**EASdec 2021 Conference abstract accepted 8th June 2021**

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| **Abstract Title** | Early Worsening of Retinopathy in People with Diabetes After Rapid Improvement in Glycaemic Control:  A Systematic Review |
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| **Introduction** | Systematic review |
| **Purpose** | To systematically review the epidemiology of early worsening of diabetic retinopathy (EWDR) after substantial improvements in glycaemic control and estimate review the epidemiology and characteristics including risk factors. |
| **Methods** | An electronic literature search was performed according to PRISMA guidelines using MEDLINE, EMBASE, PubMed, Web of Science, Scopus and Cochrane databases and manual reference for the articles published until 2020. Published full-text English language articles that report data on diabetic retinopathy in people with diabetes experiencing a rapid, substantial decrease in HbA1c after going through intensive therapy were included. All articles were screened, data extracted and methodological quality evaluated by two independent reviewers using a priori criteria. |
| **Results** | 346 articles were identified after the removal of duplicates. Data were extracted from 19 full text articles with a total of 15,588 participants. Included studies varied considerably in terms of patient selection and method of assessing the eye and retinopathy classification. EWDR was reported to occur in a wide range of prevalence’s 3.3 to 47 % ( IQR: 12) of participants within 3–84 months after intensification of glycaemic control. Risk factors for EWDR included long-duration of diabetes, long term uncontrolled hyperglycemia and baseline retinopathy severity in both type 1 and type 2 diabetes. The occurrence of EWDR and progression of retinopathy were found to have an association with the amplitude of HbA1c reduction. |
| **Conclusions** | EWDR has been described in a proportion of people with intensification of glycaemic control. However, the prevalence remains unclear due to methodological differences in the identified studies. Future interventional studies should report retinopathy and visual outcomes using standardised protocols. |
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