Chapter 8

Summary & conclusions
SUMMARY

The first part of this thesis describes the epidemiology (incidence and predisposing factors) of rhegmatogenous retinal detachment (RRD) in the North of the Netherlands and in the Netherlands. The second part consists of clinical studies evaluating the recovery of visual function after RRD surgery in case of a detached macula. It encompasses a study on the position of the fovea in relation to the optic nerve-head. The outcome hereof was subsequently used in a prospective clinical study conducted to evaluate postoperative recovery of visual function in macula-off RRD. This prospective study also evaluated postoperative vision related quality of life and the prevalence of postoperative metamorphopsia in this group of patients.

PART I. EPIDEMIOLOGY

In chapter 2, we take RRD surgery incidence rates in the North of the Netherlands as a proxy of RRD incidence, since the latter are not known in our population. We observed a yearly incidence of RRD surgery of 17.4 per 100,000 people in 2008, and of 18.0 per 100,000 in 2009. In line with previous observations, a peak RRD incidence was observed in patients of 65 to 69 years of age. Males were overrepresented in almost all age categories. The highest numbers of phakic RRD patients were noted at ages 55 to 59 years. The highest numbers of post- cataract extraction (CE) RRD patients were noted at ages 60-69 years. At more advanced age, the proportion of post-CE as compared to phakic RRD increased. This suggests that phakic and post-CE RRD are different entities. Macular detachment at presentation was seen in 57.9% of the patients. This study was performed as a pilot study, for the study described in chapter 3. Data collected while conducting the latter study was added to chapter 2.

In chapter 3, we describe RRD surgery incidence rates in the Netherlands. Because of the high RRD surgery incidence rates in the North of the Netherlands, we were interested whether this would also apply to the Netherlands. We observed a yearly incidence of RRD surgery of 18.2 per 100,000 people in 2009, which is comparable to that in the North of the Netherlands and which is the highest RRD surgery incidence rate reported thus far. Macular detachment at presentation was seen in 54.5% of the patients.

In this study, observations made on RRD surgery incidence in the North of the Netherlands (i.e. age and gender distribution, as well as differences between phakic and post CE RRD) were confirmed.
PART II. CLINICAL STUDIES

In chapter 4, we found that the nerve head to fovea distance (NFD) measured on a fundus photograph of one eye could be used to predict that distance in the fellow eye. This finding enabled us to determine the position of the fovea in macula-off RRD by ultrasonography (USG), which was part of the prospective clinical study described in chapter 5.

In chapter 5, we describe that recovery of visual function after macula-off RRD is affected by both the duration and the height of the macular detachment. Recovery of best corrected visual acuity (BCVA) is decreased in case of a larger height or a longer duration of macular detachment. Recovery of contrast acuity is not affected by either the duration or the height of macular detachment. Postoperative saturated color vision (CCI) is only related to the duration of the macular detachment. Although a statistically significant relationship between duration of macular detachment and postoperative BCVA in the total study group was observed, significance was lost in our subgroup analyses, in which we looked separately at patients with a macular detachment of ≤7 days and those with a detachment >7 days.

In chapter 6, we observed that postoperative vision related quality of life was high in our population of macula-off RRD patients. We observed correlations between the National Eye Institute vision related quality of life (NEI VFQ-25) composite score and subscale scores and postoperative BCVA, contrast acuity and post-operative CCI. In contrast to postoperative visual functioning, other patient and surgery related aspects showed very few correlations with NEI VFQ-25 outcomes. The correlations observed related to more extensive surgery, long-term intraocular tamponades and re-detachment.

In chapter 7, we observed a high prevalence of postoperative metamorphopsia in macula-off RRD patients, whereas the encountered degree of metamorphopsia was small. BCVA, contrast acuity, critical print size, and reading acuity were significantly worse in patients with metamorphopsia compared to those without. We did not observe a significant difference in vision related quality of life in patients with and without metamorphopsia, nor did we observe a significant relation between metamorphopsia and optical coherence tomography disturbances.

CONCLUSION

The incidence of RRD surgery in our population is highly dependent on demographic characteristics such as age and male gender. In addition, previous cataract extraction may be a risk factor for acquiring RRD. We expect the RRD incidence in Western populations (like our own) to increase because of an increase in the proportion of persons of advanced age (i.e. population aging), who therefore are at an increased risk for the development of RRD. Macular detachment at presentation is frequently observed, and this may negatively affect postoperative visual recovery.
We found that both a longer duration and a larger height of the macular detachment negatively affect postoperative recovery of visual function in macula-off RRD patients. Further, the prevalence of postoperative metamorphopsia was high in macula-off RRD patients. However, in patients with postoperative metamorphopsia, the degree of metamorphopsia was relatively low. Postoperative metamorphopsia in macula-off RRD patients was associated with postoperative visual function but was not associated with postoperative vision related quality of life. In contrast, a worse postoperative visual function (i.e. postoperative BCVA, contrast acuity and post-operative CCI) after macula-off RRD was associated with a lower vision related quality of life.