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The Practice of Percutaneous Coronary Interventions in Hospitals Without On-Site Cardiac Surgery: Review of Guidelines and Analysis of Quebec Data, 1999–2004

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Aim

To examine the advisability and safety of performing percutaneous coronary intervention at facilities without on-site cardiac surgical support.

Conclusions and results

Percutaneous coronary intervention (PCI) is generally performed in catheterization laboratories in hospitals with on-site cardiac surgery. However, there have been pressures worldwide to perform PCI at facilities without on-site cardiac surgical support. Québec currently has 5 such centers.

This assessment is based on a review of the most recent guidelines and on an analysis of Québec medico-administrative data for PCIs performed from 1999 to 2004. In general, the guidelines urge caution in creating PCI centers without on-site surgical support and stress the need for mentorship by established tertiary cardiology centers, for high institutional and operator volume, for clear protocols on rapid patient transfer when emergency cardiac surgery is required, and for continuous clinical outcome monitoring.

The evidence indicates that clinical outcomes may be slightly less favorable in patients who undergo PCI at centers without on-site cardiac surgery, even in highly controlled conditions with rigorous selection of low-risk patients. The same observation emerges from the analysis of PCI outcomes in Québec, using a first PCI as the index event. Although these results should be considered preliminary, the risk of 1-year, all-cause mortality appears to be significantly higher at centers without on-site cardiac surgery. The relative and absolute increases in this risk are estimated at 29% and 1.4%, respectively, compared to the risk observed in centers with on-site cardiac surgery.

Although opening PCI centers without on-site surgery might be considered as a means to offer primary PCI more widely across Québec to patients with ST-segment elevation myocardial infarction (STEMI) and to treat them more rapidly, two factors temper this rationale: 1) primary PCI accounts for less than one fourth of all PCIs; 2) fibrinolytic therapy is a well-accepted alternative for treating patients with STEMI and is readily available throughout Québec in any healthcare center equipped with an emergency room.

This report highlights the uncertainty regarding the advantages of performing PCI in centers without on-site surgery and leads AETMIS to advise caution in response to the demand to create and expand such centers. Given the considerable resources required to perform PCI and achieve its benefits, and the risks associated with invasive interventions, this assessment emphasizes the importance of interhospital collaboration, the establishment of clear protocols, and commitment to quality-of-care conditions. The report also stresses the need for a high-quality data registry and the monitoring of performance to ensure the most favorable outcomes and optimal allocation of resources.

Methods

Review of international and Canadian practice guidelines and analysis of Québec medico-administrative data; literature search in G-I-N, MEDLINE, the Cochrane Library 2007, Issue 2, HTA Database for primary studies and other scientific documents; review of the grey literature on the Internet and in governmental and corporate websites.

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