Delayed Thrombolysis Is Common in Older Patients with AMI

McLaughlin TJ, Gurwitz JH, Willison DJ, Gao X, Soumerai SB. Delayed thrombolytic treatment of older patients with acute myocardial infarction. J Am Geriatr Soc 1999;47:1222–8.

Study Overview

Objective. To better understand the demographic and clinical factors associated with delayed thrombolytic treatment in patients with acute myocardial infarction (AMI).

Design. Retrospective cohort analysis using medical records.

Setting and participants. 776 patients aged 65 years or older who were hospitalized in 1 of 37 Minnesota hospitals from October 1992 through July 1993 or from July 1995 through April 1996 with a diagnosis at admission of AMI, suspected AMI, or rule-out AMI and who were treated with a thrombolytic agent. Of the 37 hospitals, all of which participated in the quality improvement initiative known as the Minnesota Clinical Comparison and Assessment Program, 35 were community hospitals, 2 were academic medical centers, and 20 were in urban areas.

Main outcome measures. "Early thrombolysis" was defined as thrombolytic treatment administered less than 60 minutes after hospital presentation, and "late thrombolysis" was defined as such treatment administered 60 or more minutes after hospital presentation. The association between early or late thrombolysis and various patient characteristics was assessed using multivariate logistic regression models. Patient characteristics assessed included time between onset of symptoms and hospital presentation, presence or absence of chest discomfort, time of first electrocardiogram (ECG), past use of sublingual nitroglycerin, level of comorbidity (as measured by Greenfield's Index of Coexistent Disease [ICED] [1]), history of various comorbidities, and mechanical revascularization procedures (coronary artery bypass graft surgery or percutaneous transluminal coronary angioplasty), age-group, gender, marital status, living arrangement, and employment status.

Main results. 43.5% of study patients (*n* = 330) received late thrombolysis, 12.1% (*n* = 94) received thrombolysis more than 2 hours after their presentation at the hospital. After multiple factors were controlled for, the odds of receiving thrombolytic therapy late among patients 75 years or older

were 1.48 (95% confidence interval [CI], 1.17 to 1.88) compared with younger individuals. The odds of delayed thrombolysis among patients with severe comorbidity were 1.46 (95% CI, 1.10 to 1.94) compared with individuals without severe comorbidity. Predictors of early thrombolytic treatment included hospital arrival via emergency transport (OR, 0.40; 95% CI, 0.34 to 0.63) and chest discomfort at admission (OR, 0.40; 95% CI, 0.18 to 0.86).

Conclusion

The initiation of thrombolytic treatment following hospital presentation is more likely to be delayed in older patients (≥ 75 years) and in those with severe comorbidity.

Commentary

Thrombolysis is most successful when administered within 1 hour of symptom onset [2,3]. However, substantial delays have been documented both in the time from symptom onset to hospital presentation and in the time from presentation to time of thrombolysis [4]. Focusing on the latter time period, the current study demonstrates that further efforts to decrease time to thrombolysis among eligible candidates are needed. These findings are relevant to both community hospitals and academic centers in rural and urban settings.

Applications for Clinical Practice

Hospitals and their emergency transport systems must develop strategies to speed decision making during care of patients with suspected AMI. Efforts should focus on promptly ascertaining eligibility for thrombolysis and administering it if appropriate.

References

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