

Figure 5 Indocyanine green angiography of both eyes showing focal hypercyanescence, which clearly highlights the aneurysms.

Conflict of interest

The authors declare no conflict of interest.

References

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Sir,
Reply to: 'Glaucoma prescribing trends in England 2000 to 2012'

We read with interest the findings presented by the authors.¹

In May 2013, we performed a prospective audit in our unit to assess current prescribing trends in our glaucoma clinics. Our results (presented at RCOphth 2014) are consistent with national trends.

Of the 100 continuous patients seen in our unit, 10 patients were switched within the prostaglandin analogues class with improved efficacy and tolerability. Fifty percent of these patients were switched from latanoprost/xalatan to bimatoprost.

Switching within glaucoma medication class is part of our glaucoma unit protocol. There was a small crossover study by Gandolfi and Cimino,² which showed IOP-lowering effect in 13 out of 15 latanoprost non-responders who switched to bimatoprost. There have also been small studies^{3,4} and anecdotal reports⁵ regarding issues with generic latanoprost bottles due to the different manufacturers. These reasons may account for the move away from generic latanoprost to bimatoprost.

The 2013 prescribing cost analysis data have seen an inclusion of preservative-free bimatoprost 0.03% (Lumigan 0.03% unit dose). This is an increasingly popular option in our unit for patients who have reported side effects to other drugs.

It would be interesting to observe future trends especially with the growing range of preservative-free glaucoma products in the market.

Conflict of interest

The authors declare no conflict of interest.

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**Sir,
Poppers maculopathy or retinopathy?**

The term ‘poppers’ refers to exogenous volatile nitric oxide (NO) donors that have been widely abused for recreational purposes. Inhalation of poppers provides rapid-onset, short-acting euphoria and myorelaxation. Several reports described persistent visual loss after poppers consumption.^{1,2}

In all presented patients, functional and morphologic damage was limited to the fovea.^{1,2} We report two patients who not only developed a characteristic maculopathy following poppers consumption but also additionally showed a bilateral decline in full-field electroretinography (ERG). A 45-year old and a 33-year old male patient presented with a bilateral visual loss (0.63/0.4 and 0.5/0.4). Funduscopic examination revealed bilateral, foveal yellowish dots. Figure 1 shows a pathologic full-field ERG. Electrooculography gave normal Arden ratios. Spectral domain optical coherence tomography (SD-OCT) showed central hyperreflective alterations in the photoreceptor layer and an interruption of the ellipsoid zone. The former patient reported only sporadic consumption. The latter

regularly consumed poppers over 1 year and stopped at the diagnosis notification. Interestingly, 6 month follow-up of the latter showed a restitution of foveal architecture in SD-OCT; however, pathologic changes in ERG persisted.

High concentrations of NO are suspected to represent the underlying cause of retinal damage linked to poppers intake.² NO regulates photoreceptor metabolism in rods and cones primarily through activation of guanylyl cyclase, a key enzyme of phototransduction.³ Experimental studies showed that higher doses of NO induce apoptotic cell death in photoreceptors.⁴

Our electrophysiological data suggest that retinal toxicity of poppers is not restricted to central cone photoreceptors only, as suggested by previous reports, but that damage may well extend peripherally also affecting rod photoreceptors. It remains elusive whether the degree of retinal damage and the involvement of rods depend on the highest level of local NO concentration or on frequency, subtype, or amount of poppers intake.

Albeit morphologic similarities in SD-OCT, a previously suggested light-induced damage seems less plausible given our findings in full-field ERG.⁵ Other than photopic maculopathy, differential diagnosis includes adult onset vitelliform dystrophy and occult macular dystrophy.

Our report suggests a change in nomenclature from poppers maculopathy to poppers retinopathy, emphasizes the harmful potential of poppers consumption and stresses the need for a higher level of awareness.

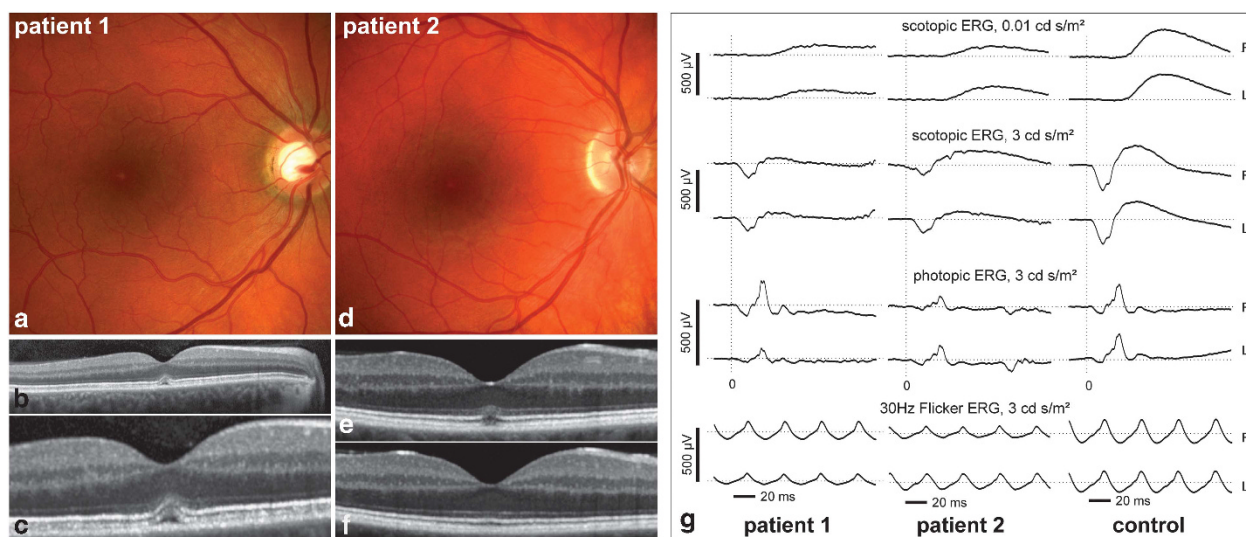


Figure 1 Morphologic and electrophysiological data of the described patients. (a–c) Colour fundus photography (CFP) and spectral domain optical coherence tomography (SD-OCT) of patient 1 show the characteristic changes in the fovea. Panel (c) shows a magnified view of (b). (d–f) CFP and SD-OCT of patient 2 including follow-up SD-OCT scan after 6 months (f). (g) Comparison of full-field ERG measurements of both patients and an age-matched healthy control subject. A clear impairment of rod and cone function is visible by reduced scotopic a-wave and b-wave amplitudes as well as reduced photopic b-waves amplitudes. Moreover, photopic 30 Hz Flicker ERG is nearby the lower border of normative values.