Increased mortality in partners of female myocardial infarction patients

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**Background.** Many studies have been performed on the impact of Alzheimer’s disease, stroke and cancer on carers. Information on the influence of a myocardial infarction in a patient on the health of the partner is still scarce.

**Methods.** Exposed and non-exposed partners were compared with respect to the occurrence of mortality and predefined diseases, using Cox proportional hazards survival analysis.

**Results.** None of the disease incidence rates differed between exposed partners and control partners. Over 12 times as many male partners of (female) heart patients died as compared to their male control partners, when they had a low educational level.

**Conclusion.** When exposed to myocardial infarction in a patient, the risk of dying in low educated male partners was over 12 times as large as for male low educated unexposed partners.

**Keywords.** Morbidity, mortality, myocardial infarction, spouse caregivers.

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**Introduction**

A myocardial infarction (MI) is considered a life-threatening event and is a source of stress for patients and their partners.\textsuperscript{1} Many studies have been performed on the impact of disease on carers.\textsuperscript{2,3} This was, however, largely focussed on carers for patients with Alzheimer’s disease, stroke and cancer. The information on the influence of an infarction in a patient on the health of the partner is still scarce. We examined the impact of a MI on the morbidity and mortality in the patients’ partners and compared this with partners of patients without a MI.

**Methods**

Data from the Registration Network Family Practices of Maastricht University (RNH) were used. This is an ongoing morbidity registry with over 60 participating GPs and approximately 85,000 patients. Demographic characteristics and health problems of all patients are registered, coded according to the International Classification of Primary Care (ICPC). The population in this database is largely comparable with the Dutch population.\textsuperscript{4}

MI partners were included by the occurrence of the first MI (ICPC K75) in the period 1 April 1998 up to and including 31 December 2000. The exposed partner was then, if available, matched with five randomly selected non-exposed controls from the same five-year age group and gender.

Exposed and non-exposed partners were compared with respect to the occurrence of mortality and predefined diseases (see Table 1). Date of incidence was the first diagnosis in one of these categories. Follow up lasted until 31 December 2003.

We performed Cox proportional hazards survival analysis, adjusting for age, gender, educational level (categorised in low and middle/high) and the time-dependent variable of death of the index patient or control and we searched for any interaction of the three first variables with the exposure-status. We used backward stepwise model building with a \( P \)-value of 0.10 for removal.

**Results**

The study population included 155 exposed partners and 746 control partners, with 32\% and 40\% males.
respectively. The mean age was 61 in both groups. In bivariate and multivariate analysis, none of the disease incidence rates differed between exposed partners and control partners (Table 1). Over 12 times as many male partners of (female) heart patients died as compared to their male control partners, when they had a low educational level. In female exposed and non-exposed partners, and in partners with moderate to high educational level, no difference was observed. The interaction between exposure status and gender was statistically significant, as was the interaction with educational level. There were no differences in frequencies of causes of deaths between exposed and non-exposed partners.

**Discussion**

The finding that when exposed to MI in a patient, the risk of dying in low educated male partners was over 12 times as large as for male control partners is both striking and new.

Little is known about how male partners of (female) MI patients react to their spouse or partner having a heart attack. Could the difference be caused by equal life styles in the partner and the index patient? This would however have probably been noticed in morbidity rates as well. Or could it be that men cannot survive without their wives’ care?

Moreover it is remarkable that the stress brought on with a heart infarction has no impact on morbidity, not even earlier noticed psychiatric morbidity.5

Both the restrictions and strengths of this study are that data originates from an existing database, and hence from routine registration for patient care. The GPs couldn’t be influenced by the research question. On the other hand the analyses were restricted to disorders and no symptoms, risk factors or frequency of visits to the GP were included. We made a large number of comparisons and found small numbers of events. Our finding could therefore result from random error only. However, a hazard ratio of more than 12 is seldom seen in epidemiological studies and the result was significant at a P-level of 0.00004.

The different consequence of a MI in male and female partners may be important and is not understood. To our knowledge this is the first time this relation has been examined and described. We therefore propose that additional studies should be undertaken to either confirm or refute our results.

**Declaration**

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Conflicts of interest: none.

**References**


