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DESIGN. Retrospective observational study.

PURPOSE. The World Health Organisation (WHO) highlighted the importance of reporting trends and progress in preventing avoidable blindness in its 2009–2013, in order to evaluate the impact of different strategies. This study aims to understand the trends in the incidence of sight (SI) and severe sight impairment (SSI) certifications over a decade prior to the Covid-19 pandemic.

METHODS. Certifications for SI and SSI in England and Wales are received by the certification's office at Moorfields Eye Hospital, London.

RESULTS. Since 2010 there has been a gradual reduction in certifications for SI and SSI in England and Wales from 72.8 to 41.3 per 100,000 people with diabetes in England and from 82.3 to 55.5 per 100,000 in Wales. However, in Wales since 2016 there has been a gradual increase from 43.5 to 55.5 per 100,000 people with diabetes, similar to that recorded in 2013–2014 at 58.5 per 100,000. This coincides with an increase in the number of certifications for SI and SSI in Wales of 15.7% in those aged 12–34 year and 8% in those 55–69 years respectively, as well as an overall increase in all cause certifications in Wales since 2015 from 40.1 to 51.8 per 100,000 people.

CONCLUSIONS. Over the last decade there has been a gradual decrease in certifications of SI and SSI due to diabetic retinopathy in both England and Wales. However, in contrast to England there has been a slight reversal in this trend in Wales since 2016 which requires further investigation.

Characterization of Two-Year Progression of Risk Phenotypes of Diabetic Retinopathy

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DESIGN. Prospective observational 2-year study.

PURPOSE. To characterize the two-years progression of two diabetic retinopathy (DR) risk phenotypes in type 2 diabetes (T2D).

METHODS. A prospective longitudinal cohort study (CORDIS, NCT03696810) was conducted with 4 visits (baseline, 6-months, one-year and two-year).

Demographic and systemic data included age, sex, diabetes duration, lipidic profile and hemoglobin A1c (HbA1c). Ophthalmological examinations including visual acuity (BCVA), color fundus photography (CFP) and optical coherence tomography (OCT and OCTA), identified the presence of nonproliferative diabetic retinopathy (NPDR). Phenotype classification was performed, at 6-month visit, based on microaneurysm turnover (MAT, on CFP) and central retinal thickness (CRT, on OCT). Only risk phenotypes B (MAT < 6 and increased CRT) and C (MAT ≥ 6 with or without increased CRT) were included. ETDRS grading was performed at the baseline and last visits based on 7-fields CFP.

RESULTS. 133 T2D individuals were included in the study, 81 (60%) eyes classified as phenotype B and 52 (40%) eyes as phenotype C. Of these, 127 completed the two-year follow-up, 24 (19%) developed central-involved macular edema (CIME) and 2 clinically significant macular edema (CSME) (1.6%). In the two-year period, two-step severity progression (ETDRS) occurred only in one eye with phenotype C.

At baseline, eyes with phenotype C showed more capillary closure in the superficial capillary plexus (SCP), deep capillary plexus (DCP) and full retina (FR, $p < 0.001$) and increased FAZ area ($p < 0.001$), indicating more advanced microvascular disease and confirming the ischemia phenotype. During the two-year period both phenotypes, B and C, showed progression in GCL+IPL thinning ($p < 0.001$) and decrease in vessel density in the DCP (< 0.001). When analysing the two-year progression of each phenotype, only phenotype C revealed significant decrease in BCVA ($p = 0.02$) and enlargement of the FAZ ($p = 0.03$). CSME developed only in phenotype C whereas CIME occurred in both risk phenotypes.

CONCLUSIONS. In the two-year period of follow-up both phenotypes B and C showed progression in retinal neurodegeneration associated with progression in capillary closure identified by progressive decrease in vessel density of the DCP. CIME developed in both phenotypes and CSME only in phenotype C.

Characterization of Two-Year Progression of Capillary Closure in Nonproliferative Diabetic Retinopathy

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DESIGN. Prospective observational 2-year study.