Job strain and the risk of atrial fibrillation: Results from the Swedish WOLF study

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Conclusion

The results from this study provide support to the hypothesis that work-related stress, defined as job strain, is associated with an increased risk of atrial fibrillation.

Introduction

Atrial fibrillation is a common heart rhythm disorder affecting 1-3 % of the adult population. Atrial fibrillation is associated with increasing age and is more common in men than in women. Several life-style factors have been identified as risk factors for atrial fibrillation, but less is known whether work-related stress may affect the risk.

Aim

The aim with the present study was to evaluate if work-related stress, defined as job strain, is associated with the risk of atrial fibrillation

Methods

Data from the Swedish **Work, Lipids and Fibrinogen (WOLF) study** was used, comprising 10,121 working men and women (mean age 42.5 years), with baseline examination in 1992-1998.

Information on atrial fibrillation was derived from national registers.

Work-related stress was defined according to the job demand-control (job strain) model and categorized into low strain, passive, active and high strain jobs.

Cox proportional hazard regression was used to estimate hazard ratios (HR) and 95% confidence intervals (CI).

Results

Table 1. The estimated association between job strain and the risk of atrial fibrillation. Hazard ratios (HR) with 95% Confidence Intervals (95% CI).

Work-related stress	HR (95% CI)* Complete follow-up, 253 events	HR (95% CI)* First 10.7 years of follow-up, 165 events	HR (95% CI)* Follow-up after 10.7 years, 88 events
Low strain	1 (ref)	1 (ref)	1 (ref)
Passive	1.08 (0.79-1.49)	1.05 (0.71-1.54)	1.16 (0.66-2.03)
Active	1.21 (0.87-1.67)	1.22 (0.82-1.83)	1.20 (0.67-2.09)
High strain	1.50 (0.99-2.27)	1.19 (0.69-2.06)	2.13 (1.13-4.04)

*Adjusted for age, sex and part of study.

During a median follow-up time of 13.6 years, 253 incident atrial fibrillation cases were identified. In age, sex, and study part adjusted models, high strain was associated with a 50% increased risk of atrial fibriallation compared with low strain, the result being borderline statistically significant, HR 1.50 (95 % CI 0.99-2.27). The association was stronger after 10.7 years of follow-up, HR 2.13 (95 % CI 1.13-4.04) (Table 1).

Table 2. The estimated association between accumulated exposure to job strain and the risk of atrial fibrillation. Hazard ratios (HR) with 95% Confidence Intervals (95% CI), baseline measure in 1996-1998 (t1), and repeated measure in 2000-2003 (t2), n=3123.

Subsample with repeated measurements, 47 events	HR (95% CI)*	p-value for trend
Unexposed to job strain at both t1 and t2	1 (ref)	0.06
Job strain at either t1 or t2	1.68 (0.83-3.40)	
Job strain at both t1 and t2	2.28 (0.70-7.44)	

*Adjusted for age and sex.

In a subsample of the study population with repeated measurement of job strain, a tendency of a dose-response association between job strain and atrial fibrillation was observed (table 2).