



Risk Factors for Cataracts Treated Surgically in Postmenopausal Women

Sarah Floud, PhD,¹ Hannah Kuper, PhD,² Gillian K. Reeves, PhD,¹ Valerie Beral, PhD, FRS,¹ Jane Green, MD, PhD¹

Purpose: To identify risk factors for cataracts treated surgically in postmenopausal women.

Design: Population-based, prospective cohort study.

Participants: A total of 1 312 051 postmenopausal women in the UK Million Women Study, aged 56 years on average (standard deviation [SD], 4.8), without previous cataract surgery, hospital admission with cataracts, or cancer at baseline, were followed for cataracts treated surgically.

Methods: Cox regression was used to calculate adjusted relative risks (RRs) for cataract surgery by lifestyle factors, treatment for diabetes, reproductive history, and use of hormonal therapies.

Main Outcome Measures: Cataract surgery identified by linkage to central National Health Service (NHS) records for inpatient and day-patient admissions (Hospital Episode Statistics for England and Scottish Morbidity Records in Scotland).

Results: Overall, 89 343 women underwent cataract surgery during an average of 11 (SD, 3) years of follow-up. Women with diabetes were at greatest risk (diabetes vs. no diabetes RR, 2.90; 95% confidence interval [CI], 2.82–2.97). Other factors associated with an increased risk of cataract surgery were current smoking (current smokers of ≥ 15 cigarettes/day vs. never smokers RR, 1.26; 95% CI, 1.23–1.30) and obesity (body mass index [BMI] ≥ 30 vs. < 25 kg/m²; RR, 1.12; 95% CI, 1.10–1.14).

Conclusions: Diabetes, smoking, and obesity were risk factors for cataract surgery. Alcohol use, physical activity, reproductive history, and use of hormonal therapies had little, if any, association with cataract surgery risk. *Ophthalmology* 2016;123:1704–1710 © 2016 by the American Academy of Ophthalmology. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

Cataract is the second leading cause of partial sight and blindness in the United Kingdom, exceeded only by age-related macular degeneration.¹ Identifying potential risk factors for cataract is important given that the only treatment for cataract is the surgical removal of the lens. The most important risk factor for cataract formation is age.² Other risk factors that have been identified are diabetes, smoking, ultraviolet (UV) light, and steroid use,^{2–7} but there is less evidence on the role of factors such as body mass index (BMI), physical activity, reproductive history, use of hormonal therapies, and alcohol consumption.^{4,8–11}

Cataract surgery is the most common surgical procedure in the National Health Service (NHS) in England, with more than 340 000 operations carried out in 2013 and 2014.¹² Rates of cataract surgery in England have increased rapidly since 1990 because of the widespread uptake of phacoemulsification and day case surgery.¹¹ For people aged more than 60 years, rates are higher for women compared with men.¹¹ It has been proposed that this higher rate of surgery results from higher incidence of cataracts in postmenopausal women compared with men of a similar age because of hormonal differences between men and women.^{13–15} However, epidemiologic evidence on the relationship between

cataracts and reproductive and hormonal factors, including use of hormone therapy (HT) for menopause, is limited and inconsistent.^{4,16,17}

In a large cohort of postmenopausal women from the United Kingdom, with virtually complete long-term follow-up for surgical procedures through linkage to hospital records, we have examined potential risk factors for cataracts treated surgically, including treatment for diabetes, lifestyle, and reproductive and hormonal factors.

Methods

Data Collection and Definitions

The Million Women Study is a population-based prospective study of women in the United Kingdom. Details of the design and methods of the study have been described.¹⁸ Briefly, 1.3 million women aged 50 to 64 years were invited for breast cancer screening at NHS clinics in England and Scotland and were recruited to the study between 1996 and 2001 by completing a questionnaire, which included questions on various socioeconomic, lifestyle, reproductive, and hormonal factors. The respondents gave written consent to participate and for follow-up through their NHS medical records; ethical approval was provided by the Oxford and Anglia Multi-Centre Research Ethics Committee. Study questionnaires and details of the

study data and access policies can be viewed on the website (www.millionwomenstudy.org).

Follow-up

Individuals in the study are linked by their unique NHS identification number to NHS Central Registers, through which they are followed for emigration, death, and cancer registration, and to NHS hospital admissions databases: Hospital Episode Statistics for England and Scottish Morbidity Records for Scotland. The databases include information on both inpatient stays and day-case admissions (e.g., for surgical procedures). Follow-up is 99% complete; only 18 970 women (1%) have been lost to follow-up in the entire cohort, and they have been included in analyses up to the date of loss to follow-up. Information on the date and type of procedures associated with each hospital admission is provided, coded to the Office of Population Censuses and Survey's classification of surgical operations and procedures, fourth revision (OPCS-4). Linked data for England are provided to the cohort through the Health and Social Care Information Centre and the Office for National Statistics, and for Scotland by the NHS Information Services Division.

Statistical Analysis

Analyses were restricted to postmenopausal women. Those who reported at recruitment that they had experienced natural menopause (49%) or who had undergone a bilateral oophorectomy (6%) were defined as postmenopausal and included in follow-up from recruitment. Women who were premenopausal, perimenopausal, or of unknown menopausal status at recruitment were assumed to be postmenopausal after they reached the age of 55 years and were included in follow-up from age 55 years, because 96% of women in this cohort with a known age at natural menopause were postmenopausal by that age.¹⁹ Women were excluded from the analysis if their linked hospital records showed that they had previous cataract surgery or were admitted to a hospital with cataracts before recruitment, or if the cancer registration records showed that they had preexisting cancer, with the exception of nonmelanoma skin cancer. For these analyses, cases were defined as the first hospital record (day-case or overnight admission) of cataract surgery (OPCS-4:C71–C75) occurring after recruitment into the study. Women were followed until the date of first cataract surgery, date of death, or the end of the hospital admissions follow-up period (March 2011 for England and December 2008 for Scotland).

Cox proportional hazards models were used to estimate relative risks (RRs) and 95% confidence intervals (CIs) for cataracts treated surgically according to area deprivation (quintiles, based on the Townsend index, a score incorporating census area data for employment, car ownership, home ownership, and household overcrowding²⁰), educational qualifications (“tertiary” [college or university], “secondary” [A levels or O levels, usually obtained at age 18 and 16 years respectively], “technical” [nursing, teaching, clerical, or commercial], “no qualifications”), smoking status (never, past, current <15 cigarettes per day, current ≥15 cigarettes per day), BMI (<25, 25–29, ≥30 kg/m²), alcohol intake (<2, 2–14, ≥15 units per week [unit ~ 10 g alcohol]), strenuous physical activity (rarely/never, some), self-reported treatment for diabetes (yes, no), age at menarche (≤12, 13, 14, ≥15 years), parity (nulliparous, parous), number of children (1, 2, 3, ≥4), duration of oral contraceptive use (<5, ≥5 years), and use of HT for menopause (never, ever). All variables were as reported at recruitment. The underlying time variable was attained age, and all analyses were routinely stratified for the recruitment region (10 geographic regions). For RRs reported as multiply adjusted, analyses were

mutually adjusted for all other potential risk factors using the categories described (except for parity, which was adjusted for using 2 categories: parous/nulliparous). Missing values of adjustment factors (<6% for all variables) were included as a separate category.

In an additional analysis, we investigated the association between cataracts treated surgically and the 2 main types of HT: estrogen-only or estrogen-progestogen. Women reporting current use were classified according to most recent type reported, and analyses accounted for changes in use during follow-up. Women were initially classified using information provided at recruitment, and those who provided updated information on HT use on the second study questionnaire (on average 3 years after recruitment) were then reclassified using this updated information. For all women, the period of follow-up was censored at 48 months after last report of HT use. All analyses used Stata 14.1 (StataCorp LP, College Station, TX).

Results

After excluding 4150 women with a hospital record of cataract surgery before recruitment, 166 women with a previous hospital admission diagnosis of cataract, and 44 781 women with preexisting cancer, these analyses included prospective data on cataract surgery in 1 312 051 postmenopausal women. Over a mean follow-up period of 10.7 years (standard deviation [SD], 2.6 years) per woman, 89 343 women (6.8%) underwent cataract surgery, corresponding to an incidence rate of 6.38 (95% CI, 6.33–6.41) per 1000 person-years.

Table 1 shows the characteristics of the study population at baseline. Mean age at recruitment was 56.1 years (SD, 4.8 years); 21% reported that they were current smokers; mean BMI was 26.2 kg/m² (SD, 4.7); 59% reported ever using oral contraceptives; and 34% were currently using HT.

Table 2 shows the RR of cataracts treated surgically by various categories of socioeconomic and lifestyle factors, as well as treatment for diabetes. Overall, 2% (31 612) of the women in the study population reported being treated for diabetes, and this was the strongest risk factor for cataracts treated surgically (multiply adjusted RR for diabetes vs. no diabetes, 2.90, 95% CI, 2.82–2.97). Both past and current smoking at recruitment were associated with increased risk of cataracts treated surgically, with multiply adjusted RRs compared with never smokers of 1.10 (95% CI, 1.08–1.12) in past smokers, 1.12 (95% CI, 1.09–1.14) in current smokers of less than 15 cigarettes per day, and 1.26 (95% CI, 1.23–1.30) in current smokers of 15 or more cigarettes per day. Obesity was associated with a small increase in risk of cataracts treated surgically; this association was stronger in the minimally adjusted analysis (adjusted for age and region only) but remained significant after adjustment for other factors, including treatment for diabetes (multiply adjusted RR, 1.12; 95% CI, 1.10–1.14 for women with BMI ≥30 kg/m² compared with <25 kg/m²). In analyses restricted to those not reporting treatment for diabetes, the association was similar (multiply adjusted RR, 1.15; 95% CI, 1.12–1.17 for women with BMI ≥30 kg/m² compared with <25 kg/m²).

Women who reported doing some strenuous physical activity every week had a slightly lower risk of cataracts treated surgically compared with women who reported rarely or never engaging in strenuous physical activity (multiply adjusted RR, 0.90; 95% CI, 0.88–0.91). Alcohol consumption of 2 units or more per week was weakly associated after adjustment, with a slightly lower risk of

Download English Version:

<https://daneshyari.com/en/article/6198952>

Download Persian Version:

<https://daneshyari.com/article/6198952>

[Daneshyari.com](https://daneshyari.com)