ing the infusion may help to recognize this adverse effect and adjust the treatment accordingly. The early and long-term adverse effects of SSIOAC on the retinal and choroidal vasculature should be investigated.

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Financial Disclosure: None reported.


ARMS2 A69S Polymorphism and the Risk for Age-Related Maculopathy: The ALIENOR Study

Since the first evidence of an association of age-related maculopathy (ARM) with a locus on chromosome 10q26 (first named LOC.387715, then renamed age-related maculopathy susceptibility 2 [ARMS2]) was reported, many case-control studies have confirmed this finding. However, few data are available from population-based studies, which are less subject to selection bias, and few studies have assessed the association of this polymorphism with early ARM.

In this study, we assessed the associations of ARMS2 A69S genotypes with early and late ARM in the framework of a population-based study of French elderly subjects.

Methods. The ALIENOR (Antioxidants, Lipides Essentiels, Nutrition et Maladies Oculaires) Study is a population-based epidemiological study on nutrition- and age-related eye diseases. It also aims to assess the association of eye diseases with genetic, vascular, and metabolic factors. Between October 2, 2006, and May 23, 2008, 963 residents of Bordeaux, France, aged 73 years or older were recruited among participants of an ongoing cohort study on vascular risk factors for dementia, the 3C Study.

We classified ARM from nonmydriatic 45° color retinal photographs taken using a nonmydriatic retinograph (TRC NW6S; Topcon). Photographs were interpreted according to the international classification in double by 2 trained technicians (Delphine Castanet and Hélène Thebault) and adjudicated by a specialist (C.D.) when inconsistent. All cases of late ARM were confirmed by a retina specialist (J.-F.K., M.-B.R., and M.-N.D.). We classified ARM in 5 exclusive stages: none; early ARM1 (large soft distinct drusen without pigment abnormalities or pigment abnormalities without large soft drusen); early ARM2 (large [>125 μm] soft indistinct drusen and/or reticular drusen and/or large distinct drusen with pigment abnormalities); late atrophic ARM (pure geographic atrophy); and late neovascular ARM (serous or hemorrhagic detachment of the retinal pigment epithelium or sensory retina, subretinal or sub-retinal pigment epithelial hemorrhages, and fibrous scar tissue).

The ARMS2 A69S polymorphism (rs10490924) was determined from blood collected between April 15, 1999, and July 7, 2001, in the framework of a genome-wide association study performed in the 3C Study. Samples were genotyped with Illumina Human 610-Quad BeadChip (allowing the determination of 537029 single-nucleotide polymorphisms) and subjected to standard quality control procedures. Associations were estimated using logistic generalized estimating equations models, subjects without ARM included estimating equations models, subjects without ARM

<table>
<thead>
<tr>
<th>Genotype</th>
<th>Early ARM1 (n = 144)</th>
<th>Early ARM2 (n = 110)</th>
<th>Late Atrophic ARM (n = 34)</th>
<th>Late Neovascular ARM (n = 32)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GT</td>
<td>1.52 (1.03-2.23)</td>
<td>1.45 (0.85-2.49)</td>
<td>1.78 (0.70-4.50)</td>
<td>2.47 (0.98-6.23)</td>
</tr>
<tr>
<td>TT</td>
<td>4.60 (1.54-13.73)</td>
<td>13.77 (5.18-36.66)</td>
<td>23.63 (5.28-105.67)</td>
<td>16.15 (3.32-78.59)</td>
</tr>
</tbody>
</table>

Abbreviation: ARM, age-related maculopathy.

Table. Associations of the Different Types of Age-Related Maculopathy With ARMS2 A69S Genotypes, Adjusted for Age, Sex, CFH Y402H Genotypes, and Smoking

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being the reference. Analyses were adjusted for age, sex, complement factor H (CFH) Y402H polymorphism, and smoking—the latter two being other major risk factors for ARM.⁶

Of 963 subjects, 738 subjects had complete data. There were 1424 gradable eyes.

**Results.** As shown in the Table, by comparison with the GG genotype, the TT genotype was associated with very high risk for all types of ARM, with increasing odds ratios according to the severity of ARM (from 4.60 for early ARM1 to 23.63 for late atrophic and neovascular ARM, respectively). By contrast, associations of the different types of ARM with the GT genotype were modest (OR, 1.45-2.47) and reached statistical significance only for early ARM1.

Smoking and CFH Y402H remained independently associated with ARM, after controlling for ARMS A69S genotypes (data not shown).

**Comment.** This population-based study confirms the major contribution of the TT genotype of the ARMS2 A69S polymorphism in early and late ARM, independently from the other 2 major risk factors (smoking and CFH Y402H polymorphism). Associations with the GT genotypes were much weaker, suggesting a moderate codominant genetic mode of action. Strengths of this study include the population-based setting and the photographic assessment and detailed grading of ARM status.

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**Author Contributions:** Ms Le Goff had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

**Financial Disclosure:** None reported.

**Funding/Support:** This work was supported by Laboratoires Théa, Clermont-Ferrand, Fondation Voir et En-

dams-Oliver syndrome (AOS) is an inherited congenital condition defined by aplasia cutis congenita and transverse limb defects.⁵ Additional variable involvement of the brain, eye, skin, and cardiovascular system has led to the consideration of this syndrome as a constellation of clinical findings resulting from early embryonic vascular abnormalities.² Herein, we report a case of AOS with previously unreported retinal findings consistent with an ischemic-proliferative retinopathy.

**Report of a Case.** A full-term girl was delivered at 40 weeks’ gestation to a healthy, nonconsanguineous couple. Prenatal ultrasonography detected lower limb deformities. Weight, length, and head circumference at birth were between the 25th and 50th percentiles. Aplasia cutis congenita with a large scalp and skull defects in the vertex area together with upper and lower limb reduction defects were noted. Widespread cutis marmorata was also observed (Figure 1). Complete systemic examination disclosed a mild ventricular septal defect that spontaneously closed within the first 2 weeks of life.

Ocular examination of the right eye disclosed prominent iris vessels and posterior retinal arterial narrowing and venous dilatation with combined (arterial and venous) blood column segmentation (‘boxcarring’ appearance). Peripheral avascular retina with capillary dropout, arteriovenous anastomosis, and telangiectasia on the temporal side were noted. The left eye was slightly microphthalmic, with microcornea, a leukoma, and temporosuperior scleralization (Figure 2). Detailed left funduscopys was not possible because of media opacity. The patient’s parents were thoroughly in-

**Peripheral Ischemic Retinopathy in Adams-Oliver Syndrome**