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A STUDY OF MODIFIED DECAF SCORE IN PREDICTING HOSPITAL MORTALITY IN PATIENTS OF ACUTE EXACERBATIONS OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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Abstract

Background: COPD is a leading cause of morbidity and mortality worldwide and results in an economic and social burden that is both substantial and increasing .The modified DECAF score was derived for accurate prediction of mortality and risk stratification to inform patient care.

Methods: Hospital based descriptive type of observational study was. After applying inclusion and exclusion criterias, study population for acute exacerbation of COPD was selected. Admission clinical data, including modified DECAF indices, and mortality were recorded.

Results: In our study there was a statistically significant value (p <0.05) between grade of dyspnea, respiratory acidosis (pH < 7.30) and frequency of admission in the Modified DECAF score and in-hospital mortality of Acute Exacerbation of COPD. There was insignificant relationship between Eosinopenia & consolidation and in hospital mortality

Conclusion-We concluded that the Modified DECAF score is a powerful score to predict in hospital mortality from AECOPD.

Keywords: COPD, DECAF, Exacerbations, Modified DECAF.

Introduction:

COPD is a leading cause of morbidity and mortality worldwide and results in an economic and social burden that is both substantial and increasing [1-2]

An exacerbation of COPD is defined as an acute event characterized by a worsening of the patient's respiratory symptoms that is beyond normal day-to-day variations and leads to a change in medication [3-5]

A large number of scores have been developed for AECOPD like DECAF[6] , modified DECAF, CAPS[7] . Scores like CURB-655 which was originally developed for pneumonia has also been used in AECOPD, and general ICU scoring systems like APACHEII [8] has been used to predict mortality. Many studies comparing these systems have also been done on various populations with different results [9,10]

The Modified DECAF score is more sensitive and specific in predicting in-hospital mortality in AECOPD than the DECAF score[11]

Table 1: MODIFIED DECAF SCORE

Variable	Points
Dyspnea limiting the patient to home (MRCD 5) and Independent in bathing and/or dressing (eMRCD 5a)	1
Requires assistance with bathing and dressing (eMRCD 5b)	2
Eosinopenia (<0.05X10^9/L)	1
Consolidation (on chest X-ray)	1
Acidemia (pH<7.30)	1
Frequency of admission	1
Total score	6

MATERIALS AND METHODS

Study design: Hospital based descriptive type of observational study.

Study universe: Patients attending OPD and Emergency department, Department of pulmonary medicine with Acute Exacerbation of COPD.

Inclusion Criteria:

- Patient who were previously diagnosed COPD (as per GOLD Guidelines) and had Acute Exacerbation at the time of admission.
- Those giving informed consent.

Exclusion Criteria:

- Primary reason for admission other than Acute Exacerbation of COPD
- Patients presenting with Myocardial Infarction
- Unstable cardiovascular status, unstable angina
- Past or present history of tuberculosis
- Pneumothorax
- Malignancy
- Septic Shock

Statistical analysis:

Data will be enter in MS Excel sheet and will be subject for statistical analysis. The quantitative data will be express as proportion and percentages. The difference in proportion was analysed using Chi-Square test. The significance level for tests will be determine as 95% (P<0.05). MED CALCI 12.2.1.0 Version software will be use for statistical calculation.

RESULTS

The profile of study population shows that, maximum patients 49(49.00%) were from 61-75 Yrs age group, 20(20.00%) patients were from more than 75Yrs, 29(29.00%) patients were from 46-60Yrs age group and 2(2.00%) patients were from 30-45 Yrs age group.

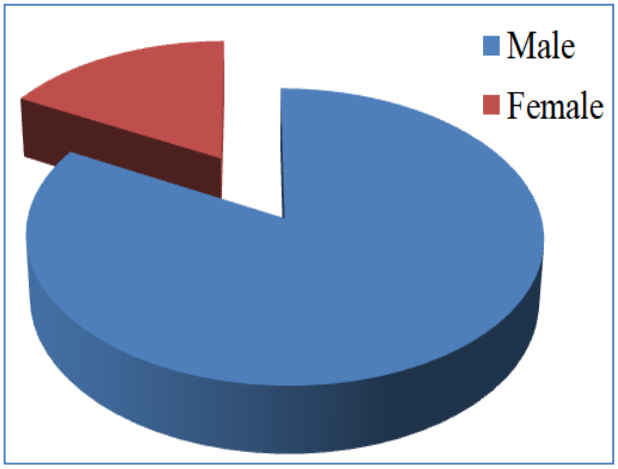

Figure 1: Sex wise distribution 83(83.00%) patients were male and 17(17.00%) patients were female.

Table 1: Distribution of the studied cases according to Modified DECAF score (n=112)

Modified DECAF score		No. of patients	Percentage (%)
eMRCD score	0	66	66.00
	1	23	23.00
	2	11	11.00
Eosinopenia	0	83	83.00
	1	17	17.00
Consolidation	0	51	51.00
	1	49	49.00
Acidemia	0	80	80.00
	1	20	20.00
Frequency of admission	0	67	67.00
	1	37	37.00

`There were 66 cases who presented with dyspnea (eMRCD 0–4) with score 0, 23cases presented with dyspnea (eMRCD 5a) with score 1 and 11 cases presented with dyspnea (eMRCD 5b) with score 2.There were 83cases whose eosinophil count was $>0.05 \times 10^9$/L with score 0 and for 17 cases their eosinophil count was $<0.05 \times 10^9$/L with score 1.There were 51 cases whose X-ray did not show consolidation with score 0 and in 49 cases their X-ray showed consolidation with score 1.There were 20 cases in our study with their ABG (Arterial Blood Gas sample) showing Acidemia (pH < 7.30) with score 1 while the remaining cases were (pH > 7.30) with score 0.There were 67 cases who had past history with less than 2 times of previous admission in the last year by Acute Exacerbation of COPD with score 0. There were 33 cases who had past history with more than or equal to 2 times of admission in the last year with score 1.

Table 2: Relationship between mortality and Modified DECAF score

Modified DECAF score		Mortality present (n=7)	Mortality absent (n=93)	Chi-square	p-value
eMRCD score	0	2(3.03%)	64(96.96%)	8.64	0.023
	1	2(8.69%)	21(91.30%)		
	2	3(27.27%)	8(72.73%)		
Eosinopenia	0	6(7.23%)	77(92.77%)	0.105	0.74
	1	1(5.88%)	16(94.11%)		
Consolidation	0	2(3.92%)	49(96.08%)	0.70	0.402
	1	5(10.20%)	44(89.80%)		
Acidemia	0	2(2.50%)	78(97.50%)	9.22	0.02
	1	5(25.00%)	15(75.00%)		
Frequency of admission	0	1(1.49%)	66(98.51%)	6.05	0.014
	1	6(16.21%)	31(83.78%)		

In our study there was a statistically significant value (p <0.05) between grade of dyspnea, respiratory acidosis (pH < 7.30) and frequency of admission in the Modified DECAF score and in-hospital mortality of Acute Exacerbation of COPD. There was insignificant relationship between Eosinopenia & consolidation and in hospital mortality.

DISCUSSION

The present study was undertaken to Study the Modified DECAF Score In Predicting Hospital mortality in patients of Acute Exacerbations of Chronic Obstructive Pulmonary Disease.

In this Hospital based descriptive type of observational study on 100 Patients attending OPD and Emergency department of Department of Pulmonary medicine with Acute Exacerbation of COPD were studied. Patients who were previously diagnosed COPD (as per GOLD Guidelines) and had Acute Exacerbation at the time of admission were included in the study with informed consent. Patients with Primary reason for admission other than Acute Exacerbation of COPD, Patients presenting with Myocardial Infarction, Unstable cardiovascular status, unstable angina, past or present history of tuberculosis, Pneumothorax, Malignancy and Septic Shock were excluded.

In our study there was a statistically significant value (p <0.05) between grade of dyspnea, respiratory acidosis (pH < 7.30) and frequency of admission in the Modified DECAF score and in-hospital mortality of Acute Exacerbation of COPD. There was insignificant relationship between Eosinopenia & consolidation and in hospital mortality.

M H zidan et al (2015)[12] found that there was a statistically significant value (p= 0.001) between grade of dyspnea in the DECAF score and in-hospital mortality of Acute Exacerbation of COPD. There was also, a statistically significant value (p = 0.030) between the presence of consolidation in X-ray of cases and in-hospital mortality of AECOPD. There was a significant value (p < 0.001) between respiratory acidosis (pH< 7.30) which was present in the ABG of some cases and in-hospital mortality rate There were statistically significant values (p <0.001) between the frequency of admission and in-hospital mortality due to AECOPD.

Ramadan Nafae et al. (2015) [13] studied that in-hospital mortality rates according to each grade of the DECAF score with relevant sensitivity and specificity: DECAF 0–1 ('low risk'; inhospital mortality = 3.37%); DECAF 2 ('moderate risk'; mortality = 7.7%); and DECAF 3–6 ('high risk'; mortality = 37%).This was in line with our study.

C E chevarria (2016)[14]et al also found significant relationship (p<0.0001) between in-hospital mortality and DECAF score.They found: DECAF 0–1 ('low score; in-hospital mortality = 1.5%); DECAF 2 ('Intermediate score'; mortality = 5.4%); and DECAF 3–6 ('high score'; mortality = 21%).

John Steer et al. (2012)[15] found that the significant values (p < 0.001) between the Modified DECAF score and mortality due to AECOPD. The Modified DECAF score is more sensitive and more specific in predicting in-hospital mortality in Acute Exacerbation of COPD.

CONCLUSION:

We concluded that the Modified DECAF score is a powerful score to predict in hospital mortality from AECOPD.

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