Risk Factors for AMD

AMD is a complex disease and is thought to have several different causes. A number of genetic and environmental risk factors have been associated with the development of AMD. Non-modifiable risk factors are age (increasing), race (white European), family history & genetics (first degree relative). Modifiable risk factors are smoking, diet, physical activity and hypertension.

Non-modifiable risk factors:

- **Age**: The strongest non-modifiable risk factor for developing AMD is age. AMD prevalence increases exponentially with increasing age. A recent European study found that prevalence rates were 3.5% in people aged 55–59 yrs rising to 17.6% in those aged ≥85 yrs. 1,2
- **White race**: Studies indicate ethnic variability in the prevalence of AMD, with higher rates observed in individuals of white European descent, compared with individuals of Asian, African, or Hispanic descent.3,4
- **Family history**: People with a family history of AMD are more likely to develop the condition themselves; this risk is increased 2 to 3-fold by having an affected first-degree relative. Studies in twins have reported concordance rates ranging from 46–71%, with higher rates observed in monozygotic (identical) vs. dizygotic (non-identical) twins. Overall, these familial studies suggest that genetic factors play a substantial role in the aetiology of AMD.5,6,7
- **Genetics**: Identification of genetic factors associated with the pathogenesis of AMD is an important area of ongoing research. Genetic testing does not yet generally play a role in the routine screening for AMD, or in the risk stratification of people diagnosed with the condition, however as introduction of genetic testing is rolled out across the world, it is anticipated that a much deeper understanding of the genetic factors associated with increased risk for development of AMD will be elucidated. Large genome-wide association studies have so far identified 34 genes associated with the risk of developing of AMD, however, only a small number of these genes in fact appear to have a major impact on AMD.

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A large risk effect has been reported for genetic variants that disrupt genes in the complement pathway, which is responsible for regulation of inflammation.\(^8\),\(^9\),\(^10\) It should be noted that the presence of these genes does not mean that one will inevitably develop AMD, rather one is at higher risk of developing AMD.

Modifiable risk factors:

- **Smoking**: The principal modifiable risk factor for AMD development and progression is smoking. Population-based studies have shown that smokers have a 2- to 4-fold increased risk for developing AMD, compared with non-smokers.\(^11\),\(^12\)
- **Diet**: There is some evidence that a poor quality diet (either low in carotenoids or other antioxidants, or high in fat) may be associated with an increased risk of developing AMD.\(^5\),\(^6\),\(^13\),\(^14\) Eating foods rich in antioxidants such as lutein, zeaxanthin, omega-3 fatty acids, beta carotene, vitamin C, vitamin E and zinc, may slow the progression or reduce the risk of AMD.
- **Physical activity**: A recent meta-analysis of nine studies reported that physical activity may reduce the risk of the onset and progression of AMD.\(^15\)
- **Hypertension**: A number of studies have associated hypertension (high-blood pressure) as a risk factor for developing AMD.\(^16\),\(^17\)