

Impact of Serum Albumin on Functional Status and Hospital Outcome of Geriatric Patients in Coimbatore Medical College Hospital

Prof. Dr. K. Sivakumar M.D. And Dr. Srinivasan. G M.D Post Graduate
Dr. Srinivasan. G, P.G. In General Medicine, Crri Quarters, Coimbatore Medical College Hospital, Coimbatore, Tamilnadu-641018, India

Date of Submission: 16-08-2019

Date of Acceptance: 31-08-2019

I. Introduction

In recent decades, life expectancy in TAMILNADU has considerably improved due to significant improvements in medical and public health policies. The study "caring for our elders: early responses india ageing report 2017" on 20th June 2017 states that TamilNadu has 11.2 percent of elderly population. We did a prospective study to find impact of serum albumin in old age people who are at a higher risk of functional decrease and decreased nutrition, especially those who are Hospitalised.

II. Objectives

. Impact of serum albumin on functional status and hospital outcome of geriatric patients in Coimbatore medical college hospital
. patients aged more than 60 years admitted to the medical wards and geriatric wards in Coimbatore medical college hospital from February to April in 2019 were included and their medical data were reviewed.

III. Materials And Methods

3a. PARTICIPANTS

This is a PROSPECTIVE STUDY conducted on geriatric patients with admission database from medical wards and geriatric ward in Coimbatore medical college hospital. Patients were selected randomly from the month of February to April in 2019 and their medical data were reviewed.

3b. METHODS

It includes physical examinations and functional status assessment. Functional status was assessed according to the KATZ activities of daily living (ADL) score including patients ability to perform daily living activities. Six parameters were assessed including dressing, bathing, toileting, bladder continence, feeding and transferring. For each item score 1 indicates independence and score 0 indicates dependence. A score of 6 indicates full function, 4 indicates moderate impairment and 2 or less indicates severe functional impairment. Serum albumin levels were performed for study population. Discharge diagnosis used were CNS, RS, NERVOUS SYSTEM, RENAL, GIT. Albumin levels were classified into severe Albuminemia (<2.5gm/dl), mild hypoalbuminmia (2.5-3.5gm/dL), normal albumin level (>3.5gm/dl). Study conducted in accordance with the ethical principle. The scientific research ethics committee of the coimbatore medical college hospital approved the study protocol. Formal informed consent from patients were obtained.

IV. Statistical Analysis

Statistical analyses were performed using SPSS 20. Continuous variables such as ADL score and length of hospital stay were expressed as mean (standard deviation). Pearson correlation was used to analyse the relationship between serum albumin concentrations and katz score. Chi square test used for analysing different pattern of disease with albumin levels.

V. Results

A total of 120 geriatric patients were identified and taken for analysis: 87 (72.5%) of these were male and 33 (27.5%) were female patients, with mean age of 67.78 ± 6.42 years. The mean length of hospital stay was 7.5 days ± 2.5 days, the mean albumin level (g/dl) was 3.18 ± 0.48, the mean ADL level was 3.54 ± 2.20 and the overall in hospital mortality rate was 6.7%. Cardiovascular system (33), respiratory disease (25) accounted for the largest proportion. Mortality is more in liver disease. Results are presented in table 7.9.

Among 120 patients , 11 patients had severe hypoalbuminemia, 89 patients mild to moderate hypoalbuminemia, 20 patients had severe hypoalbuminemia.

We found that patients has a significantly difference in mean ADL score, length of hospital stay, and in hospital mortality rate among different albumin groups and results are presented in table 7.8.

VI. Discussion

Among plasma proteins serum ALBUMIN is the most abundant protein. It is produced in the liver and forms a large proportion of all plasma proteins. One of the main role assigned to albumin is as an indicator of malnutrition. The main aim of our study is to assess the clinical significance of albumin in geriatric patients in Coimbatore medical college hospital.

We used serum albumin as a bio-marker of nutritional status. We used KATZ - ADL SCORE to assess functional status during hospital stay. we used discharge diagnosis as cardiovascular system, respiratory system, nervous system, renal, GIT. We classified serum albumin as mild hypoalbuminemia (<3.5 to 2.5) and severe hypoalbuminemia (<2.5). This is the first study in coimbatore medical college hospital and in Tamilnadu .In our study we found the significant correlation between albumin levels and functional status, length of stay , in hospital mortality. We found Lower albumin level correlate with poorer functional status, increased length of stay and hospital outcome, and this was statistically significant. Mortality rate also increased in low albumin group when compared to normal albumin group. Our study also revealed that albumin level was an independent factor associated with functional status, the length of hospital stay, and in hospital mortality rate. serum albumin plays important role in physiologic homeostasis. Therefore physiologic homeostatic function may be affected by decreased serum albumin level, resulting in development and/or progression of pathologic process. We still do not know whether low albumin level decreases fuctional status or decreased functional status lowered the serum albumin level.

Advantage of our study is that it included multifaceted assessment of the independent relationship between albumin level, functional status, length of stay and in hospital mortality rate.

Limitations of this study include 1. selection bias 2. The study was performed at a single institution 3. Patients selected over a period of three months only. 4 study population is less.

VII. Tables And Figures

TABLE 7.1 classification according to age group

AGE GROUP	Frequency	Percent
60-70 Years	89	74.2
71-80 Years	27	22.5
Above 80 Years	4	3.3
Total	120	100.0

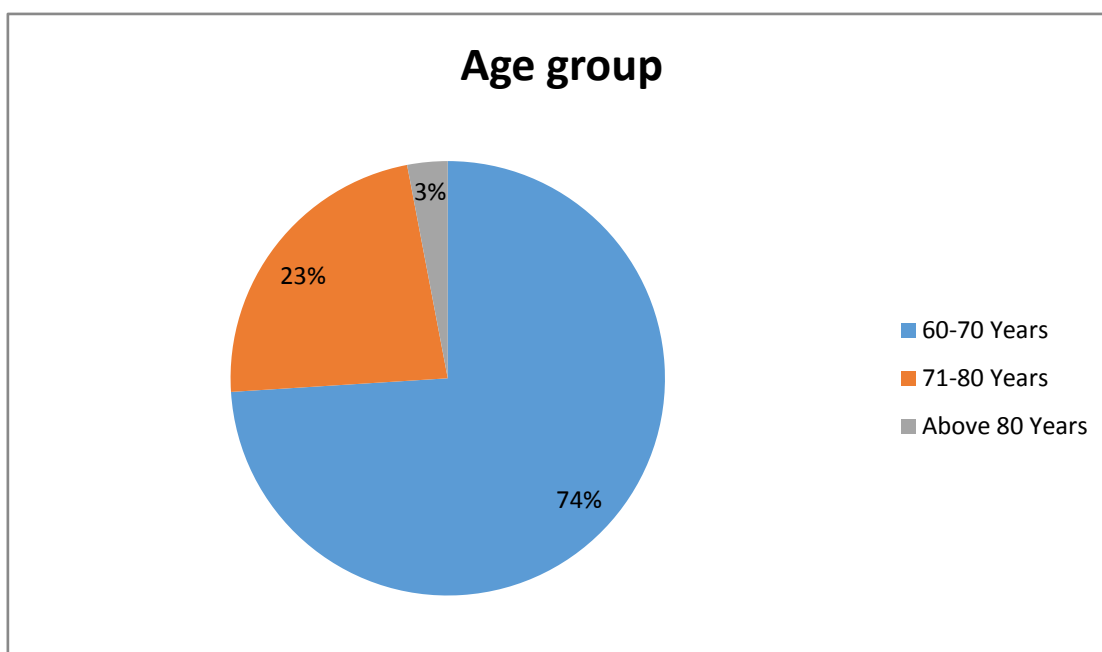


TABLE 7.2 classification according to sex

SEX	Frequency	Percent
Male	87	72.5
Female	33	27.5
Total	120	100.0

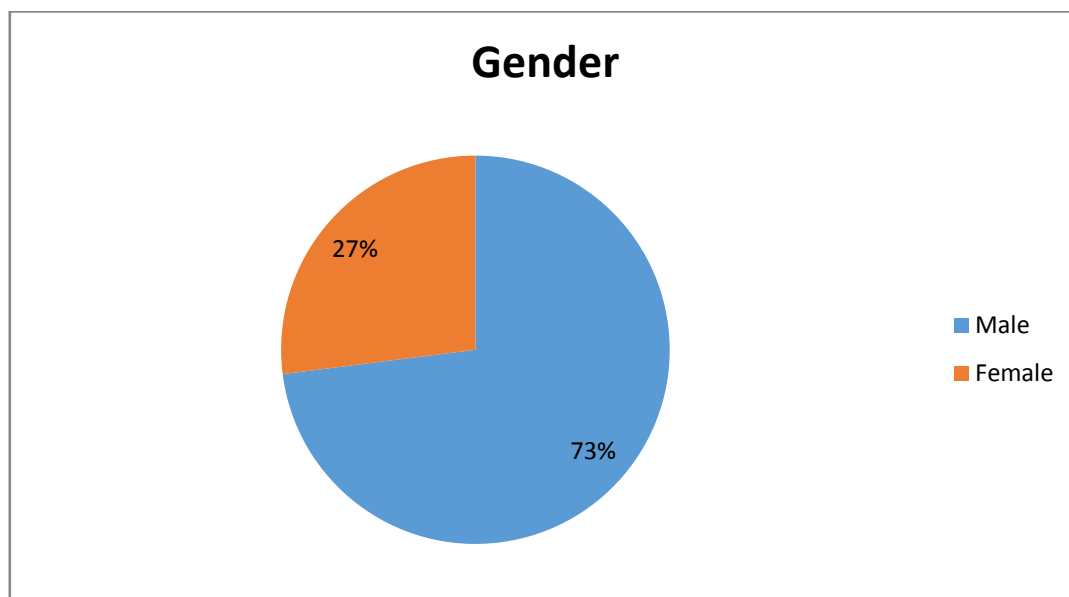


TABLE 7.3 classification according to co-morbidities

COMOBIDITIES	Frequency	Percent
DM	14	11.7
DM/HTN	6	5.0
HTN	10	8.3
NIL	90	75.0
Total	120	100.0

TABLE 7.4 classification according to outcome

OUTCOME	Frequency	Percent
Improved	112	93.3
Death	8	6.7
Total	120	100.0

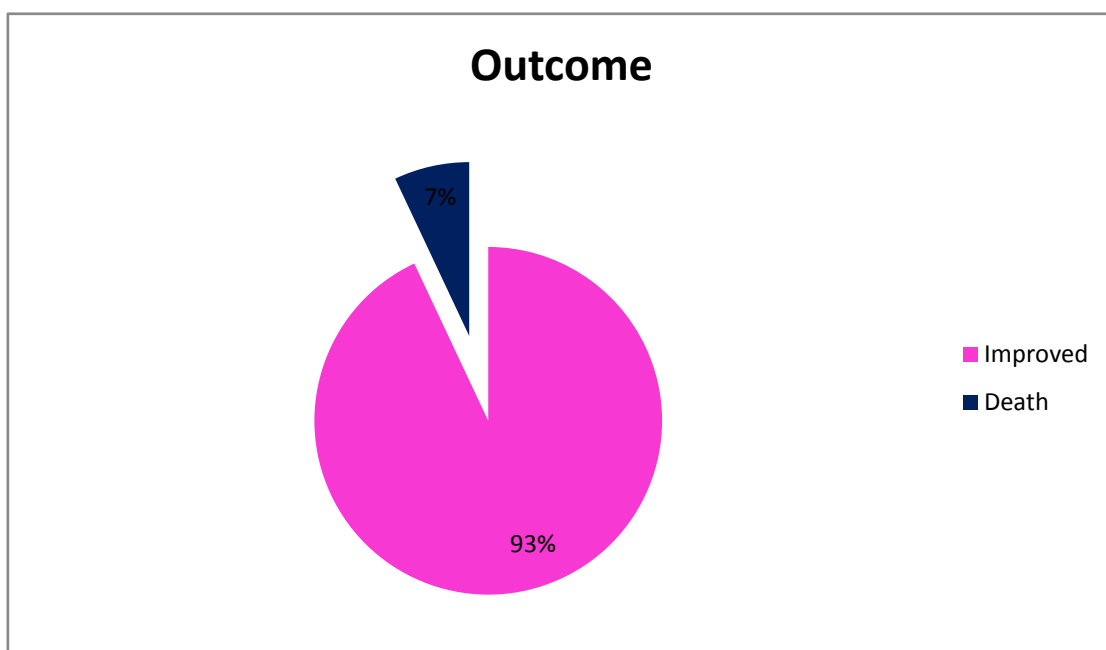


TABLE 7.5 classified according to albumin levels

hypoalbuminia	Frequency	Percent
<2.5	11	9.2
2.5-3.5	89	74.2
>3.5	20	16.7
Total	120	100.0

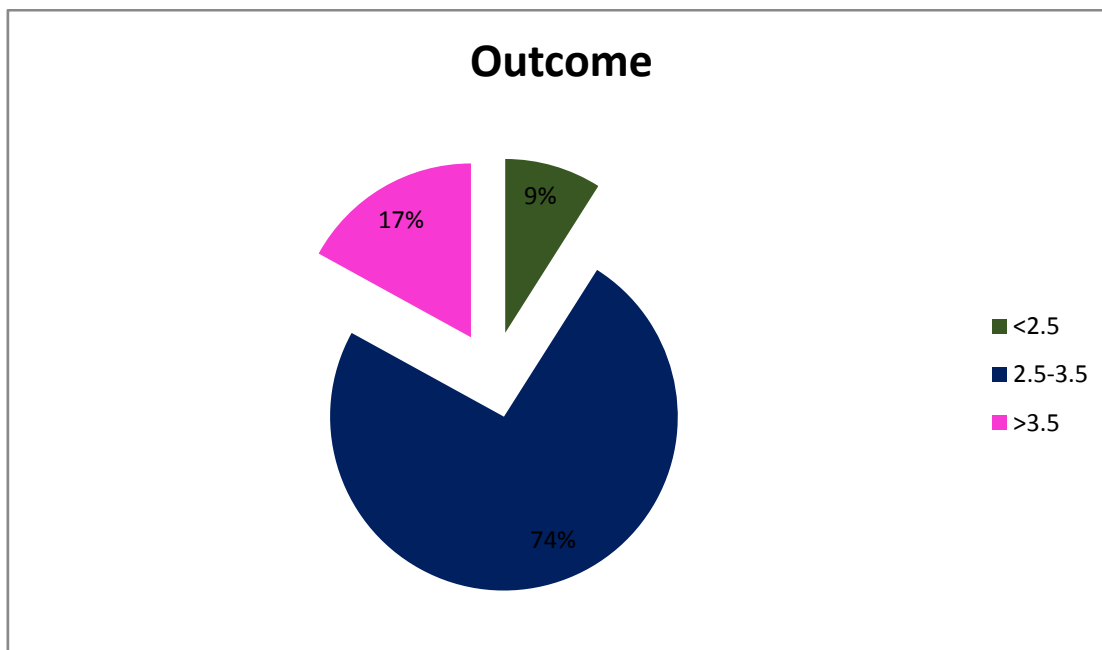


TABLE 7.6 table showing 95% confidence interval for mean for different albumin level

hypoalbuminia		Mean	Std. Deviation	95% Confidence Interval for Mean	
ALBUMIN				Lower Bound	Upper Bound
<2.5		2.3182	.09816	2.2522	2.3841
2.5-3.5		3.1169	.26209	3.0616	3.1721
>3.5		3.9300	.30279	3.7883	4.0717

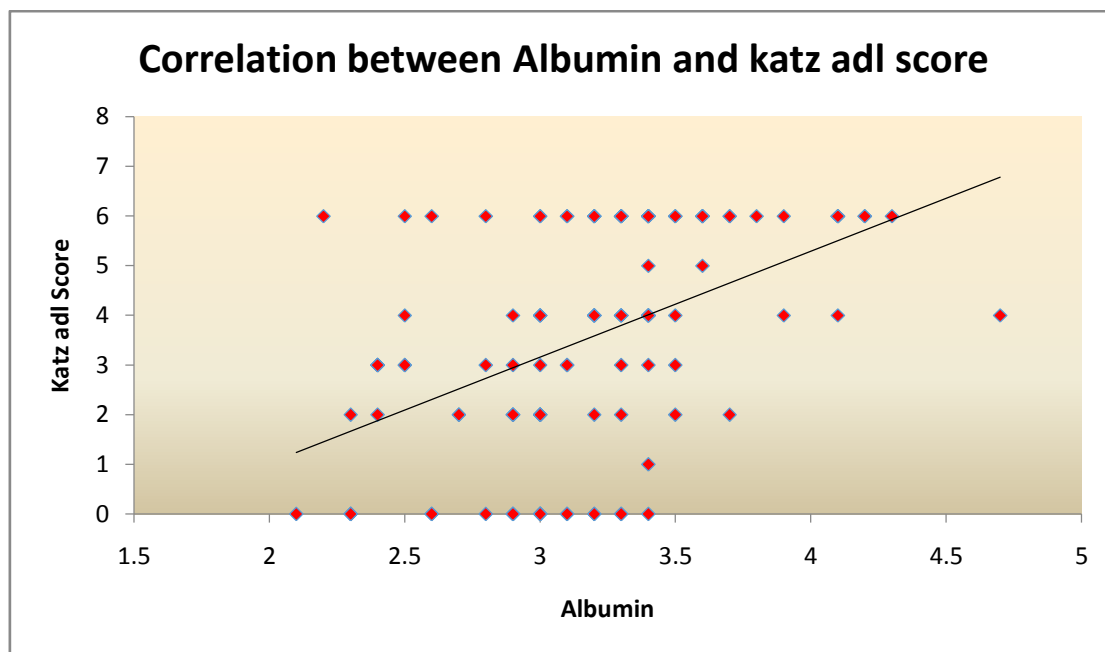
TABLE 7.7 table showing correlation between katz-adl score, length of stay, age, and proteins.

CORRELATIONS

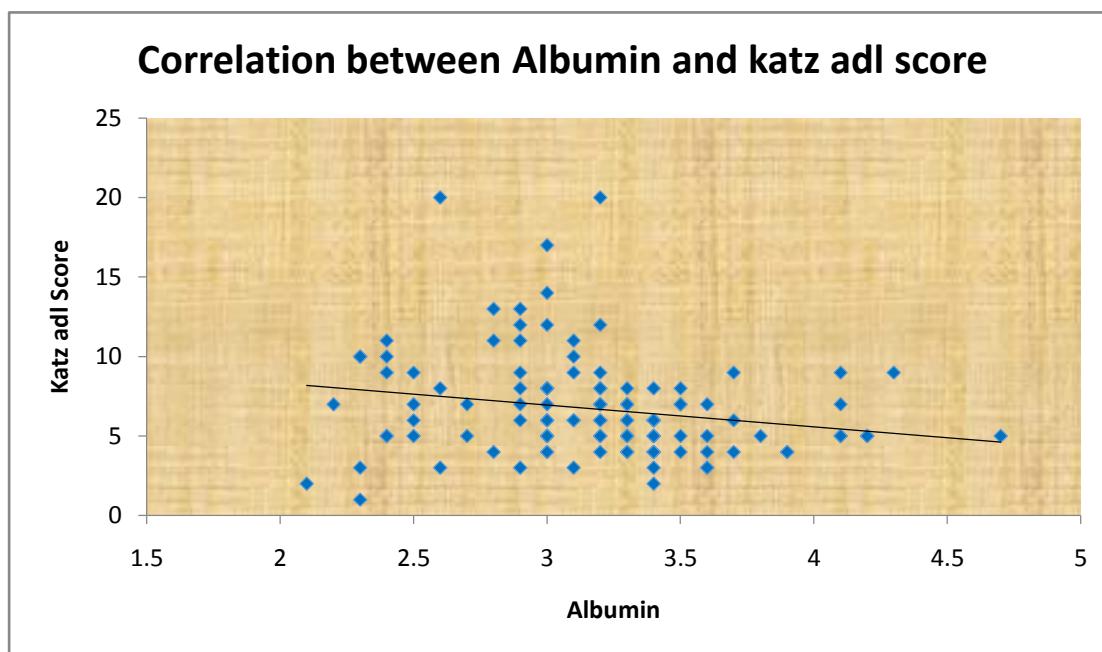
		KATZ_ADL_SCORE	LENGTH_OF_STAY	AGE	PROTEIN	GLOBULIN	OUTCOME
ALBUMIN	Pearson Correlation	.467**	-.206*	.105	.501**	.033	-.274**
	Sig. (2-tailed)	.000	.024	.254	.000	.718	.002
	N	120	120	120	120	120	120

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).



Note: its Positive correlation $r=0.467^{**}$ which means that functional score will improve if albumin level increases



Note: its Negative correlation $r=-0.206^*$ which means that length of stay will increase as the albumin level decreases

TABLE 7.8 table showing mean of age, albumin, KATZ - ADL score

	<2.5		2.5-3.5		>3.5		Total Mean	SD
	Mean	SD	Mean	SD	Mean	SD		
Total of Participants	11		89		20		120	
AGE	67.45	5.75	67.93	6.74	67.25	5.50	67.78	6.42
ALBUMIN	2.32	0.10	3.12	0.26	3.93	0.30	3.18	0.48
KATZ_ADL_SCORE	2.00	1.90	3.30	2.17	5.45	1.10	3.54	2.20
PROTEIN	5.45	0.88	6.14	0.79	6.99	0.76	6.22	0.89
GLOBULIN	2.89	0.62	3.05	0.80	3.14	0.70	3.05	0.76

TABLE 7.9 Table showing basic characters of the study sample

Crosstab					
Count		hypoalbuminia			Total
		<2.5	2.5-3.5	>3.5	
SYSTEM_INVOLVED	AUTOIMMUNE	0	1	0	1
	CNS	0	18	3	21
	CVA	0	1	0	1
	CVS	3	22	8	33
	CVS/CNS	0	2	0	2
	CVS/RENAL	0	1	0	1
	CVS/RS	0	5	1	6
	GIT	4	5	2	11
	RENAL	4	12	2	18
	RS	0	21	4	25
	RS/RENAL	0	1	0	1
Total		11	89	20	120

VIII. Conclusion

In our study we found that patients with low albumin level have poorer functional status, longer length of hospital stay and increased in hospital mortality rate.

References

- [1]. Low albumin predicts poor prognosis in the elderly. Corti M C et.al. Serum albumin level and physical disability as predictors of mortality in older persons. JAMA 1994 oct 5 272:1036-1042
- [2]. In hospital mortality in patients older than 60years with very low albumin levels., jodil.hannan, MD, steven M, RADWANY MD, AND TERRY ALBANESE ,PhD., J PAIN SYMPTOM MANAGE 2012;43:631-637@CANCER PAIN RELIEF COMMITTEE
- [3]. International journal of gerontology. Volume 9, issue 4, december 2015, pages 220-222
- [4]. The american journal of medicine , vol 130, no 12, december 2017. Amit Akirov,MD a,b Hiba Masri-iraqi,MD a,b Alaa Atamna , MD b,c llan Shimon, MD a,b institute of endocrinology, beilinson hospital, Petach Tikva, Israel; b Sackler school of medicine, tel aviv University , israel; c internal medicine C, beilinson hospital, petach tikva, israel.
- [5]. 2015 may ;81(1):17-27. doi: 10.1016/j.maturitas.2015.02.009.Epub 2015 feb 28.
- [6]. Serum albumin and health in older people: reiew and meta analysis. Cabrerizo S1, caudras D2, Gomez-BUSTO F3, artaza -artabe I4, marin_ciancas F5,Malafarina V

Prof.Dr.K.Sivakumar M.D. "Impact of Serum Albumin on Functional Status and Hospital Outcome of Geriatric Patients in Coimbatore Medicalcollege Hospital." IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), vol. 18, no. 8, 2019, pp 34-39.