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Agism as explanation for sexism in provision of thrombolysis

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Evidence exists that physicians manage coronary heart disease less aggressively in women than in men,¹⁻³ even though heart disease in women may be more severe.¹ We assessed whether thrombolysis is provided on a different basis in men and in women.

Methods and results

As part of the Royal College of General Practitioners' myocardial infarction study, 776 general practitioners in Britain supplied information about the management (including the use of thrombolysis) of 2495 patients suspected of having a myocardial infarction. The patients were recruited from March 1991 to September 1992. We examined the use of thrombolysis in hospital among the 1094 patients who had a myocardial infarction that had been confirmed by a hospital and who had no contraindication to thrombolysis.

In all, 214 patients (20%) were excluded from the analysis because of missing data on age (seven), smoking (118), duration of symptoms (41), or use of thrombolysis (54); some patients were excluded for more than one reason. For the remaining 880 subjects crude and age adjusted odds ratios were calculated, with logistic regression, to determine whether the hospitals' use of thrombolysis was affected by the sex, age, and smoking habits of patients, and by the interval between the onset of a patient's symptoms and admission. Information about the time taken to transport patients to hospital and the time that thrombolysis was given was not collected.

In all, 545 patients received thrombolysis in hospital (62% (95% confidence interval 59% to 65%)). Initially,

the women seemed less likely than the men to be given thrombolysis (unadjusted odds ratio 0.74 (table)). The difference, however, was explained by the confounding effect of age: the women tended to be older than the men, and age was an important determinant of the provision of thrombolysis. Adjustment for age removed the effect of sex (age adjusted odds ratio 0.96 (0.71 to 1.31)). The confounding effect of age also explained the apparent lower use of thrombolysis in smokers but it did not affect the trend of decreasing use of thrombolysis the longer the duration of symptoms.

Comment

All of the patients in this analysis had a confirmed myocardial infarction and no recognised contraindication to thrombolysis. It is noteworthy, therefore, that nearly 40% of patients were not given thrombolysis. The study's protocol asked the general practitioners, in the absence of information about the use of thrombolysis in hospital, to contact their hospital colleagues to confirm that this treatment had been withheld. No explanation, however, was sought for this decision on treatment. No reason exists to suspect that any under-reporting of treatment that may have occurred was related to the variables examined in this study.

Some patients may have been denied treatment either because they did not meet the criteria on electrocardiography currently recommended for thrombolysis or because they experienced long delays in transportation, which excluded them from the "therapeutic window." A number of patients, however, were probably denied thrombolysis simply because of their age: two fifths of consultants in charge of coronary care units in Britain who responded to a questionnaire in December 1990 operated age related policies on thrombolysis.⁴ Inadequate provision of thrombolysis, however, was not restricted to elderly people. In our study 30% (95% confidence interval 25% to 35%) of patients aged < 65 years and 33% (28% to 37%) of those admitted within two hours of onset of symptoms were not given thrombolysis.

These results remind all staff participating in the care of patients with myocardial infarction of the need to review regularly whether all eligible patients are being offered this important treatment.⁵ They also illustrate the need to consider confounding factors when exploring epidemiological data.

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Odds ratios (95% confidence intervals) for treatment with thrombolysis in hospital in 880 patients with confirmed myocardial infarction and no recognised contraindication to thrombolysis

Characteristics of patients	No of patients given thrombolysis		Odds ratio	
	Yes (n=545)	No (n=335)	Unadjusted	Age adjusted
Men*	379	210	1.0	1.0
Women	166	125	0.74	0.96 (0.71 to 1.31)
Age (years):				
< 65*	262	112	1.0	1.0
65-	194	93	0.89	0.89 (0.64 to 1.25)
75-	79	109	0.31	0.31 (0.21 to 0.45)
≥ 85	10	21	0.20	0.21 (0.09 to 0.46)
Significance	Test for trend $\chi^2=43.0$, df=1, P<0.01			
Non-smoker*	181	90	1.0	1.0
Smokers	364	245	0.74	0.98 (0.71 to 1.35)
Time between onset of symptoms to admission (hours)†				
< 2*	297	144	1.0	1.0
2-	134	85	0.76	0.72 (0.50 to 1.01)
4-	53	38	0.68	0.66 (0.41 to 1.06)
≥ 6	61	68	0.43	0.38 (0.25 to 0.58)
Significance	Test for trend $\chi^2=20.7$, df=1, P<0.01			

*Reference group.

†Additional adjustments for sex and smoking had no effect on odds ratios.

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