



A Study on Quality of Life, Oxidative Stress and Antioxidant Status Associated with Clinical and Biochemical Parameters in Chronic Kidney Disease Patients on Hemodialysis

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KEYWORDS

Quality of life (QOL), Oxidative stress(OS), Hemodialysis (HD), TBARS(Thiobarbituric acid reactive substance), GSSG(Oxidized glutathione),GSH (Reduced Glutathione), GPX (Glutathione Peroxidase).

ABSTRACT:

Background: Chronic Kidney Disease (CKD) is an emerging non-communicable disease of public health importance. Oxidative stress (OS) has been implicated in the pathogenesis of cardiovascular death and CKD patients are at increased risk of both OS and cardiovascular death. Among the many chronic diseases that affect the population, CKD is considered a pathology without expectation of the cure, with rapidly and progressive evolution, triggering diverse reactions for patients and compromise the quality of life (QOL).

Methods: This cross sectional study consisted of 98 patients with CKD undergoing dialysis treatment and CKD patients are at increased risk of both OS and cardiovascular death. Among the many chronic diseases that affect the population, CKD is considered a pathology without expectation of the cure, with rapidly and progressive evolution, triggering diverse reactions for patients and compromise the quality of life (QOL).biochemical, clinical, anthropometric parameters and duration of dialysis collected from medical and CKD patients are at increased risk of both OS and cardiovascular death. Among the many chronic diseases that affect the population, CKD is considered a pathology without expectation of the cure, with rapidly and progressive evolution, triggering diverse reactions for patients and compromise the quality of life (QOL).

Results: Age grouped and CKD patients are at increased risk of both OS and cardiovascular death. Among the many chronic diseases that affect the population, CKD is considered a pathology without expectation of the cure, with rapidly and progressive evolution, triggering diverse reactions for patients and compromise the quality of life (QOL).with TBA and CKD patients are at increased risk of both OS and cardiovascular death. Among the many chronic diseases that affect the population, CKD is considered a pathology without expectation of the cure, with rapidly and progressive evolution, triggering diverse reactions for patients and compromise the quality of life (QOL).RS,SOD and similarly SBP lipid parameters at 0.01 and 0.05 levels by Pearson correlation (2-tailed).

Conclusions: Oxidative stress and CKD patients are at increased risk of both OS and cardiovascular death. Among the many chronic diseases that affect the population, CKD is considered a pathology without expectation of the cure, with rapidly and progressive evolution, triggering diverse reactions for patients and compromise the quality of life (QOL).patients.



1. Introduction

Chronic Kidney Disease (CKD) is an emerging noncommunicable disease of public health importance.¹CKD is a prevalent, worldwide condition and the number of patients affected continues to increase.²Chronic kidney disease (CKD) is a global health problem with high mortality and modality and CKD patients are at increased risk of both OS and cardiovascular death. Among the many chronic diseases that affect the population, CKD is considered a pathology without expectation of the cure, with rapidly and progressive evolution, triggering diverse reactions for patients and compromise the quality of life (QOL). and CKD patients are at increased risk of both OS and cardiovascular death. Among the many chronic diseases that affect the population, CKD is considered a pathology without expectation of the cure, with rapidly and progressive evolution, triggering diverse reactions for patients and compromise the quality of life (QOL).a lack of access to kidney renal transplantation (KRT).⁷

The number of deaths attributable to CKD in India rose from 0.59 million in 1990 to 1.18 million in 2016. ⁸In India, it has been and CKD patients are at increased risk of both OS and cardiovascular death. Among the many chronic diseases that affect the population, CKD is considered a pathology without expectation of the cure, with rapidly and progressive evolution, triggering diverse reactions for patients and compromise the quality of life (QOL). and CKD patients are at increased risk of both OS and cardiovascular death. Among the many chronic diseases that affect the population, CKD is considered a pathology without expectation of the cure, with rapidly and progressive evolution, triggering diverse reactions for patients and compromise the quality of life (QOL). and CKD patients are at increased risk of both OS and cardiovascular death. Among the many chronic diseases that affect the population, CKD is considered a pathology without expectation of the cure, with rapidly and progressive evolution, triggering diverse reactions for patients and compromise the quality of life (QOL).prematurely from lack of access this treatment.¹¹ World Kidney Day 2019 offers an opportunity to raise awareness of kidney disease and highlight disparities in its burden and current state of global capacity for prevention and management.¹²

Quality of life is defined by WHO as “the individual’s

perception of their position in life within the context of the culture and values systems in which are inserted, and in relation to their goals, expectations, standards and concerns”¹³ In CKD patients undergoing Hemodialysis (HD), the main tool used to measure QOL is the Kidney Disease and Quality of Life Short Form (KDQOL-SF TM) ^{14, 15} Malondialdehyde (MDA) is a secondary by-product of cellular lipid peroxidation and CKD patients are at increased risk of both OS and cardiovascular death. Among the many chronic diseases that affect the population, CKD is considered a pathology without expectation of the cure, with rapidly and progressive evolution, triggering diverse reactions for patients and compromise the quality of life (QOL).¹⁹ and CKD patients are at increased risk of both OS and cardiovascular death. Among the many chronic diseases that and CKD patients are at increased risk of both OS and cardiovascular death. Among the many chronic diseases that affect the population, CKD is considered a pathology without expectation of the cure, with rapidly and progressive evolution, triggering diverse reactions for patients and compromise the quality of life (QOL).superoxide dismutase and glutathione peroxidase maintain a reducing tone within cells.²⁰

CKD patients are at increased risk of both OS and cardiovascular death. Among the many chronic diseases that affect the population, CKD is considered a pathology without expectation of the cure, with rapidly and progressive evolution, triggering diverse reactions for patients and compromise the quality of life (QOL).The basic marker of oxidative stress is the level of TBARS-thiobarbituric acid reactive substances (most often dialdehydes). Their formation results from degradation by free radicals of polyunsaturated fatty acids present in and CKD patients are at increased risk of both OS and cardiovascular death. Among the many chronic diseases that affect the population, CKD is considered a pathology without expectation of the cure, with rapidly and progressive evolution, triggering diverse reactions for patients and compromise the quality of life (QOL). and CKD patients are at increased risk of both OS and cardiovascular death. Among the many chronic diseases that affect the population, CKD is considered a pathology without expectation of the cure, with rapidly and progressive evolution, triggering diverse reactions for patients and compromise the quality of life (QOL).making them susceptible to the disease in the



first place.^{26, 27}

Glutathione is a tripeptidic thiol found in the inside of all animal cells and likely is the most cellular antioxidant. Oxidized glutathione (GSSG) is highly mixture was shaken for 1 minute and centrifuged at 2000 rpm. The enzyme in the supernatant was determined. To 0.5 ml of the supernatant, 1.5 ml of buffer was added. The reaction was initiated by the addition of 0.4 ml epinephrine and change in optical density per minute was measured at 470 nm in a SOD activity was expressed as unit per litre U/l. Change in optical density per minute at 50% inhibition to adrenochrome transition by the enzyme is taken as one enzyme unit. Oxidative stress to cells so that the organism tends to reduce GSSG to GSH through glutathione reductase. Thus, determining GSSG/GSH ratio is considered a reliable estimate of the degree of cellular oxidative stress.^{28, 29}

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and energy were no difference between them at the 95% significant level. Association between gender (male and female) with quality of life in Hemodialysis patient by Independent 't' test were significant in general health (p value 0.012) with value at 95% < 0.05 significance Level.

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Methods:

Catalase (CAT) was assayed by reagents consist of Potassium dichromate prepared 50 ml of a 5% aqueous solution of potassium dichromate in distilled water. Slowly add 150 ml of glacial acetic acid to the dichromate solution of 0.2 M hydrogen peroxide H₂O₂ and Phosphate buffer 0.01M (pH 7.8). The assay mixture contained 2.5 ml of phosphate buffer, 2 ml of H₂O₂ hydrogen peroxide and 0.1 ml of sample. 1 ml was taken from above solution and added to 2 ml of dichromate/acetic acid reagent. Then the mixture was heated for 10 min in a boiling water bath. After cooling, the OD was measured at 570 nm. H₂O₂

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Table 1: Association of Quality of life between age angender

	ed A Little					
	No, Not Limit ed At All	0 0	3 -20.2	12 -80	14 -93.3	1 (6.7)
	P- Value	0.289			0.514	
Q3	Limitations in climbing several flights of stairs (PF)					
	Yes, Limit ed A Lot	0 0	11 -39.3	17 -60.7	25 -89.3	3 -10.7
	Yes, Limit ed A Little	2 -5	14 -35	24 -60	33 -82.5	7 -17.5
	No, Not Limit ed At All	0 0	10 -33.3	20 -66.7	24 -80	6 -20.2
	P- Value	0.526			0.612	
	Q4	Accomplished less due to physical health (RP)				
Yes		0 0	11 -55	9 -45	18 -90	2 -10
No		2 -2.6	24 -30.8	52 -66.7	64 -82.1	14 -17.9
P- value		0.115			0.391	
Q5	Limited in kind of work or activities due to physical health (RP)					
	Yes	0 0	12 -38.7	19 -61.3	28 -90.3	39.7)
	No	2	23	42	54	13



		-3	-34.3	-62.7	-80.6	-19.4
	P-Value	0.593			0.226	
Q6	Accomplished less due to emotional problems (RE)					
	Yes	2	30	48	68	12
	No	0	5	13	14	4
		0	-27.8	-72.2	-77.8	-22.2

CKD 63% (95% CI: 55–70). Davison et al.³⁷ reported more detail in their exploration of pain in people with CKD, and found that 49% of patients experienced pain that was moderate to severe in intensity. The heavy emotional burden from pain, including feelings of loss of control, uncertainty, frustration and desperation were key themes identified in this study, along with a sense of social isolation due to the restrictions imposed by pain. The emotionally debilitating experience of pain may contribute to the high rates of mental health conditions, such as depression and anxiety, experienced at nearly three times greater rates in those with kidney failure than the general population.³⁸

Higher proportion of women experience chronic pain than men, and that this pain is frequently more severe, recurrent and persistent. The mechanisms responsible for these differences remain unclear.³⁹ Factors likely to contribute include the impact of sex hormones and genotype, sex-linked variation in the cortical processing of pain stimuli, differences in coping mechanisms between genders, as well as socio cultural beliefs leading to biased reporting from males due to concerns surrounding masculinity and pain acceptance.³⁵ The present study showed no difference in pain between male and female. The quality of life in general health perception (GH) were significant in male and female at 95% level of significance but there was no difference in age group between less than 30yrs, 31to 50yrs and above 51yrs. Similarly, Mandoorah al.⁴⁰ showed that patients older than 60 years had the worst report of the quality of life.

Bayoumi et.al.⁴¹ supported that age, dialysis duration and male gender were negative predictors of quality of life. Seica et.al⁴² claimed that older age, female gender, lower socioeconomic status and higher educational level were associated with lower quality of life. Alshraifeen

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