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Prevalence of chronic kidney disease and hypertension as a risk factor in Basrah province - Iraq

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Abstract
High blood pressure is associated with chronic kidney disease, which makes it dangerous for cardiovascular disease. It increases directly with the severity of chronic kidney disease.The study aimed to estimate the prevalence of hypertension, chronic kidney disease and find the relationship between them. A cross-sectional study, included a review of (273) cases of chronic kidney disease in the dialysis center of Al Basra and Al Sadir Teaching Hospitals in Basrah province, During October 2019-February 2020. The collected data were analyzed by using Office Excel and SPSS-23. Variables were analyzed by frequencies, proportions, and percentages.Chronic kidney disease prevalence was found to be (6.8%) in Basra province. The study sample (n=273 patients) consisted of (60.80%) males, and (39.20%) females. The mean age for males was found to be (50.95) years old, with a standard deviation of (15.82) while the females, mean of age was found to be (49.63) years old, with a standard deviation of (13.54). More than half (52.38%) of chronic kidney disease patients were found to be living in rural areas. While (47.61%) of chronic kidney disease patients were found to be living in Urban. (75.72%) of patients had hypertension disease before they had chronic kidney.Hypertension had a significant positive association with chronic kidney disease. In conclusion, Hypertension had a significant positive association with chronic kidney disease, as a risk factor for chronic kidney disease.

Keywords: *Chronic kidney disease, hypertension, Risk factor, Prevalence*

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Introduction:

Chronic kidney disease is a major medical problem in the world, and a global burden, especially in developing countries and emerging economies [1] .Over the world and its prevalence is gradually increasing. It becomes more important because of the high mortality and morbidity rate mainly based on cardiovascular events, and need for dialysis or kidney transplantation that is costly [2].Hypertension is associated with chronic kidney disease, which makes it dangerous for cardiovascular disease [3]. It increases directly with severity of chronic kidney disease [4].Both hypertension and chronic kidney diseases are serious interrelated global public health problems. Nearly 30% and 15% of US adults have hypertension and chronic kidney disease, respectively. Because hypertension may cause or result from chronic kidney disease, hypertension prevalence is higher and control more difficult with worse kidney function [5].

Hypertension is one of the leading causes of CKD due to the deleterious effects that increased blood pressure has on kidney vasculature. Long-term, uncontrolled, high blood pressure leads to high intraglomerular pressure, impairing

glomerular filtration. Damage to the glomeruli lead to an increase in protein filtration, resulting in abnormally increased amounts of protein in the urine.The prevalence of hypertension ranges from 60% to 90% depending on the cause and stage of chronic kidney disease and includes mechanisms for high blood pressure, volume overload, sympathetic overactivity, salt retention, endothelial dysfunction, and alterations in hormonal systems that regulate blood pressure (BP). Hypertension remains a leading attributed cause of end-stage kidney disease in the United States [6].

Similar to the increase in the prevalence of hypertension worldwide, the prevalence of CKD-associated hypertension has been reported to be increasing [7].As discussed previously, the relationship between chronic kidney disease and Hypertension is cyclic, as chronic kidney disease can contribute to or cause Hypertension. Elevated blood pressure leads to damage of blood vessels within thekidney, as well as throughout the body. This damage impairs the kidney's ability tofilter fluid and waste from the blood, leading to an increase of fluid volume in the blood, thuscausing an increase in blood pressure [6].Epidemiological and clinical studies indicated that the association between hypertension disease and chronic kidney disease was strong [8].

Patients and methods

A cross-sectional study, included a review of (273) cases of chronic kidney disease in the dialysis center of Al Basra and Al-Sadr Teaching Hospitals in Basra, During 15th October 2019 to 15th February 2020. The collected data were analyzed by using Office Excel and SPSS-23. Variables were analyzed by frequencies, proportions, and percentages.

Statistical analysis

Statistical analysis for the data was done by using excel and SPSS- (StatisticalPackages for Social Sciences- version 23). Variables were analyzed by frequencies, proportion and percentage. Results During 2020, the prevalence of chronic kidney disease on hemodialysis was (6.8%) and (75%) was hypertension disease in Basra province. Thetotal population in Basra was 4.615.483 million persons [9].

Result

Distribution results of patients with chronic kidney diseaseon hemodialysis according to age groupand gender:

The present study found that among the sampled population,166 (60.80%) were males, and 107 (39.20%) were females.The mean age for males was found to be (50.95) years old, with a standard deviation of (15.82) while the females, mean of age was found to be (49.63) years old, with a standard deviation of (13.54) (Table1).

Table (1): Distribution results of patients with CKD on hemodialysis according to age groupand gender

Age group	Males		Females		Total	
	N	%	N	%	N	%
15-25	16	5.86	7	2.56	23	8.4
26-35	8	2.93	12	4.39	20	7.3
36-45	32	11.72	17	6.22	49	17.9
46-55	41	15.01	35	12.82	76	27.8
56-65	30	10.98	25	9.15	55	20.1
66-75	39	14.28	10	3.66	49	17.9
76-85	0	0	1.0	0.36	1.0	0.4
Total	166	60.78	107	39.16	273	

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Distribution results of patients with chronic kidney disease according to (Urban & Rural areas in Basrah)
The present study found that among the sampled population, 143(52.380%) were from rural areas, 130 (47.619 %) were from Urban (Table2).

Table (2): Percentages of CKD patient's distribution according to(Urban & Rural areas in Basrah).

District	N	%
Urban	130	47.619
Rural areas	143	52.380
Total	273	99.999

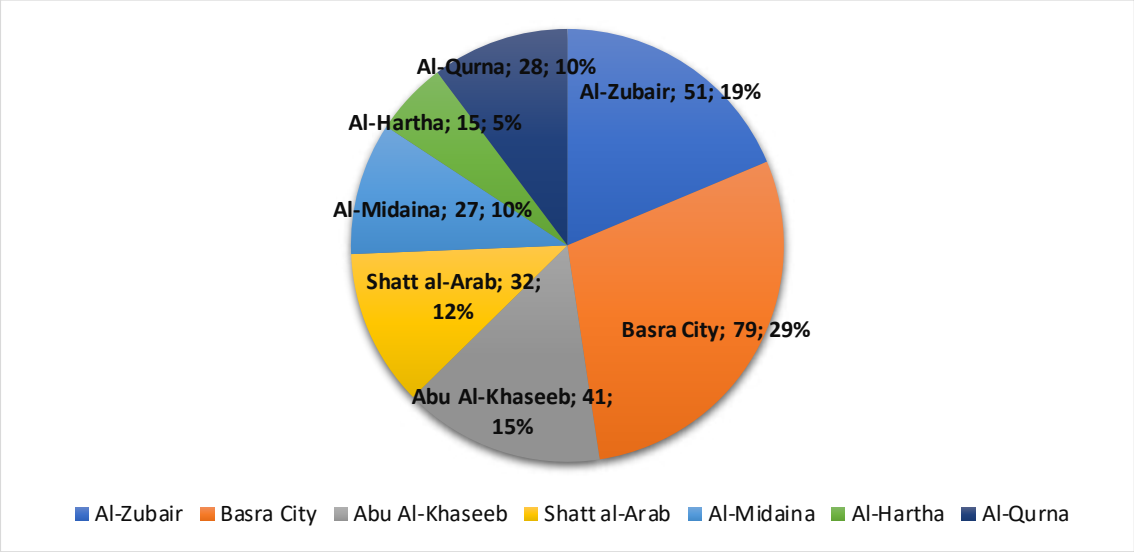

Fig (1): Perecentages of CKD patient's distribution according to the geographical Health districts in Basrah.

Distribution results of chronic kidney disease patients according to the previous history of hypertension disease and gender:
According to the previous history of the disease among the sampled population, the present study found that (75.72%) of Chronic kidney disease patients had hypertension, (43.58%) males had before chronic kidney disease, (1.4%) males had after chronic kidney disease, while 25.64 females had before chronic kidney disease, and 5.1% females had after chronic kidney disease (Table 4).

Table (4): Percentages of CKD patients according to the previous history ofhypertension and gender.

Hypertension disease	Male		Female		Total	
	N	%	N	%	N	%
before CKD	119	43.58	70	25.64	189	69.22
after CKD	4	1.4	14	5.1	18	6.5
Total	123	44.98	84	30.74	207	75.72

In the results of the One-Way ANOVA test found Sig=0.000, there is a significantrelationship between patients with hypertension and chronic kidney disease, at(P-value< 0.05).

Discussion

The present study found that the prevalence of hypertension in Basrah is (75%), which less than (95%) is found in Beirut, Lebanon [10] .and higher than (23.6%) found in Diyala [11]. (22%), found in India [12]. (50.8%) found in Gaza [13]. (31%) found in Jordan [14]. (32.3 %) found in Sub Saharan Africa [19]. (49.1%) found in Qatar [15].The present study found that the prevalence of chronic kidney disease in Basrah province is (6.8%), less than (9.07%) that found in West Malaysia [2]. (17.3%) found in northwest Germany [16]. (10.6%) found inEgypt, and higher than (3%)that found in Jordan, (4%) found in Gaza Strip [4]. (1.7%) found in China, (3.1%) found in Canada, (5.8%) found in Australia, (6.7%) found in the United States, (2.3%) found in Germany, (2.4%) found in Finland, (4.0%) in Spain and (5.2%) found in England[17]. The present study found that the sequences of males were greater than females that are agreed with the study conducted in the Southern provinces of Iraq [18]. And the sequences of males were less than females that is disagree with the study conducted in Turkey [19].The present study found that the sequences of patients in rural areas are more than urban, which is agree with study conducted inPakistan and regional South Asian countries [20, 21].The present study found that the hypertension had a significant positive association with CKD, so high hypertension is a risk factor for chronic kidney disease. In conclusions, Hypertension had a significant positive association with CKD, so high hypertension is a risk factor for CKD.

Recommendations:

An early medical examination for kidney disease and hypertension is necessary to provide early treatment. We recommend patients with hypertension follow a healthy diet, strict salt restriction, avoid physical inactivity, and weight gain

References

1. Sepanlou, S.G., Barahimi, H., Najafi, I., Kamangar, F., Poustchi, H., Shakeri, R., Hakemi, M.S., Pourshams, A., Khoshnia, M., Gharravi, A. and Broumand, B., 2017. Prevalence and determinants of chronic kidney disease in northeast of Iran: Results of the Golestan cohort study. PloS one, 12(5), p.e0176540.
2. Hooi, L.S., Ong, L.M., Ahmad, G., Bavanandan, S., Ahmad, N.A., Naidu, B.M., Mohamud, W.N.W. and Yusoff, M.F.M., 2013. A population-based study measuring the prevalence of chronic kidney disease among adults in West Malaysia. Kidney international, 84(5), pp.1034-1040.
3. Abdallah, S.A., 2015. Serum Vitamin D Level in Chronic Kidney Disease Patients from Gaza Strip. Serum Vitamin D Level in Chronic Kidney Disease Patients from Gaza Strip.
4. Tedla, F.M., Brar, A., Browne, R. and Brown, C., 2011. Hypertension in chronic kidney disease: navigating the evidence. International journal of hypertension, 2011.
5. Horowitz, B., Miskulin, D. and Zager, P., 2015. Epidemiology of hypertension in CKD. Advances in chronic kidney disease, 22(2), pp.88-95.
6. Ku, E., Lee, B.J., Wei, J. and Weir, M.R., 2019. Hypertension in CKD: core curriculum 2019. American Journal of Kidney Diseases, 74(1), pp.120-131.
7. Ku E, Lee BJ, Wei J, Weir MR. Hypertension in CKD: Core Curriculum 2019. Am J Kidney Dis. 2019; 74(1):120-131. doi: 10.1053/j.ajkd.2018.12.044.
8. Buffet, L. and Ricchetti, C., 2012. Chronic kidney disease and hypertension: a destructive combination. US pharmacist, 37(6), pp.26-29.
9. https://www.worldometers.info/world-population/iraq-population/
10. Berbari, A. and Daouk, N., 2017. Hypertension-chronic kidney disease relation-ships. Nephrol Open J, 3(1), pp.e18-e21.

11. Askar, H.F., Athab, A.M., Shakir, S.A. and Ali, N.K.M., 2019. Renal Failure in Diyala Province. Diyala Journal of Medicine, 17(2), pp.33-40.
12. Agarwal, S.K., 2005. Chronic kidney disease and its prevention in India. Kidney international, 68, pp.S41-S45.
13. Al-Khawadreh, K.N.B., 2011. Major Risk Factors that lead to Onset End-Stage Renal Disease in Northern West Bank (Doctoral dissertation).
14. Alramly, M., Darawad, M.W. and Khalil, A.A., 2013. Slowing the progression of chronic kidney disease: Comparison between predialysis and dialysis Jordanian patients. Renal Failure, 35(10), pp.1348-1352.
15. Suliman S, Thomas M, Satti E, Hamid E, Hashim P, et al. (2016) Predictors of Chronic Kidney Disease in Hypertensive Patients: A One Year Prospective Study at Hamad General Hospital, Qatar. J NephrolTher 6: 271. doi:10.4172/2161-0959.1000271.
16. Coresh, J., 2017. Update on the burden of CKD. Journal of the American Society of Nephrology, 28(4), pp.1020-1022.
17. Romagnani, P., Remuzzi, G., Glassock, R., Levin, A., Jager, K.J., Tonelli, M., Massy, Z., Wanner, C. and Anders, H.J., 2017. Chronic kidney disease. Nature reviews Disease primers, 3(1), pp.1-24.
18. Al-Uqayli, AlaAbd al-LatifMazal& al-Lami, FarisHasan. 2015. Epidemiological characteristics of chronic renal failure patients in Southern Provinces of Iraq 2012. Journal of the Arab Board of Health Specializations،Vol. 16, no. 4, pp.15-24.
19. Kazancioğlu R. Risk factors for chronic kidney disease: an update. Kidney IntSuppl (2011). 2013; 3(4):368-371. doi:10.1038/kisup.2013.79.
20. Kazancioğlu R. Risk factors for chronic kidney disease: an update. Kidney IntSuppl (2011). 2013; 3(4):368-371. doi:10.1038/kisup.2013.79.
21. Feng, L., de Silva, H.A., Jehan, I., Naheed, A., Kasturiratne, A., Himani, G., Hasnat, M.A. and Jafar, T.H., 2019. Regional variation in chronic kidney disease and associated factors in hypertensive individuals in rural South Asia: findings from control of blood pressure and risk attenuation—Bangladesh, Pakistan and Sri Lanka. Nephrology Dialysis Transplantation, 34(10), pp.1723-1730.
22. Al-Shareefi, E., 2020. Detection of bioactive compounds of euphydryasaurinia using fourier-transform infrared spectroscopic profile and evaluation of its anti-fungal activity. *Plant Archives*, *20*(1), pp.847-851.