Microaneurysms in the development of diabetic retinopathy (UKPDS 42). UK Prospective Diabetes Study Group.

Kohner, EM; Stratton, IM; Aldington, SJ; Turner, RC; Matthews, DR

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AIMS/HYPOTHESIS: To determine whether microaneurysms, in the absence of other lesions, have a predictive role in the progression of diabetic retinopathy in Type II (non–insulin–dependent) diabetes mellitus. METHODS: Retinal photographs taken at diagnosis in patients participating in the United Kingdom Prospective Diabetes Study, and thereafter at 3 yearly intervals, were assessed using a modified Early Treatment of Diabetic Retinopathy grading system for lesions of diabetic retinopathy and end points of vitreous haemorrhage and photocoagulation. The number of microaneurysms in each eye was recorded. RESULTS: The changes between diagnosis and later photographs were analysed in 2424 patients at 6 years, 1236 at 9 years and 414 at 12 years. Of the 2424 patients studied in the 6 year cohort 1809 had either no retinopathy or microaneurysms only at entry. In these patients the presence of microaneurysms alone and also the number of microaneurysms had a high predictive value for worsening retinopathy at 3, 6, 9, and 12 years after entry into the study (e.g. at 6 years chi(2) for trend = 75 on 1 df, p < 0.001). The predictive value of the presence or absence of microaneurysms and their number at 3 years from diagnosis and subsequent worsening retinopathy was similar to that at entry. CONCLUSION/INTERPRETATION: Microaneurysms are important lesions of diabetic retinopathy and even one or two microaneurysms in an eye should not be regarded as unimportant.