Obesity is a complex, chronic disease that has reached epidemic proportions in the United States. Obesity is now linked with numerous health conditions, including many oncologic diagnoses. Its association with prostate cancer, the most prevalent cancer in men, has also been investigated, with studies suggesting a direct relationship between increasing obesity and prostate cancer mortality. Outcomes data for specific interventions in obese patients with prostate cancer have only recently begun to emerge. Surgery, while feasible even in the very obese, may result in less than optimal cancer control rates. Brachytherapy data are emerging, and are promising. No outcomes data are available for the use of external-beam radiation in obese patients. Long-term data for external-beam radiation, as well as for surgery and brachytherapy, are required to determine the most appropriate treatment for obese patients with prostate cancer. These data, coupled with a more thorough understanding of the biochemical relationship between obesity and prostate cancer, will be necessary to make optimal management decisions for obese patients with prostate cancer in the future.

In this issue of ONCOLOGY, Mitsuyama, Wallner, and Merrick have written an excellent review of obesity and prostate cancer. They inform us that this is a common and growing problem among American men and summarize an extensive body of literature suggesting that men with prostate cancer and obesity may have a worse prognosis. They also explore plausible explanations for the observation that obese men may have worse pathology related to a hormonal milieu of lower serum androgen levels and increased estradiol levels, which may enhance tumorigenesis. Combined with the fact that leptins produced by adipose cells promote angiogenesis, this provides a biologic rationale for a causal association with unfavorable biology.

In addition to these biologic issues, Mitsuyama, Wallner, and Merrick review subjects related to the technical delivery of treatment. They acknowledge that there are difficulties in diagnosing and assessing the extent of disease prior to local therapy in obese men. They also summarize technical considerations related to the performance of radical prostatectomy in obese men that may put these patients at risk for more complications and worse outcomes. Finally, they summarize some of the issues related to the use of brachytherapy and external-beam radiotherapy.

Practical Questions
Several important practical questions are raised by this review. First, should obese men be assessed as having a prognosis that is different from nonobese men? In other words, should they be considered to be at higher risk, such that the use of postoperative radiotherapy should be anticipated? If they are being managed with definitive radiotherapy, should the use of short-term hormonal therapy be considered, even though they might otherwise have been considered too low-risk for such a strategy? If they appear to be intermediate-risk and are being managed with definitive radiotherapy, should the use of long-term hormonal therapy be considered, even though they might otherwise have been considered too low-risk? Unfortunately, it is not yet possible to answer any of these questions.

Take-Home Messages
What are the practical take-home messages from this review? First, if external-beam radiotherapy is used, obese patients are clearly at great risk for large setup errors and "marginal misses."[1] Thus, we may not know whether there are real differences in the biology between the obese and the nonobese, but setting up therapy in obese patients using skin marks alone is clearly inadequate for guiding accurate high-dose treatment.

Due to issues of interobserver variability and the increased thickness of the anterior abdominal wall, it is also unlikely that abdominal ultrasound-based approaches can provide a solution to this dilemma. The routine placement of intraprostatic markers combined with online imaging appears to be the most reliable way to ensure that daily setup error and organ movement are adequately addressed. Unfortunately, not all departments have treatment tables that can accommodate the heaviest patients, which may require that alternative therapies be considered. For such patients, we
have found that brachytherapy may be a good option. The authors provide strong support for the use of brachytherapy in obese patients.[2,3] The outcome data they summarize demonstrate very impressive results for obese patients undergoing permanent implantation. It is unclear, however, how highly selected these patients were. For example, some patients with morbid obesity may not tolerate anesthesia. Although the authors found no need to use special needles in the patients receiving implants, we cannot rule out the possibility that patients whose anatomy simply does not allow the prostate to be easily approached via the perineum may have been excluded.

Conclusions
This is an excellent review (in fact, the best I've seen) of this recently recognized clinical problem. Obese patients may or may not have more aggressive prostate cancer and may need to be managed more aggressively. If radiotherapy is chosen, based on the limited data available, brachytherapy appears to be similarly effective in obese and nonobese patients. It also appears that the technical challenges to the accurate delivery of high-dose external-beam radiotherapy are not trivial and require the application of specialized technology. Physician awareness is critically important to recognizing this problem, which brings to mind my favorite quote from Clint Eastwood: "A man has got to know his limitations."

—Mack Roach III, MD, FACR

Disclosures: The author has no significant financial interest or other relationship with the manufacturers of any products or providers of any service mentioned in this article.

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