



ADDRESSING THE GENDER DISPARITY IN THE ACCESS AND DELIVERY OF CHRONIC KIDNEY DISEASE CARE –THE NEXT FOCUS OF CARE

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ABSTRACT Chronic kidney disease (CKD) affects approximately a little more than 10% of the world's adult population and is amongst the top 20 causes of death worldwide. The World Kidney Day and International Womens' day having coincided in the year 2018 brought into focus this issue and offered us an opportunity to reflect on the importance of women's health , specifically kidney health and the effects and ramifications it may have on the health of the community as well as future generations. There remain even in the 21st century gender differences around the world in access to education, medical care and participation in clinical studies pertaining to their health. Disparities in care of CKD in women has profound consequences for global health as well have implications for a higher risk of cardiovascular diseases in future progeny. This article attempts to review the global gender disparity in chronic kidney disease care based on existing and published data.

KEYWORDS : Gender disparity, chronic kidney disease, kidney transplant, kidney donors.

INTRODUCTION:

Chronic kidney disease (CKD) affects approximately a little more than 10% of the world's adult population and is amongst the top 20 causes of death worldwide. The World Kidney Day and International Womens' day coincided in the year 2018 and brought into focus this issue and offered us an opportunity to reflect on the importance of women's health , specifically kidney health and the effects and ramifications it may have on the health of the community as well as future generations. The female gender which makes up approximately 50% of the world's population are equal contributors to society and more so to their families. There remain even in the 21st century gender differences around the world in access to education, medical care and participation in clinical studies pertaining to their health. This gap exists in all countries of the world, including those in higher socio-economic countries bracket in the Western world and is wider in the low-to middle income countries in Africa and South Asia. Disparities in care of CKD in women has profound consequences for global health since it substantially increases risk of pregnancy associated hypertension, premature delivery , small for gestational age infants and low birth weight , which in turn predispose to the next generation to a higher risk of cardiovascular diseases(1,2). In this article, we attempt to review the global gender disparity in chronic kidney disease care based on existing and published data.

Global Estimates of CKD and Gender Distribution:

To retrieve data on the prevalence and gender estimates of CKD, the GBD Genitourinary Expert Group(GUi DEG) and the Institute of Health Metrics and Evaluations performed a systematic review of the evidence covering Pubmed and EMBASE of 6 categories of patients with CKD based on albuminuria and glomerular filtration rate(GFR) grades according to the KDIGO classification(3) or receipt of renal replacement therapy(RRT). In 2016, GBD estimates that approximately 752.7 million had diagnosed impaired kidney function (IKF) with 417.0 million females and 335.7 million males (4). The most prevalent form of IKF in both gender groups was albuminuria with preserved GFR which globally was estimated to affect 260.1 million females (62.4%) and 216.7 million males (64.5%). Another 145.2 million females (34.8%) and 107.6 million males had GFR grade 3. More advanced CKD stages were less prevalent; Grade 4 CKD affected 6.8 million females and 6.2 million males (1.6 and 1.8% respectively). GFR Grade 5 without RRT was estimated to be present in 3.2 million females and 3.2 million males (0.8% and 0.9% of total respectively).

Access to Renal Replacement Therapy:

Although renal replacement therapy(RRT) including dialysis and transplantation is life sustaining, not all patients receive RRT. The rates of ESRD treated by RRT differs greatly between countries and regions and depend on the prevailing economy and the health care system (5). It has been estimated that worldwide only about 50% of patients requiring RRT receive appropriate treatment (6). In low-to middle

income countries including large parts of sub-Saharan Africa , less than 2% of ESRD are treated by RRT(7). In South Asian countries such as Indian, Pakistan and Nepal, due to poor availability of healthcare and consequently a delay in diagnosis it was seen that more than 50% of CKD patients presented with CKD-5 in one study (8) implying that access to early diagnosis and preventive therapy was poor . Less than 10% of ESRD patients continue RRT beyond 3 -6 months or long term. This is largely due to inadequate penetration of dialysis services to small towns and villages and financial barriers which essentially implies that if one member of the family is diagnosed with ESRD , long term treatment can push the whole family to poverty. The equality of access of RRT in women is particularly concerning in many such societies where inherent discrimination and patriarchy are deeply entrenched in many socio-cultural factors.

It has been thought that about 2.284 million people may have died prematurely due to lack of access to RRT. These treatment gaps are much larger in low income countries with conservative estimates in Asia and Africa of 1.907 million and 4,32000 people not receiving RRT. These numbers are derived (6) from an extensive systematic review. There are few data to compare the gender difference for the gaps in treatment. Studies in Africa show that men were more likely to receive RRT than women (9). In Japan , the incidence of treated ESRD in females was less than half of that in males(3287 in males vs 1764 in females per million population treated)(10). This study did not however give any explanation for this discrepancy in finding. In Europe, 38% (unadjusted) of incident RRT patients in 2015 were women , while in the USA , 42% were women in 2016(11). One US study reports that women had significantly higher OR of 1.70 for late initiation of dialysis as compared to men (12). It was even found that females had lower odds of using AV access for hemodialysis initiation than males (OR 0.85, 95% CI-0.84-0.86) (13). This may be due to a number of different factors including anatomical / surgical issues relating to vessel size, timing of referral and attitudinal differences. Awareness levels of previous kidney diseases in women were reported much lower than in men (2.9%±1.6% in women vs 17.9±5.9% in men) which may have contributed to later initiation of RRT (14).

Mortality rates are similar in men and women on dialysis, but the incident rates of some dialysis –associated complications and morbidity are higher in women including hospitalization rates, 30 day readmission , anemia , nutrition and quality of life issues . Dialysis dose evaluated by Kt/V urea may result in under dialysis in women who have an average smaller volume of urea distribution in total body water than men (15). There are several potential explanations for the male preponderance on RRT despite the previous data reporting higher rates of predialysis CKD in women. Biological factors responsible for higher male prevalence on dialysis include the protective effects of estrogen in women and damaging effects of testosterone in men (16) as well as the higher prevalence of risk factors for non-communicable disease in general in males (17) and the faster CKD progression rates in

males (18) attributable in part to life style habits such as cigarette smoking etc. In recent years, it is encouraging that in recent years, a concerted effort has been launched by certain organisations to focus attention and care on women's dialysis. In a certain state in southern India there is a women's only hemodialysis centre that caters to ESRD female patients on dialysis therapy. It is encouraging to note that women's CKD care is getting the focus and attention that it deserves.

Gender Differences in Access to Kidney Transplantation:

Organ transplantation is the best treatment for end-stage organ dysfunction. There have been many articles about gender disparity in organ transplantation; worldwide data describes that women are less likely than men to be kidney transplant recipients, either from a cadaveric or living donor. However, a majority of living-related donors are females. Data from different countries including USA, France, China confirm differential kidney transplant rates (lower in women than men), lesser likelihood of women being registered on national transplant waiting lists and longer time from initiation of dialysis to listing to transplant. In a study from the US by Melk et al (19) over three decades from 1988 to 2017, 4,26,842 patients received a kidney transplant allocated by the United States Organ System (UNOS) while from 2008-2017, 34,100 kidneys were transplanted within the Eurotransplant (ET) system, 60% of transplanted patients in the UNOS were male, while 62% of the transplanted patients in the ET were males. Grade inequality also exists in the pediatric population. A survey from 35 countries participating in the European Society for Pediatric Nephrology-ERA-EDTA Registry reported girls had lower access to renal transplantation than boys (20). Other data from Turkey, Iran and India (21-24) show a preponderance of women donors. In the study by Bal et al (26), it was found that out of 882 transplant recipients, 606 (88.9%) were males while 66% of the donors were females. Thus, gender disparity exists irrespective of whether a country is developed or developing. Gender disparity is more evident in certain ethnicities and races e.g more in blacks vs whites in the US and in South Asians and Indians and least in Caucasians. A study by Gillespie et al in 101 African patients with ESRD found that women significantly undergo living donor transplantation lesser than men (25, 26).

This gender disparity in access to transplantation can be explained by immunological factors such as higher rates of prior sensitization in females as compared to males. However social factors account for the difference as well. As elaborated by Bapat et al (27), the reasons for these could be societal expectation, role obligation, compulsion and family pressures. Most societies' including in India view the male as the main breadwinner and women in the household including mothers, spouses and female siblings may be coerced emotionally to donate a kidney. A Canadian study by Zimmermann et al (28) also showed that there are more female donors because more wives donate to their husbands than vice versa. Psychosocial factors and educational status of women have also been suggested as a contribution to the gender disparity. US data found that Black women were less likely to want living donor kidney transplantation as compared to men. They were also less likely to be evaluated for a kidney transplant as well. There are also reports that discussions about kidney transplantation were less likely in women and this implies that better education needs to be provided to women, their social network and health care providers.

It is encouraging that a very discernible change has been noticed in recent years; with the increase in awareness about chronic kidney disease in general population, women have been focusing on taking better preventative care as well long term ESRD care in terms of dialysis and kidney transplantation. This is a positive development that will be beneficial to bridging or minimising the gaps in care in the future.

Summary: Women have unique risks for kidney disease as face issues that hinder access to optimal care. This will have a profound impact on both the current as well as future generations since women are procreators. The nephrology community needs to recognise this disparity so that uniformity in care can be achieved with better outcomes. We need to focus on upcoming research to address these gaps in care.

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