Impact of a Guideline-based Quality Improvement Initiative on Acute Myocardial Infarction Care

Mehta RH, Montoye CK, Gallogly M, et al. Improving quality of care for acute myocardial infarction: The Guidelines Applied in Practice (GAP) Initiative. JAMA 2002;287:1269–76.

Study Overview

Objectives. To determine the effect of a quality improvement project on adherence to guideline based recommendations for treatment of patients with acute myocardial infarction (MI).

Design. Nonrandomized controlled multicomponent hospital-based intervention with an intention-to-treat analysis.

Setting and participants. 21 acute care hospitals in southeast Michigan volunteered for the intervention and 10 were selected to receive it. The remaining 11 hospitals served as the control group. Intervention and control hospitals were similar in measured characteristics, such as MI volume and availability of cardiac catheterization facilities. Hospital quality indicator baseline data were collected for the intervention hospitals from a random sample of Medicare and non-Medicare patients with a primary discharge diagnosis of acute MI between 1 July 1998 and 30 June 1999. Patients were excluded if there was no confirmed MI or if the diagnosis was established during a prior episode of care. Patients also were excluded if they had a contraindication to 1 of the specified quality indicators (eg, allergy to aspirin). Remeasurement of hospital quality indicator data occurred between 1 September and 15 December 2000. For control hospitals, baseline data were collected between 1 January and 31 December 1998 and remeasurement data were collected between 1 March and 31 August 2001.

Intervention. The Guidelines Applied in Practice (GAP) initiative included a project kickoff presentation, creation and implementation of a hospital-specific tool kit based on American Heart Association national guidelines, identification of local physician and nurse opinion leaders, site visits for grand rounds, and measurement of quality indicators. The tool kit consisted of a standard order template, clinical pathway, pocket guides, patient information materials, patient discharge form, chart stickers, and hospital performance charts.

Main outcome measures. Quality indicators for acute MI were process measures and were analyzed as either the per-centage of MI patients receiving a particular therapy or median time to therapy. Early quality of care indicators included aspirin, β blocker, and low-density lipoprotein (LDL) cholesterol measurement within 24 hours of presentation as well as time to thrombolysis and/or percutaneous transluminal coronary angioplasty (PTCA). Late quality of care indicators included treatment with aspirin, β blocker, ACE inhibitor, and lipid-lowering medications along with smoking cessation and dietary counseling at discharge.

Main results. 1649 patients were studied. Patients were similar with respect to most characteristics, although no statistical comparisons between the groups were presented. Statistically significant increases were seen with aspirin and β blocker administration at admission between the pre- and postintervention periods (respectively, 81% versus 87%; $P = 0.02$ and 65% versus 74%; $P = 0.04$). Significant differences also were seen for aspirin prescribing and smoking counseling at discharge in the intervention hospitals (respectively, 84% versus 92%; $P = 0.002$ and 53% versus 65%; $P = 0.02$). Nonsignificant but favorable trends were seen for all other indicators except time to PTCA. When compared with controls, the Medicare GAP patients showed a significant improvement in the prescription of aspirin at discharge only (5% versus 10%, $P < 0.001$). Based on chart review of the GAP hospitals, only 26% had evidence of using the standard admission order templates, only 27% used the clinical pathway, and only 24% used the discharge forms.

Conclusion. The use of a structured quality improvement initiative that is derived from guideline-based tools might improve the process of care for acute MIs.

Commentary

While data exist documenting substandard quality of care for patients with acute MI [1], few studies have utilized structured initiatives to improve care. The GAP initiative was designed to improve acute MI care through incorporating national guidelines into patient care processes. Important points to take from the study relate to the manner in which these tools were implemented. The authors developed standard admission orders,

critical pathways, and discharge forms based on national guidelines. Using these forms as a basis, individual hospitals were allowed to customize the tools to specifically suit the institution, which helps create a sense of guideline ownership that can facilitate adoption [2]. The investigators also identified local physicians and nurses to be opinion leaders to vocalize support for the initiative, another strategy shown to improve guideline adherence [3].

Despite taking these important steps, there were only modest improvements in GAP hospitals when compared with non-GAP hospitals. Several factors help explain these results. First, there was poor adherence with the initiatives. There was evidence supporting the use of the GAP tools only in a minority of patients. This lack of adherence could have been related to the overall short timeframe of the study, with design, implementation, and data measurement all occurring over a 1-year period. In a secondary analysis that included only those patients with documented adherence to the GAP protocol, statistical improvements were seen in early and late aspirin use, LDL cholesterol monitoring, β blocker and lipid therapy at discharge, and smoking and dietary counseling at discharge. Second, all of the study hospitals had baseline quality indicator measurements that were superior to national standards, which could limit the overall magni-

tude of an improvement. Finally, the results could be confounded by several ongoing quality improvement initiatives that were taking place in both GAP and non-GAP hospitals during the study.

Applications for Clinical Practice

This paper outlines a process for the development and implementation of evidence-based tools for improving the care of patients admitted with acute MIs. The GAP initiative could be used as a model for quality improvement efforts in other areas.

–Review by Harvey J. Murff, MD

References

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