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## RESEARCH ARTICLE

### STUDY OF BARTHEL SCORE AMONG CKD PATIENTS WITH & WITHOUT DIABETES FROM TRIBAL AREAS OF CHHATTISGARH

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Barthel score,  
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#### ABSTRACT

**Introduction:** Barthel index specifically measures the degree of assistance required by an individual on 10 items of mobility and self care ADL. Barthel index is used to monitor functional changes in individual receiving renal rehabilitation in terms of 3 E i.e Exercise, Education, Encouragement in predicting the functional outcome as complete independent or complete dependent or require assistance.

**Method:** The study was conducted in the Department of Medicine, Pt. J.N.M. Medical College and Dr. B.R.A.M. Hospital, Raipur. 50 patients of Chronic Kidney Disease were included for study admitted in Nephrology Unit, Pt.J.N.M. Medical College Raipur. All patients were subjected to routine investigations & Barthel Index (BI) measured.

**Result:** 1. Mean age was 41.4 years; the youngest patient was 7 & the eldest was 77 years old. 2. None of the patients was in CKD stage 1, 2% patient was in stage 2, 6% patients were in stage 3, 6 patients were falling in stage 4 and 40 patients were suffering from stage 5 CKD (Staging of CKD was done according to KDOQI clinical practice guidelines).

3. Etiology of CKD was diabetes mellitus, obstructive nephropathy, Undetermined 16%, 10%, 36% respectively while lupus nephritis, polycystic kidney disease, sickle cell disease patients was 1 (2%) each.

4. Anemia was common to all patients; 26% patients had mild, 46% patients had moderate and 28% patients had severe anemia (Hb level <7 gm/dl).

5. The physical support needed by patient from family members for activities of daily living (ADL) posed the extra burden which was evaluated by Barthel Index (BI) to measure the degree of assistance required by an individual on 10 items.

6. 2% patients scored 0 – 20, 14% patients scored >20-<40, 54% patients scored >40-<60, 16% patients scored >60-<80 and 14% patients scored >80-<100. Mean Barthel index was 57.7.

7. Amongst diabetic kidney disease (DKD) patients mean BI was 56.2 and for non diabetic patients it was 57.9.

8. In males mean BI was 55.4 and in females mean BI was 53.4.

9. For patients on maintenance hemodialysis, mean BI was 55 and for patients not on hemodialysis mean BI was 60.8.

##### Conclusion:

1. Male CKD patients had better mean Barthel Index score than females;
2. Non diabetic patients had better mean Barthel Index score than DKD patients.
3. Patients not on dialysis have better Barthel Index score than patients on maintenance hemodialysis.

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#### INTRODUCTION

Chronic Kidney Disease (CKD) is one of the independent diseases which can lead to severe disability and it is a major emerging public health concern worldwide because it often leads to poor patient outcome (Wald et al., 2015). Some of the associated factors with impaired functional status with CKD patients has not been fully elucidated, but some traditional such as cardiovascular diseases (hypertension, myocardial ischemia), cerebrovascular diseases, and diabetes mellitus as

well as non-traditional factors such as malnutrition-inflammation syndrome and depression may involve. A cross-sectional and longitudinal study has shown that risk of low functional status is directly proportional to kidney impairment (Lin et al., 2009; Fried et al., 2006). Thus, individuals with chronic kidney disease (CKD) have 40–70 % higher risk of functional limitation than those without CKD (Chao et al., 2013). In one study to assess the functional status of the CKD patients by using Barthel index found that 50% patients were dependent for the basic activities of daily life (Healthcare, 2015). In the current study, we hypothesize that there is a close relationship between the presence of CKD and the functional status of renal patients. We conducted this study with objective

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to assess the functional status of patients with Chronic Kidney Disease by using Barthel Index as a assessment tool on patients who were admitted under Nephrology Unite of Dr. B.R.A.M Hospital Raipur, CG.

**Study Design**

A Cross sectional study was conducted in Department of Medicine, Dr. B.R.A.M. Hospital, Raipur and 50 patients with Chronic Kidney Disease were included for study who were admitted in Nephrology Unit, Pt.J.N.M. Medical College Raipur. All participants and family members of patients provided verbal informed consent. Information on age, sex, hemograms and history of co morbidities such as Diabetes, hypertension etc was obtained through chart abstraction and patient interview from all CKD patients who were admitted to the general wards in the Department of Medicine in the month of October, 2012.

**Tools**

**Barthel Index**

Barthel index specifically measures the degree of assistance required by an individual on 10 items of mobility and self care ADL. Barthel index is used to monitor functional changes in individual receiving renal rehabilitation in terms of 3 E ie Exercise, Education, Encouragement in predicting the functional outcome as complete independent or complete dependent or require assistance. If the Barthel index score was less than 60, it was considered that the patient was dependent for basic activities of daily life (from 40 to 55 the degree of dependency was considered to be moderate, from 20 to 35 dependencies was severe, and with less than 20 dependencies was total). The Barthel Index (BI) has been used widely to monitor the functional changes in individual receiving inpatient rehabilitation, particularly in predicting the functional outcomes. Although its Psychometric properties have never been fully examined, the Barthel Index has demonstrated strong interrater reliability (0.95) and test -retest reliability (0.89) as well as high correlation (0.74- 0.80) with other measures of physical disability. A score of zero (0) is given in any category in which the patient does not achieve the stated criterion.

**RESULT**

Total 50 patients admitted with CKD, were interviewed and assessed as per Barthel Index score card which is mentioned in Table-1 and some important information related to the patients is obtained from the file of patients. Out of 50 patients, 55% were male and 45% were female. Mean age was 41.4 years; the youngest patient was 7 & the eldest was 77 years old. None of the patients was in CKD stage 1, 2% patient was in stage 2, 6% patients were in stage 3, 6 patients were falling in stage 4 and 40 patients were suffering from stage 5 CKD(Staging of CKD was done according to KDOQI clinical practice guidelines).(Figure-1). Etiology of CKD was diabetes mellitus, obstructive nephropathy, Undetermined 16%, 10%, 36% respectively while lupus nephritis, polycystic kidney disease, sickle cell disease patients was 1 (2%) each. Anaemia was common to all patients; 26% patients had mild, 46% patients had moderate and 28% patients had severe anaemia (Hb level <7 gm/dl). The physical support needed by patient from family members for activities of daily living (ADL) posed the extra

burden which was evaluated by Barthel Index (BI) to measures the degree of assistance required by an individual on 10 items. Out of all 50 patients were found that 2% patients scored 0 – 20, 14% patients scored 21-40, 54% patients scored 41-60, 16% patients scored 61-80 and 14% patients scored 81-100. Mean Barthel index was 57.7. (Figure-2).

1	FEEDING 10= Independent. Able to apply any necessary device. Feeds in reasonable time. 5= Needs helps (Eg. For cutting)
2	BATHING 5=independent
3	PERSONAL TOILET 5= Independently washes face, comb hair, brushes teeth, saves
4	DRESSING 10= independent. Ties shoes, fastens fasteners, applies braces. 5= Needs help, but does at least half of work in reasonable time.
5	BOWELS 10= No Accident. Able to use enema or suppository if needed. 5= Occasional accidents or needs help with enema or suppository.
6	BLADDER 10= No Accident. Able to care for collecting device if used. 5= Occasional accidents or needs help with device.
7	TOILET TRANSFERS 10= Independent with toilet or bedpan. Handles clothes, wipes, flushes, or cleans pan. 5= Needs help for balance, handling cloths or toilet paper.
8	TRANSFERS-CHAIR & BED 15= Independent, including locking of wheel chair, lifting footrests. 10= Minimum assistance or supervision. 5= Able to sit, but needs maximum assistance to transfer.
9	AMBULATION 15= Independent for 50 Yards. May use assistive device except for rolling walking. 10= With help, 50 yards. 5= Independent with wheelchair for 50 yards if unable to walk.
10	STAIR CLIMBING 10= Independent. May use assistive devices. 5= Needs help or supervision.
	TOTAL SCORE -----

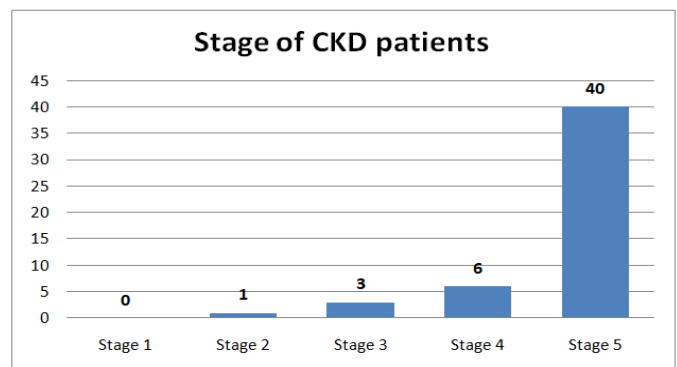


Figure 1. Stages of CKD patients

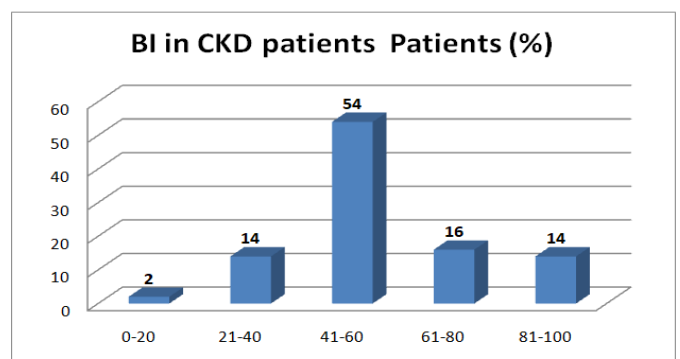


Figure 2 . Barthel Index among CKD patients

The Mean BI among males patients (55.4%) were found little high than females patients (53.4%). Amongst diabetic kidney disease (DKD) patients mean BI was 56.2 and for non diabetic patients it was 57.9. For patients on maintenance hemodialysis, mean BI was 55 and for patients not on hemodialysis mean BI was 60.8.

## DISCUSSION

In the present conducted study, According to the Barthel index, 38 patients (50%) were dependent for the basic activities of daily life (18 with moderate dependency, 10 with severe dependency, and 10 with total dependency).

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## Conclusion

Based on the above study results and discussion it can be concluded that majority of patients with Chronic Kidney Disease were having altered functional status. In this study, male CKD patients had better mean Barthel Index score than females. CKD patients those who were having diabetes have low BI. Patients not on dialysis have better Barthel Index score than patients on maintenance hemodialysis.

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