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Asking Questions, Seeking Improvements

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As the *Journal of Patient-Centered Research and Reviews* enters its third year, I'm proud to report our product continues to improve with each issue. Since its inaugural launch, *JPCRR* has expanded the scope of its articles, delved deep into specific topics through the use of theme issues and established an interactive website with articles openly accessible by all visitors. As a result of this steady and strategic growth, the popularity of our humble journal has never been stronger. What drives the demand for new journals and the concomitant increase in article publishing capacity? Fortunately, it is because interested professionals keep asking questions and seeking improvements. It is this quest for medical knowledge that ties together the articles in this issue of *JPCRR*.

Just as the success of our journal has shown, clinical breakthroughs don't always have to be prohibitively costly. To wit, Ortiz et al. describe on page 20 the construction and validation of a scoring system to help identify patients at high risk for access site complications following peripheral vascular intervention.¹ This tool was relatively convenient to develop using currently available clinical data, and would be inexpensive to implement. By allowing better case selection for the use of bleeding avoidance strategies in patients believed to be at risk for complications, outcomes of these interventions can be improved. Simple improvements such as this scoring system certainly address many of the core criteria for health care (i.e. safe, effective, patient-centered, timely, efficient, equitable) as outlined in the Institute of Medicine's report on quality health care for the 21st century.²

Also in this issue, Treiber and Khandheria report a study of patient echocardiograms performed with and without contrast.³ The use of contrast significantly improved the percentage of endocardial walls visualized and the percentage of echocardiograms read with high confidence by trained cardiologists. This finding raises age-old questions. Is new and improved always better? Is every new technology cost-effective?



Historically, many new technologies (but certainly not all) are ultimately found to be very cost-effective.⁴ Conversely, many new drugs have great success and potential, but also stormy histories due to overuse, misuse, overzealous marketing or inadequate control. The history of antibiotics is an excellent example.⁵ In other cases, new drugs do not appear at first to be an improvement over traditional ones;⁶ some perhaps await dose optimization.⁷ Not uncommonly, drugs used to treat one disease (e.g. cardiovascular disease) may increase the risk of another disease (e.g. diabetes); however, the overall benefit may still be positive.⁸ Similarly, new diagnostic tests may show considerable promise, but ultimately do not meaningfully improve disease detection or pose more harm than good. Prostate-specific antigen testing is a case in point.⁹

Fictional biologist R. A. Janek from *The Andromeda Strain*, a Michael Crichton novel on the outbreak of a deadly extraterrestrial microorganism, is quoted as saying "increasing vision is increasingly expensive."¹⁰ Certainly, overuse of new technologies and resultant poor clinical value for the dollar have been described in cardiovascular medicine and many other disciplines.^{4,11,12} In the study by Treiber and Khandheria, the contrast material used for the echocardiograms (perflutren lipid

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microsphere injectable suspension) is made of lipid-coated microspheres filled with octafluoropropane gas. The cost of the material, however, is not excessive (a few hundred dollars, depending on the institution), and the addition of contrast appears to be cost-effective. A 1998 study of a different proprietary contrast agent resulted in a \$269 per patient savings due to reduced need for further testing.¹³ A 2002 study examined contrast echocardiography in intensive care unit patients. Compared to transesophageal echocardiography, contrast echo resulted in cost savings of 3% when evaluating regional ventricular function and 17% when evaluating global ventricular function.¹⁴ A more recent study of 632 consecutive patients with technically difficult echocardiographic examinations, which utilized the same contrast agent as Treiber and Khandheria, documented a \$122 per patient savings with contrast.¹⁵ As with any technological improvement, cost-effectiveness analyses, proper case selection and use of intelligent guidelines optimizes benefit.¹¹

Inspired by a memorable patient encounter and the integrative medicine theme of the preceding issue of *JPCRR*, the review article on stinging nettle (p. 48) illustrates a natural product that can cause both harm and potential benefit.¹⁶ Botulinum toxin is another obvious example of a naturally produced substance with effects both bad and good.¹⁷ As with recent history regarding botulinum toxin, well-designed translational studies and clinical trials are needed to elucidate the potential therapeutic uses of stinging nettle extracts. Assuming that most future products derived from stinging nettle are to be marketed as over-the-counter supplements, rather than prescription drugs, the lack of FDA requirement to prove effectiveness before marketing may significantly limit the undertaking of scientifically rigorous trials in this regard.¹⁸

Elsewhere in this issue, Nilakantan and colleagues report that outcomes were worse among African-American patients following renal transplantation in a large hospital setting.¹⁹ While study sample size may have limited some analyses, the etiologies of this disparity appear to be multifactorial. Statistically increased pretransplant time on dialysis was observed for African-Americans compared to other racial and ethnic groups. The authors suggest that this

may have been the result of more limited access to transplantation. Racial disparities have been previously reported in renal transplant recipients (and, of course, in many other chronic medical conditions). While the etiologies of black/white disparities in outcomes following medical interventions are poorly understood and perhaps multifactorial, this issue is a huge problem. Just for example, Ramamoorthy and colleagues reported that approximately one-fifth of new drugs approved by the FDA in the past 6 years demonstrated differences in exposure and/or response across racial and ethnic groups.²⁰ Continued research, specific drug labeling and clinician cognition of racial differences in medical treatments are extremely important in the care of our patients.

Proving that the best patient-centered research often includes patients' families, Winter et al. interviewed 83 patients with traumatic brain injury being cared for at a Veterans Affairs medical rehabilitation service in Philadelphia, along with their key family members.²¹ Family members identified nearly twice as many problems as the veterans did themselves, and ranked emotional and interpersonal problems the worst of the various issues. The veterans, on the other hand, listed cognitive and physical problems as their worst issues. The authors conclude on page 37, "Veterans may not recognize the concerns that are most upsetting for family members, [and] family members may not realize the problems most upsetting to veterans," and call for promoting dialogue around the target outcomes for both parties. This paper is an excellent example of patients and close family members "not being on the same page" in the situation of chronic illness. Dietrich von Engelhardt reminds us that "Disease is not just a physical phenomenon, it is also a psychic, social, and spiritual one."²² As these components are deeply personal,²³ it makes sense that even very close family members differ in their response and outlook regarding a particular situation.

Similarly, desires of patients and their primary clinicians also may vary, even when the relationship is long-standing. Certainly, these differences may become evident around issues of death and dying,²⁴ but also during more routine (but often critical) medical decisions in which patient preferences conflict with clinician judgment.²⁵ Samuel Hellman urges us to

continue to “learn while caring,” to see each “episode of illness [as] the consequence of a unique interaction of that individual with the disease,” and to “consider the disease and its management in the context of each patient’s values.²³ Finally, von Engelhardt reminds us that, “Medical science behaving as human medicine should always and above all see the ill and suffering person.”²²

If this collection of original research and review articles is any indication, the coming year is going to be a fascinating and enlightening one at *JPCRR*. There has been an explosion of new scientific journals introduced in the past few years, but judging from the strong contributions we have received and reader response, the scientific community’s appetite for knowledge justifies this evolution. While a number of these newer publications are profit-minded and could be deemed “predatory” journals,²⁶ many others are ethical publications dedicated to the spread of scientific advancement.

JPCRR is pleased to be among the latter.

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