Eye (2017) 31, 814–817

www.nature.com/eye

CORRESPONDENCE

Sir,
Comment on: 'Effect of smoking on retrobulbar blood flow in thyroid eye disease'

We read with interest the article 'Effect of smoking on retrobulbar blood flow in thyroid eye disease (TED)'.[1] The results are interesting but we have a few concerns and comments.

First, the authors used the parametric tests to compare continuous variables between the groups. Parametric tests assume that continuous variables have a normal distribution. Violation of these assumptions changes interpretation of the results and the conclusion of the study. The authors did not state about the distribution of variables. When we look at the variables carefully, the standard deviation (SD) of the mean velocity values of the superior ophthalmic vein (SOV) is slightly high. For example, the SD of the mean maximal velocity of SOV in the non-smoker group is 2.14, close to half of the mean value (5.27). As a rule, a variable with a SD that is larger than one half of the mean value is accepted as non-normally distributed.[2] Second, the sample sizes between groups ($n=16$ in the smoker group and $n=35$ in the non-smoker group) were unequal; therefore, it is likely that the variances will be unequal.[3] The assumptions for ANCOVA include that the outcome variable is normally distributed and the variances are similar between groups (homogeneity of variance). We suggest that the authors mention about the distributions of variables and gives the ranges of the outcome variables.

Lastly, it is known that reversed blood flow or absence of SOV flow may occur in patients with TED. The reversed SOV flow rate was reported to be about 13–15% in the series.[4] We wonder whether the authors excluded these cases or these were not encountered in their study.

Conflict of interest

The authors declare no conflict of interest.

References

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Eye (2017) **31,** 814; doi:10.1038/eye.2016.292; published online 16 December 2016

Sir,
Reply to: 'Comment on: Effect of smoking on retrobulbar blood flow in thyroid eye disease'

We thank Dr Çalışkan and his co-workers for their beneficial comments.[1]

Distribution of all retrobulbar blood flow variables was normal except in superior ophthalmic vein (SOV) maximal blood, which had a P value of 0.041 in the Kolmogorov–Smirnov test. However, using Mann–Whitney U-test did not change the result ($P=0.008$).

Although the equality of variances is an assumption of ANCOVA, it should hold for the residual of this regression model (after adjustment for the confounder variables). However, it has been shown that ANCOVA would obtain the correct type I error even with unequal sample size. Indeed, the estimator of the effect at the observed mean is not different between equal and unequal variance assumptions.[2] Also, we used type III sum of squares, which is more robust in obtaining the variance of treatment effect.

In our subjects, all vessels were successfully detected except one SOV in smokers. These vessels have normal anteroposterior flow. Some of the previous studies did not mention a reverse flow in orbital vessels in thyroid eye disease (TED).[3,4] However, undetectable SOV in a patient may be attributed to more reduced blood flow. Furthermore, high percentage of reverse flow in the SOV of patients with TED was observed in dysthyroid optic neuropathy.[5] Thus, in our study, lack of reverse retrobulbar blood flow might probably be the result of having no patients with dysthyroid optic neuropathy or other most severe forms of TED.

Conflict of interest

The authors declare no conflict of interest.

References

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Eye (2017) **31,** 814–815; doi:10.1038/eye.2016.291; published online 23 December 2016

Sir,

Identification of a novel *NRL* mutation in a Chinese family with retinitis pigmentosa by whole-exome sequencing

Retinitis pigmentosa (RP) is a group of inherited retinal degenerative disorders affecting ~1 in 4000 individuals worldwide.[1] Because of the great genetic heterogeneity of RP, technologies based on the next-generation sequencing are increasingly used to screen mutations or identify novel causative genes in RP patients for investigative and diagnostic purposes.[2] Here, we report a Chinese family suffering from autosomal dominant RP (adRP). The genetic cause of the family was further investigated.

The proband (II:2 in Figure 1a, 43 years old) complained of night blindness since childhood, followed by visual field loss and reduction of visual acuity. Fundus examination revealed bone-spicules pigmentation in the mid-peripheral retina (Figure 1b). Her 14-year-old daughter (III:1) also reported night blindness before age 10 years. No apparent pigmentation could be seen at the time of the last ophthalmologic examination (Figure 1b). To identify the possible causing mutation(s), we performed whole-exome sequencing using the proband's genomic DNA. Through a multistep bioinformatics pipeline (Supplementary Information), candidate variants were selected and validated by Sanger sequencing and segregation analysis. A novel c.147_149del (p.Ser50del) variation in *NRL* was identified as the most likely cause of the family (Figure 1c). The variation was absent in 250 normal controls.

The neural retina leucine zipper (*NRL*) gene encodes a 237-aa basic motif-leucine zipper transcription factor of

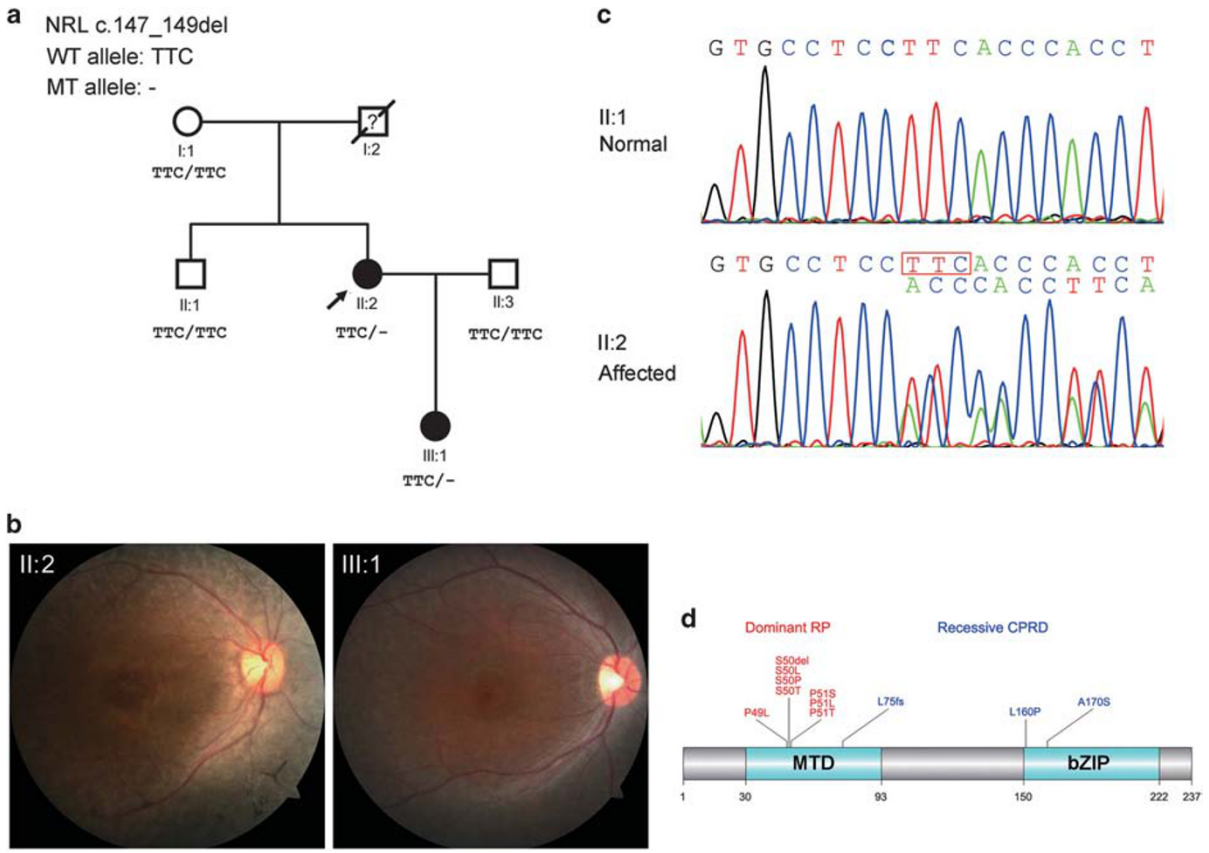

Figure 1 Identification of a novel *NRL* mutation in a Chinese adRP family. (a) Pedigree of the family. Circles, females; squares, males; filled symbols, affected individuals; empty symbols, unaffected individuals; arrow, proband; question mark, unexamined individual. (b) Fundus photographs of the two patients. II:2, the proband, 43 years old; III:1, 14 years old. (c) Sanger sequencing of the c.147_149delTTC mutation. The deleted nucleotides were marked with a red box. (d) Schematic structure of the NRL protein. The red color- and blue color-labeled *NRL* mutations associated with dominant retinitis pigmentosa and recessive clumped pigmentary retinal degeneration, respectively.