Prevalence and characteristics of peripheral retinal lesions in an ageing population.

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Title: Prevalence and characteristics of peripheral retinal lesions in an ageing population.

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Purpose: To determine the prevalence and spatial distribution of peripheral retina lesions and their associated risk factors in a population based sample of ageing individuals.

Methods: Ultra-wide field retinal images (Optomap 200 TX) were obtained from the Northern Ireland Cohort of the Longitudinal Study of Aging (NICOLA Study) participants. Images from the first 1468 participants were assessed. The Optomap images were graded for the presence of 16 common retinal lesions, (hard and soft drusen, retinal pigment epithelial (RPE) changes, chorioretinal atrophy, bone spicules, haemorrhages, bear tracks, pavingstone degeneration, naevi, white without pressure, retinoschisis, congenital hypertrophy of the RPE (CHRPE), geographic atrophy (GA), choroidal neovascularisation (CNV), retinal hole and ungradeable area) using the Manchester Grid, which covers the image with 400 boxes, each approximately one disc area in size. Descriptive statistics were used to describe the prevalence and spatial distribution of the retinal lesions. Generalised estimating equations were used to determine risk factors associated with each retinal lesion.

Results: A total of 3044 images were available for analysis. Participants ranged in age from 40 to 96 years (mean 64 years. SD 9.02), with male and females making up 48.4% and 51.6% of the sample respectively. Prevalence rates ranged from 0.1% for CNV and snailtrack degeneration to 99.8% for hard drusen. The prevalence of lesions were WWOP (11.6%), RPE changes (17.8%), haemorrhages (6.9%), chorioretinal atrophy (8.2%), naevi (10.9%) and soft drusen (8.2%). Confounder adjusted analysis revealed that soft drusen, RPE changes, naevi and chorioretinal atrophy were associated with increasing age. Haemorrhages were associated with a history of cardiovascular disease. Hard drusen was predominantly seen superiorly, RPE changes in the far nasal periphery and WWOP in the far temporal periphery.

Conclusion: Peripheral retinal abnormalities are common in the older population with varying prevalence rates. Some peripheral lesions appear to show distinct spatial patterns whereas other occur throughout the retina. The mechanisms underlying the spatial distribution are not well understood and deserve further investigation.