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Monitoring of outer retinal atrophy in maternally inherited diabetes and deafness by optical coherence tomogrpahy

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1 LETTER TO THE EDITOR

With interest we read the article by Müller et al. about a study of 36 eyes of 18 patients with genetically proven maternally inherited diabetes mellitus and deafness (MIDD) for outer retinal atrophy (RORA) [1]. The authors concluded that the development and progression of RORA can be monitored by optical coherence tomography (OCT) and that the morphological features of RORA in MIDD patients resemble those of age-related macular degeneration (AMD) [1]. We have the following comments and concerns.
A shortcoming of the study is that heteroplasmy rates of the m.3243A>G variant were not provided. It is also unclear in which tissue the *MT-TL1* variant was detected. Since heteroplasmy rates strongly determine the phenotype, it is crucial to know the amount of mutated mtDNA in rela-tion to wild-type mtDNA in the most affected tissues. Since the phenotype in MIDD patients is also dependent on the mtDNA copy number (mtDNA depletion) [2], it is crucial to know if any of the 18 included patients had a reduced amount of mtDNA copies.

A further shortcoming is that the quality of the antidiabetic treatment was not provided. Since retinal abnormalities in diabetes strongly depend not only on the duration of diabetes but also on the quality of the anti-diabetic control [3], it is crucial to know the HbA1c values of each of the 18 included patients.

Missing are also the current medication each patient was regularly taking. Since the medication strongly influences the HbA1c values, we should know the drugs each patients was taking at the time of the ophthalmologic investigation. Additionally, it should be mentioned if the included patients adhered to the recommended anti-diabetic diet or not.

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Though per definition, MIDD is phenotypically characterised by diabetes and deafness, these patients may additionally present with a myriad of other phenotypic manifestations [4]. Not only the ears and the pancreas may be primarily affected but also the central nervous system, other endocrinological organs, the heart, the gastrointestinal tract, the kidneys, and the eyes [4]. We should know which of these additional phenotypic features were present in the included patients, since they may strongly determine the prognosis and outcome of these patients.

In the eyes, MIDD patients may not only manifest with RORA, but also with optic atrophy [5], pigmentary retinopathy [6], macular dystrophy [7], central retinal vein occlusion [8], or choroidal atrophy [9]. Which of these features were additionally present in the 18 included patients?

Recently, it has been shown that autoflourescence could be a predictive parameter to monitor retinal pigmentary epithelium atrophy [10]. We should know if autoflourescence was applied to assess RORA.

Overall, this interesting study has some shortcomings which should be solved before drawing final conclusions. The genetic background of MIDD, the multisystem involvement, and the drug treatment may determine the phenotype, progression, and outcome also of the ophthalmologic abnormalities in these patients.

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