Transport to a PCI centre improved long-term outcome more than thrombolytic therapy at the community hospital in acute MI

Widimsky P, Bilkova D, Penicka M, et al. **Long-term outcomes of patients with acute myocardial infarction presenting to hospitals without catheterization laboratory and randomized to immediate thrombolysis or interhospital transport for primary percutaneous coronary intervention. Five years' follow-up of the PRAGUE-2 trial.** Eur Heart J. 2007;28:679-84.

Clinical impact ratings: Emergency Med ★★★★★★☆ Hospitalists ★★★★★☆☆ Cardiology ★★★★★☆☆

QUESTION

In patients with acute myocardial infarction (MI) presenting to community hospitals without facilities for percutaneous coronary intervention (PCI), does transport to a PCI center improve long-term outcome more than thrombolytic (TL) therapy at the community hospital?

METHODS

Design: Randomized controlled trial (PRAGUE-2).

Allocation: {Concealed}†.*

Blinding: Unblinded.*

Follow-up period: Median 55 months.

Setting: {Emergency departments of 41 community hospitals and 7 PCI centers in the Czech Republic}†.*

Patients: 850 patients 28 to 89 years of age (median age 65 y, 70% men) who presented with acute ST-elevation MI (STEMI) within 12 h from onset of symptoms to a community hospital that was < 120 km from a PCI center and for whom it was feasible to begin transport within 30 minutes. Patients with a contraindication to TL therapy or absence of bilateral femoral artery pulsations were excluded.

Intervention: Interhospital transport to the nearest PCI center for primary PCI (n = 429) or intravenous TL therapy in the community hospital (n = 421).

Outcomes: Composite endpoint (all-cause mortality, recurrent MI, or stroke), secondary composite endpoint (all-cause mortality, recurrent MI, stroke, or revascularization procedure), and their individual components.

Patient follow-up: 99% (intention-to-treat analysis).

MAIN RESULTS

At 5 years, risks for the primary and secondary composite endpoints were lower in the PCI group than in the TL group (Table). Transport for PCI reduced risk for recurrent MI and need for additional PCI procedures (Table). Groups did not differ for all-cause mortality, stroke, or need for coronary artery bypass graft surgery (Table).

CONCLUSION

In patients with acute myocardial infarction (MI) presenting to community hospitals without facilities for percutaneous coronary intervention (PCI), transport to a PCI center reduced long-term risk for recurrent MI and need for additional PCI procedures more than thrombolytic therapy at the community hospital.

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*See Glossary.

†**Widimsky P, Budesinsky T, Vorac D, et al.** Eur Heart J. 2003;24:94-104.

Transport to a percutaneous coronary intervention (PCI) center vs thrombolytic therapy (TL) at the community hospital for acute myocardial infarction (MI) at 5 years‡

Outcomes	Transport to PCI center	TL in community hospital	RRR (95% CI)	NNT (CI)
Death, MI, or stroke	40%	53%	35% (21 to 48)	6 (4 to 10)
Death, MI, stroke, or revascularization	47%	54%	19% (1 to 32)	10 (6 to 139)
Death	19%	23%	23% (–1 to 42)	Not significant
Recurrent MI	12%	19%	39% (12 to 58)	14 (9 to 45)
Stroke	8%	8%	38% (–18 to 54)	Not significant
(Repeated) PCI	22%	38%	47% (29 to 62)	6 (5 to 10)
Coronary artery bypass graft surgery	12%	13%	11% (–30 to 40)	Not significant

‡Abbreviations defined in Glossary. RRR, NNT, and CI calculated from adjusted hazard ratios in article.

COMMENTARY

Patients presenting to acute care facilities with STEMI are candidates for therapies of proven, but time-sensitive, effectiveness (1). PCI has largely replaced fibrinolytic therapy in settings in which both are available. Physicians in hospitals where PCI is unavailable must choose between offering immediate fibrinolytic therapy or transport to a PCI facility. A review by Dalby and colleagues found that patients randomized to transport had reduced short-term incidence of death, reinfarction, or stroke (2). The latest report on follow-up data from the PRAGUE-2 trial by Widimsky and colleagues shows that these observations will probably translate into long-term benefits.

Practice in this area is evolving rapidly, and issues regarding cointerventions are relevant. Widimsky and colleagues allowed, but did not systematically administer, glycoprotein IIb/IIIa inhibitors to patients randomized to PCI. If these agents improve outcomes in such patients, the advantages of transport for PCI might be enhanced through their administration. In addition, the trials on this question predate wide adoption of drug-eluting stents over other invasive modalities. Finally, the authors suggested that the long-term mortality benefit observed in the PCI group might apply only to patients randomized > 3 hours after symptom onset; however, this hypothesis has yet to be explored.

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References

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