

PART I

INTRODUCTION

CHAPTER 1

GENERAL INTRODUCTION: AGE-RELATED MACULOPATHY

Age-related maculopathy (ARM) is the major cause of blindness in people over 65 years of age in the Western world. ARM involves the central part of the retina, called the macula or yellow spot, where visual acuity is highest.

Clinically, early stages of ARM show drusen and pigment alterations, associated with minimal or mild vision loss. Histopathologically, the first signs are deposits between the retinal pigment epithelium (RPE) and Bruch's membrane, drusen and RPE alterations. Late stages of ARM, also called age-related macular degeneration (AMD), include geographic atrophy and exudative macular degeneration. They are associated with severe vision loss. The exudative form is characterized by choroidal neovascularization (CNV). In CNV, newly formed vessels sprout from the underlying choroid and grow through breaks in Bruch's membrane beneath the retinal pigment epithelium (RPE) and the retina.¹ Clinically, visual acuity decreases rapidly because of hemorrhages or serous detachments.

Geographic atrophy is characterized by areas of degenerated RPE and neural retina in the absence of breaks in Bruch's membrane and subretinal new vessels, and has been suggested to be the natural endstage of ARM.²

In the Netherlands, the prevalence of late stages of ARM is 1.7% in people over 55 years of age and up to 11% in people over the age of 85.³ Sixty-five % of patients with AMD have the exudative form, while 35% show geographic atrophy.³ Exudative AMD is responsible for 80% of the cases of severe vision loss.^{4,5} Numbers will increase because of the population's increasing age. Both aging,⁶ genetic factors,⁷⁻⁹ and environmental factors such as cigarette smoking^{6,10,11} and antioxidant status¹² are acknowledged risk factors in the aetiology of ARM. Only a limited percentage of AMD patients is amenable to treatment.¹³

This thesis focusses on the pathogenesis of photoreceptor atrophy and on the pathogenesis of exudative AMD.

