Epidemiology and Disparities in Care

The Impact of Socioeconomic Status, Gender, and Race on the Presentation, Management, and Outcomes of Patients Undergoing Ventral Hernia Repair

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KEYWORDS

• Ventral hernia repair • Epidemiology • Disparities in care • Socioeconomic status • Gender • Race

KEY POINTS

- More research is needed with regards to gender, race, and socioeconomic status on ventral hernia presentation, management, and outcomes.
- The role of culture and geography in hernia-related health care remains unknown.
- Currently existing nationwide registries have thus far yielded at best a modest overview of disparities in hernia care.
- The significant variation in care relative to gender, race and socioeconomic status suggests that there is room for improvement in providing consistent care for patients with hernias.

The management of hernia disease remains one of the most common surgical problems faced by health care providers across the world. Inguinal hernias are the most common and make up about 3 out of every 4 abdominal wall hernias.[1] Inguinal hernia repair rates range from 10 repairs per 100,000 population in the United Kingdom to 28

Conflicts of Interest: Dr D.V. Cherla has nothing to disclose. Dr A.S. Prabhu receives honoraria from Bard Davol and Medtronic, he serves on the advisory board at Medtronic, and he receives research support from Intuitive Surgical (CRG:09022017). Dr B. Poulose is an employee of the Americas Hernia Society Quality Collaborative, has received consulting fees from Pfizer Medical and Ariste Medical, and has received research grant support from Bard-Davol.

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Surg Clin N Am 98 (2018) 431–440
https://doi.org/10.1016/j.suc.2018.02.003
surgical.theclinics.com

repairs per 100,000 population in the United States.[2] The incidence of inguinal repair increases with age in men, who comprise about 95% of primary care encounters.[1]

Ventral hernia represents a heterogeneous subtype of hernia disease that includes primary hernias (epigastric, umbilical, lumbar, Spigelian) and acquired hernias (incisional and parastomal). In 2006, the estimated number of ventral hernia repairs treated in both inpatient and outpatient settings was 348,000 in the United States.[3] Assuming a linear increase with time, it is likely that nearly 500,000 ventral hernia repairs are performed annually in the United States alone. Incisional hernia is unique in that it affects all surgical subspecialties where an incision is made directly into or near the abdomen. In the cancer population alone, 41% of patients developed an incisional hernia up to 2 years after resection.[4] Even laparoscopic or laparoscopic-assisted approaches resulted in hernia formation rates of up to 23%. With an aging population exposed to a higher cumulative risk of developing incisional hernia after both minimally invasive and open surgery, the management of ventral hernia will continue to be a central focus of surgical disease.

Health care disparities are defined as differing rates of health, medical care, morbidity, and mortality among patients of varying demographic groups.[5,6] Specifically, disparities in surgical health care have been identified as a problem because they can lead to poorer functional outcomes, prolonged rehabilitation and recovery times, and lower quality of life, particularly for disadvantaged population groups,[6] and therefore have been targeted by the federal government and the Affordable Care Act for elimination.[7] As such, attention from the American College of Surgeons, the Institute of Medicine, the American Medical Association, and the National Institutes of Health has recently been directed toward developing a national surgical disparities research agenda and appropriate funding priorities.[5,8]

Care for patients with hernias is likely an important area in which to study health care disparity, particularly because more than 350,000 hernias are repaired annually in the United States, at an estimated cost of $3.2 billion.[3] Given the scope of surgical care devoted to this disease process, the elimination of disparity in hernia care could potentially result in better postoperative outcomes (specifically with regard to hernia recurrence) and also a significant savings in health care costs. Still, there is a dearth of literature that can truly determine and/or address the underlying issues associated with hernia care. Indeed, other specialty areas of medical care have identified many systems issues that may conspire to ultimately result in disparate care. Among these are patient-related factors (disproportionate access to care, lack of health literacy, educational status, patient health beliefs, and language barriers), physician factors (unintentional racial biases, poor provider understanding of cultural expectations, physician race, and communication skills/style), and health care system factors (time constraints, lack of education).[9] Surgical and technical specialties may also include additional variables that are less easily quantifiable and yet may affect the ultimate care provided, such as surgeon's technical abilities and number of years in practice. Not surprisingly, the most robust literature surrounding health care disparity seems to be focused on areas in which the disease processes are well-defined, as are treatment algorithms and classification of outcomes.[10–13]

Despite the common nature of hernia disease and the frequent—and increasing—incidence of herniorrhaphy,[3] our collective knowledge regarding best practices is alarmingly rudimentary and largely driven by anecdote. This problem is likely multifactorial; however, the overarching challenge is the fundamental heterogeneity of hernia disease as an entity. In addition, patient-specific characteristics and comorbidities are difficult to capture, yet still must be taken into consideration when designing treatment algorithms. Further compounding this is a lack of commonly accepted and used hernia