Commentary

Racial disparities in prostate cancer treatment—does facility level make a difference?

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With an estimated 1.1 million diagnoses per year, prostate cancer (PCa) is the second most common cancer among men worldwide. PCa incidence and mortality rates show significant ethnic and geographic variation; the mortality rates for example range between 2.9 and 29 per 100,000 in South-Central Asia and the Caribbean, respectively. Yet it is the second leading cause of death for men in the U.S., Europe, and most other developed countries (1). To date, three individually non-amenable risk factors for the development of PCa have been established: Heredity (at least 2-fold risk if a first-degree relative is diagnosed with PCa), ethnic origin (African-American heritage is associated with approximately 1.6-fold incidence rates compared to their Caucasian counterparts), and increasing age (2).

Notably, only a small fraction of patients diagnosed with PCa harbors clinically relevant tumors and will eventually die from it, whereas a large proportion might be overtreated if they are offered active treatment, such as radical prostatectomy (RP) or radiation treatment (RT). Therefore, and despite its significance and great economic burden, PCa screening strategies and active treatments are subject to ongoing controversy (2).

In order to aid treatment decisions and to stratify PCa patients into risk groups, the D'Amico classification is routinely utilized. By meeting any clinical criterion such as prostate specific antigen (PSA) ≥20 ng/mL, clinical tumor stage ≥2c, or Gleason Score ≥8, patients are being defined as "high-risk". This definition applies to approximately 15% of all newly diagnosed PCas. The latter have a greater than 50% chance of cancer recurrence over a 5-year course following local treatment with curative intent. In these patients an unambiguous survival benefit has been demonstrated for active treatments (RP or radiation therapy) in combination with androgen deprivation (3).

In their current, population-based study, Wang *et al*. share important insights on disparities in the treatment for high-risk PCa patients in the U.S. (4).

The primary endpoint of this study was the receipt of definite therapy in form of RP and RT, or a watchful waiting strategy. The latter is describing symptomatic treatment with non-curative intent.

Patients were stratified by race (Caucasian, African-American, Hispanic), and the treatment setting within care was delivered in (community hospital *vs*. comprehensive cancer community hospital *vs*. comprehensive cancer academic hospitals).

Indeed, the study corroborates previous findings by demonstrating significant racial disparities, that were most pronounced between African-American and Caucasian patients. However, several findings of this work are particularly striking:

First, African-American patients were up to 55% more likely to receive watchful waiting, a treatment with non-curative intent notwithstanding at a curable cancer stage.

Second, African-American and Hispanic minorities in this study were up to 27% more likely to be treated with RT. This is of great importance as large institutional and population-based studies alike have demonstrated higher

rates of cancer recurrence, metastases, and mortality in patients treated with RT rather than RP (3).

In addition, the authors were able to demonstrate that the quality of the delivered treatment between races differed to some extent. This was shown in a subgroup analysis; here the authors compared recipients of RT. These were divided into receiving conventional external beam radiation treatment (EBRT) and intensity-modulated radiation treatment (IMRT). Of note, IMRT offers equal oncological outcome with lesser side effects. African-American patients were significantly less likely (odds ratio 0.87) to receive IMRT (4).

Third, not only did the observed racial disparities persist over the complete study period [2004–2011]; they persisted regardless of the treatment facility of care.

Having these findings of the current study in mind, a few key points on health disparities in general must be noted. Health care disparities, or "unfair and avoidable differences in health status seen within and between countries" (5) are a complex and multi-dimensional concept. Albeit biological differences, they are largely driven by socioeconomic (race, education, income, insurance, health behavior), and cultural factors (doctoral distrust, attitude toward illness). The interplay of these aspects influence quality health care on all levels, from prevention and detection to diagnosis, treatment, and post-treatment quality of life and survival (5).

Disparities in cancer survival in the U.S. have been described in breast, lung, colorectal, and PCa for almost four decades. In 1996, the American Cancer Society (ACS) began an initiative that aimed to reduce cancer-related mortality by 50% between 1990 and 2015. Significant progress has been made, the overall cancer-specific mortality was reduced by 26%, yet racial disparities in cancer survival seem to persist. In the case of PCa, the cancer-specific mortality remains more than 2.5-fold higher for African-American patients as of 2013. Despite inherent biological differences, it has been established that lower frequency of PSA screening, presentation in advanced stage disease, lower access to primary treatment, and inferior quality of care add to the observed inferior survival of African-American PCa patients (6).

However, the recent findings of Wang *et al*. must be considered within their limitations. Among these, consideration of lacking of socioeconomic characteristics, such as education and income, do need a mention. The latter were approximated by insurance status and estimates of income and education. As race is a known surrogate of lower socioeconomic status, it is therefore conceivable, that the observed disparities are- in part-based on socioeconomic differences rather than race itself.

Nevertheless, despite its inherent limitations, this study demonstrates significant under treatment for Hispanic and African-American minorities with high-risk PCa and regardless of treating facility setting. It therefore adds valuable insights into the phenomenon of racial disparities in cancer survival and should be regarded as an urgent call for political health care decision makers to ensure equal treatment regardless of race.

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