

bleeding within a hidrocystoma may not be unique to clopidogrel, and could apply to other antiplatelet agents. Interestingly, one of their patients was on concurrent aspirin therapy but there are no reports to date of spontaneous hemorrhage in a hidrocystoma related solely to aspirin use.

We have no reason to believe that spontaneous bleeding within an eyelid hidrocystoma is a common phenomenon, as there are no other reports in the medical literature. Tehrani *et al*'s report of two additional cases does nothing to alter the fact that this is a rare phenomenon.

Conflict of interest

The authors declare no conflict of interest.

References

- 1 Tehrani S, Rozelle C, Solomon A, Steele E. Comment on 'Spontaneous haemorrhage in an eyelid hidrocystoma in a patient treated with clopidogrel'. *Eye (Lond)* 2013; **27**(11): 1326–1327.
- 2 Novitskaya E, Rene C, Dean A. Spontaneous haemorrhage in an eyelid hidrocystoma in a patient treated with clopidogrel. *Eye (Lond)* 2013; **27**: 782–783.

E Novitskaya and C Rene

Ophthalmology Department, Addenbrooke's Hospital, Cambridge, UK
E-mail: elena.novitskaya@googlemail.com

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Sir,

Pseudoexfoliation syndrome and cardiovascular disease: studies must control for all cardiovascular risk factors

I read with interest the case-control study by Gonen *et al*¹ who sought to identify the incidence of renal artery stenosis (RAS) and abdominal aortic aneurysm (AAA) in patients with pseudoexfoliation syndrome (PXE).

PXE affects 30% of patients over 60 years of age;¹ not all can undergo ultrasonographic screening. Elucidating the quantitative contribution—or relative risk—of PXE to cardiovascular disease is critical in identifying patients at significant cardiovascular risk who can be referred from ophthalmic clinics for further management. Any study seeking to evaluate the significance of a candidate cardiovascular risk factor must therefore identify and control all other established cardiovascular risk factors (Table 1).

Gonen *et al*¹ did not account for serum cholesterol and urinary albumin excretion—two major independent cardiovascular risk factors associated with AAA and RAS—which may have conceivably contributed to their development. These were not obviously examined as

Table 1 Cardiovascular risk factors

Non-modifiable risk factors

Age
Gender
Family history^a

Modifiable risk factors

Hypertension
Diabetes
Hypercholesterolaemia
Microalbuminuria^b
Smoking
Obesity (body mass index >30 kg/m²)
Diet
Sedentary lifestyle
Hyperhomocystinaemia

^a Positive family history is a cardiovascular event before 55 years of age in males and 65 years of age in females in a first-degree relative.

^b Urinary albumin excretion >30 mg/24 h.

explicit parameters, nor proven statistically equivalent between PEX cases and controls.

Hypercholesterolaemia has been demonstrated as an independent risk factor for both RAS and AAA. Overall, 33% of patients with heterozygous familial hypercholesterolaemia have RAS on formal renal angiography, predominantly proximal in location.² Meta-analysis of pooled data from eight studies identified significantly lower HDL and higher LDL cholesterol in patients with AAA compared to controls.³

Microalbuminuria (>30 mg/24 h) is an independent cardiovascular risk factor and predictive of all-cause cardiovascular mortality (relative risk of 3.2).⁴ Microalbuminuria is associated with increased renovascular resistance and reduced aortic compliance in diabetic subjects, after adjustment for other cardiovascular risk factors.⁵ Microalbuminuria may conceivably influence renal artery peak systolic velocity parameters used as an end point in this study.

A prospective longitudinal cohort study is required in patients with PXE to determine the relative risk of serious cardiovascular events in relation to other risk factors. Alternatively, ocular examination of subjects in large existing population-based studies such as the Framingham Heart Study may help to identify the contribution of PXE to cardiovascular risk.

Urinary albumin estimation and serum cholesterol assays may have added further value to this study by excluding potentially confounding variables on the expressions of cardiovascular disease in PXE.

Conflict of interest

The author declares no conflict of interest.

References

- 1 Gonen KA, Gonen T, Gumus B. Renal artery stenosis and abdominal aorta aneurysm in patients with pseudoexfoliation syndrome. *Eye (Lond)* 2013; **27**: 735–741.

- 2 Yagi K, Hifumi S, Nohara A, Higashikata T, Inazu A, Mizuno KO *et al.* Difference in the risk factors for coronary, renal and other peripheral arteriosclerosis in heterozygous familial hypercholesterolemia. *Circ J* 2004; **68**(7): 623–627.
- 3 Takagi H, Manabe H, Kawai N, Goto SN, Umemoto T. Serum high-density and low-density lipoprotein cholesterol is associated with abdominal aortic aneurysm presence: a systematic review and meta-analysis. *Int Angiol* 2010; **29**(4): 371–375.
- 4 Jager A, Kostense PJ, Ruhe HG, Heine RJ, Nijpels G, Dekker JM *et al.* Microalbuminuria and peripheral arterial disease are independent predictors of cardiovascular and all-cause mortality, especially among hypertensive subjects: five-year follow-up of the Hoorn Study. *Arterioscler Thromb Vasc Biol* 1999; **19**(3): 617–624.
- 5 Hamano K, Nitta A, Ohtake T, Kobayashi S. Associations of renal vascular resistance with albuminuria and other macroangiopathy in type 2 diabetic patients. *Diabetes Care* 2008; **31**: 1853–1857.

IH Yusuf

Stoke Mandeville Hospital, Buckinghamshire, UK
E-mail: imranyusuf@doctors.org.uk

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Sir,
Reply: Pseudoexfoliation syndrome and cardiovascular disease: studies must control for all cardiovascular risk factors

We thank Dr Yusuf for his comments¹ regarding our article.²

In this study, aorta-renal vasculature was examined in patients with pseudoexfoliation syndrome (PEX). In addition to these evaluated parameters, intrarenal vasculature and renal parenchyma were examined by Doppler ultrasonography and serum urea, blood urea nitrogen, creatinine, urinary microalbumin and creatinine clearance were analyzed. These parameters were used in another study for evaluation of the renal function in patients with PEX. In PEX and control groups, urinary microalbumin levels were 5.8 ± 22.7 mg/24 h and 2.7 ± 6.0 mg/24 h, respectively ($P = 0.441$). Microalbuminuria was not observed in both groups. In the light of this information, we think that urinary microalbumin levels had no effect on the results of our study.

Serum cholesterol levels were not investigated in this study. On the other hand, all subjects were examined about history of cardiovascular diseases and the patients with cardiovascular diseases were excluded from the study. Heterozygous familial hypercholesterolemia is among the most common inborn errors of metabolism and occurs in approximately one in 500 persons; affected individuals can usually be identified from birth by elevated levels of plasma LDL cholesterol.³ Heterozygous familial hypercholesterolemia is accelerated vascular disease, especially coronary artery disease.⁴ There was a significant association between

total plasma cholesterol level and coronary artery disease incidence.⁵ Although the exclusion of the serum cholesterol data might seem like a limiting factor of the study, we consider that vascular disease risk associated with hypercholesterolemia may be eliminated because of the patients with coronary artery disease were excluded from the study.

We also believe that a prospective longitudinal cohort study should be performed in patients with PEX to determine the relative risk of serious cardiovascular events in relation to other risk factors.

Conflict of interest

The authors declare no conflict of interest.

References

- 1 Yusuf IH. Pseudoexfoliation syndrome and cardiovascular disease: studies must control for all cardiovascular risk factors. *Eye* 2013; **27**(11): 1328–1329.
- 2 Gonen KA, Gonen T, Gumus B. Renal artery stenosis and abdominal aorta aneurysm in patients with pseudoexfoliation syndrome. *Eye (Lond)* 2013; **27**: 735–741.
- 3 Hill JS, Hayden MR, Frohlich J, Pritchard PH. Genetic and environmental factors affecting the incidence of coronary artery disease in heterozygous familial hypercholesterolemia. *Arterioscler Thromb* 1991; **11**: 290–297.
- 4 Yuan G, Wang J, Hegele RA. Heterozygous familial hypercholesterolemia: an underrecognized cause of early cardiovascular disease. *CMAJ* 2006; **174**: 1124–1129.
- 5 Castelli WP, Wilson PW, Levy D, Anderson K. Cardiovascular risk factors in the elderly. *Am J Cardiol* 1989; **63**: 12H–19H.

KA Gonen¹, T Gonen² and B Gumus³

¹Department of Radiology, School of Medicine, Namik Kemal University, Tekirdag, Turkey

²Department of Ophthalmology, School of Medicine, Namik Kemal University, Tekirdag, Turkey

³Department of Radiology, School of Medicine, Baskent University, Istanbul, Turkey
E-mail: aysunbalc@yahoo.com

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Sir,
Lubricants to prevent recurrent corneal erosion: an error in the Cochrane review

We have noticed an error in the Cochrane review 'Interventions for recurrent corneal erosions' published in September 2012 (and in the previous version published 2009).¹

In 1999 Eke and colleagues² published the unexpected finding that following corneal abrasion with a fingernail, the use of topical lubricants increased the risk of