

Anthropometric measures and their relation to incident primary open-angle glaucoma

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PURPOSE: To assess the relation between anthropometric measures and incident primary open-angle glaucoma (POAG) .

DESIGN: Prospective cohort study.

PARTICIPANTS: Included were 78,777 women in the Nurses' Health Study and 41,352 men in the Health Professionals Follow-up Study.

METHODS: Females and male health professionals were followed prospectively from 1980 through 2004 and 1986 through 2004, respectively. Eligible participants were 40 years of age or older, did not have POAG at baseline, and reported undergoing eye examinations during follow-up. Information regarding anthropometric measures, potential confounders, and ophthalmic status was updated using biennial questionnaires. During follow-up, 980 POAG cases were identified.

MAIN OUTCOME MEASURES: Multivariate rate ratios (MVRR) of POAG and their 95% confidence intervals (CIs) .

RESULTS: There was no significant relation between cumulatively averaged body mass index (BMI) in kilograms per meter squared and POAG overall ($P = 0.06$, for trend) . However, in relation to POAG with intraocular pressure (IOP) of 22 mmHg or less at diagnosis, each unit increase in BMI was associated with a 6% reduced risk in women (MVRR, 0.94; 95% CI, 0.91-0.98; $P = 0.01$) , but not for men (MVRR, 1.02; 95% CI, 0.96-1.09; $P = 0.57$) ; this gender difference was significant ($P = 0.03$, for heterogeneity) . In multivariate analyses to explore the independent effects of height and weight, weight (as height-adjusted weight residuals; $P = 0.002$, for trend) , but not height ($P = 0.10$, for trend) seemed to account for most of the inverse association between BMI and POAG with IOP of 21 mmHg or less at diagnosis in women. There was no association between BMI and POAG with IOP of more than 21 mmHg at diagnosis for either gender ($P > 0.26$, for trend) . Among women, analyses found that the relations between anthropometric parameters and both POAG subtypes (POAG with IOP ≤ 21 mmHg when diagnosed) were significantly different (CONCLUSIONS: Among women, higher BMI was associated with a lower risk of POAG with IOP of 21 mmHg or less at diagnosis. The factors contributing to this tendency may yield insight into the pathogenesis of POAG.

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