Precision Equity in Kidney Disease

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Abstract

Worldwide, Chronic Kidney Disease (CKD) is an issue for public health. Since the 1970s, end-stage kidney failure that requires dialysis or transplantation has been the most severe type of Chronic Kidney Disease (CKD) in the United States, limiting lifespan and quality of life and disproportionately affecting people of African descent at a rate that is four times higher than that of White people.

Keywords: • Chronic Kidney Disease

Introduction

There are numerous factors that contribute to this health disparity, including the environment, lifestyle, access to and quality of treatment, health and healthcare policies, and biologic factors. It has proven difficult to find effective strategies to address these factors. Even though a lot of specialists in the study of health disparities have strong opinions about which element is most important.

Based on the level of creatinine in a patient's blood, the measurements of renal function known as eGFR (estimated Glomerula Filtration Rates) and uACR (urine Albumin-Creatine Ratio) are computed. Due to early studies that indicated Black people might have naturally higher creatinine levels, that math has historically been modified for Black patients. Creatinine levels have been interpreted using a race-based lens, which has resulted in many Black patients who might otherwise have been flagged as having kidney issues receiving a delayed diagnosis. This may have prevented them from taking advantage of lifestyle changes that might have slowed the condition's progression and delayed referrals for transplants, which can prolong wait times and lower graft survival rates for patients.

The race-based eGFR calculation has gone out of favor as kidney care changed and science gave up the mistaken belief that race is biological. A new, non-racial calculation to be used for patients of all ethnic backgrounds was announced by the National Kidney Foundation and the American Society of Nephrology in 2021. In addition, last summer the Organ Procurement and Transplantation Network ruled that all transplant-performing hospitals in the nation must immediately stop using racial calculations.

In the effort to fairly guide patients through their kidney disease path, offering individualized support and regionally appropriate interventions can be a gamechanger. This strategy not only makes important screenings and comprehensive care more visible, but it can also act as a compass when patient-provider communication is strained or basic problems with health literacy or data fluency prevent patients from following through on appointments with specialists.

Although a kidney biopsy is thought to be a reasonably safe procedure, it is invasive and carries a chance of unfavorable outcomes that can range from minor discomfort to, very rarely, serious injury. A group of experts was assembled by the National Institute of Diabetes and Digestive and Kidney Diseases in the early 1990s to discuss some of the possible ethical implications of research involving kidney biopsies in the future, including the special requirements for protocol design and informed consent. The KPMP has served as a model for the kind of research that this group hopes to see by carefully evaluating the risks to study participants from a clinical and ethical standpoint. The deliberate strategy that emerged from this discussion may provide direction for investigators, ethicists, and regulators on identifying and weighing risks, benefits, and values in human subjects research to respect participants and progress the knowledge of kidney disease treatment.

Human health is significantly impacted by kidney disease, which affects an estimated 500 million individuals globally. Clinicians may be able to better serve this population if they have a mechanistic knowledge of kidney injury. This objective complies with the Common Rule's requirement that research provide the chance to produce significant information. Developing the KPMP protocols has been primarily focused on reducing danger to participants. However, because kidney biopsy is an invasive procedure, there is a residual danger for KPMP participants. As a result, it's crucial to carefully consider any countervailing advantages participants may foresee, while also recognizing that these advantages might go beyond just improving their own health.

Risk reduction is morally required and has influenced the enrollment and biopsy procedures used in the KPMP. Participation in the KPMP may involve a number of risks, including loss of anonymity and potential identification through genetic analyses, similar to other complicated clinical research projects. Here, we concentrate on the risks associated with the kidney biopsy procedure, which were given special consideration during research design.

Despite the fact that these techniques lessen the risk associated with the kidney biopsy process, risk cannot be completely eliminated. Furthermore, these initiatives concentrate on the immediate dangers of conducting a kidney biopsy but may not take into account potential, albeit unlikely, long-term or secondary harms from complications. Even though the majority of these side effects are minor, the most serious renal biopsy-related adverse events may necessitate invasive procedures and/or hospitalization. The chronic side effects of these acute events, such as a decline in renal function or an immunologic reaction to blood products, may limit the availability of kidney transplants in the future. Care for complicated adverse events may also come with a heavy budgetary burden.