

Autonomic dysfunction is a long term complication of treatment with cisplatin, vinblastine, and bleomycin and may explain the impotence that occurs in some patients. Presumably these young men are at risk during anaesthesia as cardiorespiratory arrests have occurred in patients with similar dysfunction.

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## Association between living conditions in childhood and myocardial infarction

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Several studies have reported an association between cardiovascular diseases in adulthood and poor living conditions in childhood.<sup>1,2</sup> I studied the association between living conditions in childhood and myocardial infarction in a well defined group of male unskilled and semiskilled workers.

### Subjects, methods, and results

I conducted a nested case-control study based on information obtained in a case-control study designed to elucidate the factors giving rise to disability pensions for unskilled and semiskilled workers.<sup>3</sup> Each consecutive male member of the Danish general workers' union who was granted a disability pension (pensioner) between 1 January 1984 and 1 March 1986 was included in the study. For each pensioner three union members matched for age and sex were recruited as controls. A self administered postal questionnaire was returned by 2602 (73.3%) of the study population (75.2% of the pensioners and 72.6% of the controls). Only subjects who had been union members for over 10 years and were aged 50-67 were studied—that is, 448 pensioners and 1225 controls. My study was concerned only with answers to the question "Have you ever had a myocardial infarction?" and to questions about living conditions in childhood.

Altogether 154 of the study population had had a myocardial infarction (88 pensioners and 66 controls). No significant difference in the age distribution of those who had and had not had a myocardial infarction was observed (mean age 58.1 and 57.9 respectively). The table shows the results obtained from the questions on living conditions in childhood. Odds ratios and 95% confidence intervals were calculated for each question regarding the most common answer among the men who had had a myocardial infarction. No significant differences were observed in the study group overall, but broken homes and urban residence

were significantly associated with myocardial infarction in the control group.

No differences were observed in essential indications of poverty such as father's occupation, long term unemployment, and economic problems. Although not significant, the odds ratio for myocardial infarction among men with a short education was notably increased (1.95).

### Comment

The study relied on a self reported history of myocardial infarction, which seems justified because heart disease is one of the chronic illnesses for which self reporting is fairly accurate. The study was based on questionnaires received from men who had survived a myocardial infarction. Such survivors may have different backgrounds from those of people who die, although it seems unlikely that living conditions in childhood influence the chance of survival.

The results could be biased by the high number of pensioners in the study. Separate analyses of the pensioners and controls did not show any systematic differences. A previous case-control study showed no association between living conditions in childhood and receipt of a disability pension.<sup>3</sup>

The study population was strikingly homogeneous in terms of education: 89.7% had received seven years' education or less. It is difficult to find significant associations in such a homogeneous group, although there was a fairly strong tendency towards fewer cases of myocardial infarction among those with more than seven years' education.

The results are inconsistent with previous population based studies.<sup>1,2</sup> Finding unfavourable living conditions in childhood in an area with a high mortality from cardiovascular diseases does not necessarily imply a causal relation. The highest infant mortality is found in poor areas that have remained poor throughout the century,<sup>4</sup> and the incidence of cardiovascular diseases is highest among the lowest social class.<sup>5</sup> The association of myocardial infarction with childhood conditions<sup>1,2</sup> could be explained by confounding as low social class is associated with infant mortality, poverty in childhood, and cardiovascular diseases.

Living conditions in childhood may influence a person's career and lifestyle in adulthood and so be an

Living conditions experienced in childhood by men who had had myocardial infarction

	Men who were receiving disability pension (n=88)			Men who were not receiving disability pension (n=66)			Entire study group (n=154)		
	No	Odds ratio	95% Confidence interval	No	Odds ratio	95% Confidence interval	No	Odds ratio	95% Confidence interval
Father was an unskilled worker	37	1.24	0.77 to 1.99	27	1.07	0.65 to 1.77	64	1.13	0.80 to 1.58
Did not grow up with both parents	12	1.05	0.53 to 2.08	16	1.94	1.09 to 3.46	28	1.38	0.89 to 2.12
Father was unemployed for a long period	15	0.95	0.51 to 1.76	16	1.27	0.71 to 2.27	31	1.04	0.69 to 1.57
Parents were sick	26	1.54	0.92 to 2.59	14	0.90	0.49 to 1.64	40	1.19	0.82 to 1.74
Parents received disability pension	22	1.41	0.81 to 2.43	10	0.81	0.32 to 2.04	32	1.22	0.81 to 1.84
Economic problems	39	1.30	0.81 to 2.07	28	1.08	0.65 to 1.78	67	1.16	0.83 to 1.62
Urban residence	27	1.05	0.63 to 1.74	27	1.84	1.11 to 3.03	54	1.39	0.98 to 1.98
≤7 Years of schooling	83	2.13	0.83 to 5.46	62	1.84	0.67 to 5.07	145	1.95	0.99 to 3.85

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indirect risk factor for cardiovascular diseases. This study provides no support, however, for the hypothesis that poverty in childhood itself is causally related to myocardial infarction.

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## Intravenous thrombolysis for suspected myocardial infarction: a cautionary note

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Use of thrombolytic agents to treat acute myocardial infarction reduces mortality by 10-30%,<sup>1,4</sup> and an increasing number of patients are now receiving such agents. We report two cases in which administration of streptokinase was probably inappropriate and had adverse consequences.

### Case reports

*Case 1*—A previously fit 75 year old woman presented to hospital with a one hour history of anterior chest pain radiating through to her back. Although an electrocardiogram was normal, acute myocardial infarction was diagnosed clinically and intravenous streptokinase (1.5 million units over one hour) given. Eighteen hours later she developed further chest pain, which radiated to her legs, and an early diastolic murmur. A chest radiograph suggested a widened mediastinum, and she was transferred to the regional cardiothoracic unit with a diagnosis of aortic dissection. Aortography showed a type A dissection, but she died during an emergency operation. A postmortem examination did not show any appreciable disease of the coronary arteries.

*Case 2*—A previously fit 64 year old woman was admitted to her district hospital after the sudden onset of central chest pain several hours earlier. Electrocardiography showed inferior T wave inversion, and acute myocardial infarction was diagnosed. Intravenous streptokinase was given (1.5 million units over one hour), but three hours later she became hypotensive and collapsed. Echocardiography showed a pericardial effusion, and she was transferred to the regional cardiothoracic unit. On arrival she was hypotensive and could not be roused. Initially an aortogram was thought to be normal, and coronary arteriography was therefore undertaken; the results of this were normal. Subsequent analysis of the cineangiogram showed subtle changes consistent with type A dissection, and after resuscitation she was referred for urgent surgery, which confirmed the diagnosis. She was well four months later.

### Comment

The reductions in infarct size and mortality from

cardiovascular causes are greater the earlier thrombolytic agents are administered. As changes evident on electrocardiography may take time to develop some hospitals require only clinical criteria of infarction before thrombolytic agents are given. Most of the large trials of thrombolytic agents required electrocardiographic evidence of infarction before the agents were given, but two did not.<sup>3,4</sup> In one of these, the Anglo-Scandinavian study of early thrombolysis (ASSET),<sup>3</sup> subset analysis showed that thrombolytic agents did not result in any significant reduction in mortality in patients with normal electrocardiograms.

Contraindications to the use of thrombolytic agents are well documented, but most trials do not report on patients whose condition was misdiagnosed and who received thrombolytic agents inappropriately. In the trials that required changes evident on electrocardiography<sup>1,2</sup> it is possible that there were no such cases or that they were unrecognised. In the Anglo-Scandinavian trial, however, eight patients were subsequently shown to have aortic dissection, of whom five died. Although dissection might conceivably have resulted from thrombolytic treatment, more probably the initial diagnosis was incorrect. As myocardial infarction may itself complicate type A aortic dissection, thrombolytic agents will inevitably be given to a few patients with dissection, even if electrocardiographic evidence of infarction is required before the drugs are administered.

The benefit offered by thrombolytic agents to the many patients with acute myocardial infarction is obvious. Our experience suggests that in the enthusiasm for using these agents some patients will be treated inappropriately and that such treatment may be life threatening. This raises the question of whether greater emphasis should be placed on the presence of electrocardiographic changes. If all general practitioners are to own an electrocardiograph, as recently recommended,<sup>5</sup> and are to be encouraged to start thrombolysis then guidelines on the relevance of electrocardiographic changes will need to be clearly stated.

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