Quality Pancreatic Cancer Care: It’s Still Mostly About Volume

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Even the most optimistic of oncologists must view with dismay the minimal improvement in overall survival for pancreatic adenocarcinoma. Progress has been made in diagnosis, selection of patients for operation, and resection, with markedly decreased mortality but persistent morbidity following operation and minimal survival improvement with adjuvant chemotherapy. These improvements have had secondary benefits for patients who are suspected of having pancreatic adenocarcinoma but who prove to have less lethal histological diagnoses and improved survival following resection.

In this issue of the Journal, Bilimoria et al. (1) identify a series of “potential quality indicators” that have been ranked by 20 “pancreatic cancer experts” for validity. The National Cancer Data Base (NCDB) was used to assess adherence with the valid indicators at both the patient and hospital levels. Of the 43 valid indicators, 26% assessed structural factors, 44% clinical process of care, 9% treatment appropriateness, 9% efficacy, and 11% outcomes. Patient and hospital adherence to individual indicators essentially varied from less than 7% to 100%! Most hospitals were adherent with fewer than half of the 10 component indicators used to develop a composite score of quality care.

What are we to take from these data? As the authors conclude, there is considerable variability in the management of pancreatic cancer in the United States. They also suggest that there is variability in the “quality” of pancreatic cancer management, but is that true? Operative mortality and, to a lesser extent, morbidity do vary widely among hospitals, and for the patient, operative mortality is a crucial matrix. However, given the high cost of medical care, it seems facetious to suggest that pancreatic cancer patients in most major cities could improve their perioperative survival by 200%–400% by spending relatively little money to travel to a hospital with a higher quality of pancreatic cancer management. Centralization to high-volume institutions would seem to be an appropriate way to improve patient operative survival. The relationship between hospital volume, system clinical resources, and mortality in pancreatic resection was addressed recently (2), where it was found that system clinical resources influence operative mortality more than volume, although hospital volume was strongly associated with the presence of such support services.

Bilimoria et al. (1) have developed indicators of high-quality care, assessed hospital compliance, and attempted to develop a composite measure of “quality” of hospital-level care. This attempt is admirable, but the evidence is tenuous. Few, if any, randomized trials have addressed many of the important issues with regard to high-quality care, which forces us to rely on the opinion of experts (like me) who are notoriously replete with unintended bias. The authors try to test their validity scores by using data from the NCDB, a unique resource that captures approximately 75% of newly diagnosed pancreatic adenocarcinoma cases in the United States each year. The “high-validity” pancreatic cancer quality measures the authors list in Table 2 are indicators that apply to all operations for malignancy. These indicators simply document generic appropriate cancer care. Few indicators other than a perioperative mortality of less than 5% evaluate hospital performance.

Given the poor results of treatment in the absence of resection, the authors’ suggestion that chemoradiation therapy be considered might well have been better defined as “participation in clinical trials,” which was, at least, considered to be a moderate-quality indicator.

Of interest, the one factor that has been repetitively associated with performance—surgeon case volume—was not a valid quality measure in this analysis. The authors avoid defining surgical volume, perhaps because it is politically sensitive. Others have been willing to do so (3) and have suggested that high-volume surgeons are those who do more than five pancreatic resections per year. At this volume, surgical mortality was 2.4% (3).

By use of the NCDB, fewer than half of the indicators identified were validated, with hospital-level adherence ranging from 7% to 100%. At least three explanations for the wide range of adherence are possible: What is being measured is either not appropriate or not recorded, or hospital care should be seriously questioned. This variance is strikingly illustrated in Figure 3, which shows that most hospitals are adherent with fewer than half of the indicators. It seems clear that very few hospitals fulfill the one-case-per-month criterion, and a very large number have a mortality rate greater than 5%.

What are we to do with this massive endeavor? On the one hand, we can simply conclude that the majority of hospitals are not adherent with appropriate care indicators identified by a panel of “experts.” Alternatively, we can conclude that volume, both institutional and surgeon, in pancreatic resection is important and the best surrogate for identifying secondary support, process change, and appropriateness of care. It appears that only 7% of hospitals met the threshold volume established by the panel. Is it conceivable then that 93% of hospitals in the nation should stop operating on pancreatic cancer patients? Given the
imprecision of the measured variable, it is not surprising that the discussion is prolix. Perhaps the most sobering thought is that even if we centralized care at hospitals that perform at the highest level of compliance and competence, we would improve the 5-year survival rate of patients with pancreatic adenocarcinoma by perhaps only 1%.

I came away with confirmation that high-volume institutions create support environments essential to quality care and that this report should provide support for those doing less, to do even less. More importantly, such analyses may help us drive cancer care into the virtuous cycle (4) of disease management, not discipline management.

**References**