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PREVALENCE OF CHRONIC KIDNEY DISEASE IN GERIATRIC POPULATION BASED ON eGFR.

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Background

Chronic Kidney disease (CKD) is one of the major health problems in the United States. It is estimated that more than 19 million patients are in the early stage of CKD. The diagnosis of CKD is defined as either kidney damage or Glomerular Filtration Rate (GFR) <60 ml/min/1.73 m² for 3 months or more, irrespective of cause. The most widely used method to estimate GFR (eGFR) is based on the MDRD (Modification of Diet in Renal Disease) study equation and has been shown to be reliable in estimating GFR from serum creatinine when the patient's age, gender, and race are also known. Although kidney diseases can not be cured in most cases, but life of the kidney can be extended with proper monitoring, treatment and management of the patient. CKD can be separated into 5 stages based on eGFR.

Method

Data was collected from more than 66,699 samples (66% female, 34% male) over a period of 6 months using Roche Modular P for the measurement of serum creatinine. eGFR was calculated using the MDRD equation. Patient data was separated based on gender and age. The prevalence of the 5 stages of CKD in each group was calculated. Statistic analysis was done using Analyse-it program.

Results

The mean value of eGFR decreased with age from 76 to 41 for female, and from 95 to 49 for male. Women had a lower eGFR in all age groups. Because stage 1 and 2 had to associate eGFR with another abnormality, we calculated the prevalence for stage 3-5.

Male

CKD Stage/ eGFR	<50	51-65	66-75	76-85	86-99	≥100
3 / 30-59	14.7%	29.7%	43.2%	54.6%	59%	58.5%
4 / 15-29	3.5%	4.8%	9.1%	11.2%	12.8%	16.0%
5 / <15	2.2%	3.6%	2.7%	2.4%	2.0%	-%

Female

CKD Stage/ eGFR	<50	51-65	66-75	76-85	86-99	≥100
3 / 30-59	26.1%	39.2%	46.8%	53.7%	68%	64.1%
4 / 15-29	2.6%	8.7%	14.5%	15.2%	16.6%	20.5%
5 / <15	1.9%	4.6%	3.9%	2.4%	1.9%	4.1%

Conclusion

Kidney dysfunction based on eGFR is more common in elderly people and increases with age; it is more common in women than men. By the age of 65, almost half of the population will have moderate impairment of kidney function (stage 3 of CKD); and one in every 6 women and one in every 7 men will reach stage 4 or 5 of CKD, requiring an extensive treatment from nephrologists (either renal replacement therapy or conservative therapy); this increases to one in every six men and one in every four women in the “oldest old”. The high incidence of renal dysfunction in elderly justifies the need for improved detection and the treatment of CKD to improve the outcome.