

Methods: Data for the number of new certifications for SI and SSI in England and Wales were obtained from the Certifications Office, Moorfields Eye Hospital.

Results: In Wales there was a reduction in total certifications for SI and SSI from any cause of 339 over the seven year observation period, which is equivalent to 12.2 per 100,000 people in Wales. The total number of new certifications due to DR in Wales has fallen from 108 in 2007–2008 to 86 in 2014–2015. However, during this same period there has been an increase of 52,229 persons known to have diabetes in Wales. Therefore, the total number of new certifications due to DR in this population has fallen from 82.4 per 100,000 persons in 2007–2008 to 46.9 per 100,000 in 2014–2015. New certification for SSI also fell by half in the population with diabetes from 31.3 to 15.8 per 100,000 during the study period.

Conclusion: The incidence of certifications for SI and SSI due to DR in persons with diabetes in Wales has almost halved over the past 7 years. This probably corresponds to improved management of diabetes and the introduction of screening for DR as well as improved treatments for sight threatening DR.

P456

The relationship between diabetes, retinopathy, glycaemic control, acute uveitis, and scleritis

AS Ansari, Sde Lusignan, B Arrowsmith, W Hinton and A McGovern

Department of Clinical and Experimental Medicine, University of Surrey, Guildford, UK

Aim: Acute uveitis and scleritis are categorised by anatomical site of inflammation; and are frequently idiopathic or linked to systemic disease. We characterised risk of these conditions in relation by type of diabetes and glycaemic control or co-existence of retinopathy.

Methods: Using the Royal College of General Practitioners Research and Surveillance Centre database, we compared incidence of acute uveitis and scleritis over a five year period. This consisted of a population without diabetes ($n = 938,440$) and with diabetes ($n = 48,584$). The impact of glycaemic control on occurrence was assessed in those with diabetes. Glycaemic control was stratified using HbA1c: good ($< 52\text{mmol/mol}$), moderate ($53\text{--}68\text{mmol/mol}$), poor ($69\text{--}100\text{mmol/mol}$), and very poor ($> 100\text{mmol/mol}$). We utilised regression modelling to identify associations, adjusting for confounders such as stage of retinopathy and maculopathy.

Results: 2,528 episodes of acute uveitis and 1,483 episodes of scleritis in those without diabetes were identified. In the population with diabetes, 253 episodes of acute uveitis and 81 scleritis were found. Acute uveitis was more common in diabetes; diabetes Type 1: OR 2.01 (95% CI 1.18–3.41; $p = 0.009$), diabetes Type 2: OR 1.23 (1.05–1.44; $p = 0.01$). We identified a relationship between HbA1c and occurrence risk: very poor: OR 4.72 (2.58–8.65; $p < 0.001$), poor: OR 1.57 (1.05–2.33; $p = 0.03$) and moderate: OR 1.20 (0.86–1.68; $p = 0.29$). Similar results for retinopathy staging including proliferative retinopathy: OR 2.42 (1.25–4.69; $p = 0.01$) was also noted. No relationship was identified with scleritis and diabetes, or glycaemic control.

Conclusion: Acute uveitis is more common in diabetes (especially Type 1) and is associated with poor glycaemic control. Scleritis is not more common in diabetes.

P457

Impact of introducing automated grading into the Scottish national diabetic retinopathy screening programme

S Philip¹, N Lee², M Black², P Sharp³ and J Olson³

¹Retinal Screening, NHS Grampian, Aberdeen, UK, ²National Retinal Screening Service, NHS Scotland, Inverness, UK, ³Imaging Group, University of Aberdeen, Aberdeen, UK

Scotland was the first nation to introduce automated retinopathy screening into its national diabetic retinopathy screening (DRS) (July 2011). The autograder was deployed as an additional grader in each health board and assigned a proportion of images in the grading queue according to the each board's workload. We conducted an audit to analyse the real world impact of using automated grading. The system is thoroughly internally (IQA) and externally (EQA) quality assured for false negatives rates for referable retinopathy and image quality.

Methods: The data for the audit, extracted from the national DRS software compared two six month periods before (April–September 2010) and after (April–September 2015) the introduction of the autograder.

Results: The number of episodes handled by the programme increased (20.3%) from 86,385 in 2010 to 103,909 in 2015. In the six month period in 2015, 60,465 (58.1%) of the episodes (average 392/day) were passed on to the autograder. Of these 30,183 (49.9%) were final graded as having no retinopathy by the autograder. Despite the substantial increase in workload the mean time between photography and result generation remained similar 9.30 days (SD 9.0) and 9.80 (SD 8.00) with a mean autograder processing time of less than 24h. The autograder had a sensitivity of 97% and specificity of 38% in the 2015 EQA round and a false negative rate of 0 to 0.6% during IQA.

Conclusion: The autograder has a beneficial impact on performance of the Scottish national DRS and has resulted in significant workload reduction in a safe and effective manner.

P458

Economic and patient impact of changing to biennial screening intervals for diabetic retinopathy

RL Thomas¹, TG Winfield², SD Luzio¹, R Peter³, FD Dunstan⁴, P Anderson² and DR Owens¹

¹Diabetes Research Unit Cymru, Swansea University, Swansea, UK, ²Swansea Centre for Health Economics, Swansea University, Swansea, UK, ³Neath Port Talbot Hospital, Abertawe Bro Morgannwg University Health Board, Swansea, UK, ⁴School of Primary Care and Public Health, Cardiff University, Cardiff, UK

Aims: This study examined the economic and patient benefits based on cost utility analysis (CUA) of extending screening from annual to biennial in persons without diabetic retinopathy (DR) in persons with Type 1 and Type 2 diabetes.

Methods: Data from Diabetic Eye Screening Wales and Primary Care were linked using secure anonymised information linkage. Weibull regression analysis was used to estimate transition risks and a time varying Markov model to undertake CUA. The risk component was modelled using the current distribution of RDR which provided the relative costs and quality adjusted life years (QALY) estimates for delayed screening. All estimates are based on a 20 year time horizon.

Results: Data from 2,286 and 36,202 persons with Type 1 diabetes and Type 2 diabetes respectively were analysed. At HbA1c values (at the time of screening) of 6.5, 8.0 and 9.5% the cohort of