34 (10.0%)	30 (5.3%)
Ungradable Images	9 (2.6%)	31 (5.5%)
RefDR	86 (18.7%)	169 (30.1%)

Conclusions

In this cohort, there was a **61% increase in the rate of refDR** that will need to be accommodated in the existing health care system.



In the initial year of screening there will be a significant **first-pass effect**, detecting higher levels of previously undetected prevalent disease.



Due to this first-pass effect, the **planning of DESP needs to account for this initially large demand** placed on eye care services.

For questions or queries, please email: r.salongcay@qub.ac.uk



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