Original Research Paper

General Medicine

A STUDY OF CORRELATION OF PRAGMATIC RISK SCORE WITH MORTALITY IN PATIENTS ADMITTED TO RLJH AND RC ICU WITH CORONAVIRUS DISEASE 2019 (COVID-19)

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ABSTRACT

Background : In many people the disease is mild and self-limiting, but in a considerable portion of patients the disease is severe and fatal. Determining which patients are at high risk of severe illness or mortality is an essential part of understanding this illness **Aims and Objective :** Study of correlation of prognostic risk score with mortality in patients admitted to RLJH and RC ICU with coronavirus disease 2019 (COVID-19) . **Methodology :** This was a Retrospective observational study in the patients tested RT-PCR positive for COVID 19 and admitted at SRI DEVARAJ URS MEDICAL COLLEGE Tamaka, Kolar during the two month duration i.e. June 2021 to July 2021 in the 50 patients .The statistical analysis was done by Graph pad prism 6 version from that we have calculated correlation co-efficient and Survival graph **Result :** In our study we have seen that The majority of the patients were in the age group of 61-70 were 28% , followed by 51-60 were 24%, 71-80 were 22%, 41-50 were 14% , 30-40 & >80 were 6%. The majority of the patients were Male i.e. 68% and Female were 32%. There was strong correlation between Prognostic score and mortality of the patients which was statistically highly significant i.e. Spearman r= 0.8450, P value (two-tailed) was < 0.0001*** . survival rate for the Score 0, 2 was almost 100% and as the score increases i.e. 3,4,5,6 there survival percentage also decrease approximately to 25 %, 5% and 0%,0% respectively.

Conclusion : It can be concluded from our study that there was significantly higher coreltaion between the Prognostic score and mortality of the patients hence this score could be reliable tool for the assessment of the severe patients and prompt and aggressive treatment for the better outcome

KEYWORDS : COVID 19, SOFA Score , Outcome in COVID 19

INTRODUCTION :

In many people the disease is mild and self-limiting, but in a considerable portion of patients the disease is severe and fatal. Determining which patients are at high risk of severe illness or mortality is an essential part of understanding this illness.[1] Prior reports from Wuhan identified certain comorbidities as diabetes, hypertension and coronary artery disease as patients more likely to present to their hospital.[2] They also discovered that patients with older age, higher Sequential Organ Failure Assessment (SOFA) score, and elevated d-dimers were significantly associated with inpatient mortality.[2] Further reports have shown other predictors of poor outcome such as acute kidney injury, acute hepatic injury, the need for mechanical ventilation, elevated c-reactive protein (CRP), interleukin-6 (IL-6), lymphocyte count, and Procalcitonin levels.[3,4,5,6]

A recent study by Haung et al. reported that patients with COVID-19 infection showed high amounts of IL1B, IFN-gamma, IP10 and MCP1, probably linked to activated T-helper1 (Th1) cell responses. Those requiring ICU admission had higher levels of cytokines than those subjects not requiring ICU admission, thus suggesting that cytokine storm was associated with disease severity.[7]

METHODOLOGY :

This was a Retrospective observational study in the patients tested RT-PCR positive for COVID 19 and admitted at SRI DEVARAJ URS MEDICAL COLLEGE Tamaka, Kolar during the two month duration i.e. June 2021 to July 2021 , Total number of study subjects were calculate sample size -

n= 〚((Z1+Z2)/Cr)〛 ^2

$$Cr = \frac{1}{2}\{LOGe\frac{(1+r)}{(1-r)}\}$$

We have done the pilot study where we found the co-relation co-efficient between Prognostic score and mortality was P=

0.78 , by putting above value we the minimum sample size calculated was n=17

Where ,

N	Guestimate of Correlation coefficient	0.78
Cr	Fisher's arctanh transformation	1.045371
1-α	Set level of confidence (<1.0)	0.99
1-β	Set level of power of test (<1.0)	0.9
Z1	Z value associated with alpha	2.575829
Z2	Z value associated with beta	1.281552
n	Minimum Sample size	17
Z'r1		1.045371
Z'r0		0
n	Minimum sample size	17

As the minimum sample size was 17 , here we have taken 50 patients within the two month duration

Inclusion criteria: Individuals aged more than 18 years who tested RT-PCR positive for covid-19

Exclusion Criteria:
Individuals aged less than 18 years
Individuals tested RT-PCR negative for covid-19

Method of collection of data
After ethical committee approval and obtaining written informed consent from the patients, the study will be undertaken

Analysis & Statistical Methods
By the various laboratory parameters and clinical parameters like INR, platelet countGC Score , respiratory rate, Systolic Blood Pressure we have given scores as below

COVID-19 SEVERITY SCORE			
COMPONENTS			POINTS
Modified sepsis induced coagulopathy score(mSIC score)	INR	≤1.2	0
		>1.2-≤1.4	1
		>1.4	2

PLATELET COUNT		≥150	0
		≥100-<150	1
		<100	2
qSOFA score		GCS<15	1
		RR>22	1
		Systolic BP<100	1
Age		≥75 years old	2
Gender		Male	1

outcome of the patients like discharged and death was also noted respectively . The statistical analysis was done by Graph pad prism 6 version from that we have calculated correlation co-efficient and Survival graph .

RESULT:
Table 1 : Age wise distribution of the patients

Age group	No.	Percentage (%)
30-40	3	6
41-50	7	14
51-60	12	24
61-70	14	28
71-80	11	22
>80	3	6
Total	50	100

The majority of the patients were in the age group of 61-70 were 28% , followed by

51-60 were 24%, 71-80 were 22%, 41-50 were 14% , 30-40 & >80 were 6%.

Table 2: Sex wise distribution of the patients

Sex	No.	Percentage (%)
Male	34	68
Female	16	32
Total	50	100

The majority of the patients were Male i.e. 68% and Female were 32%.

Table 3 : Distribution of the patients as per the correlation of prognostic score and mortality of the patients

Number of XY Pairs	50
Spearman r	0.8450
95% confidence interval	0.7370 to 0.9109
P value (two-tailed)	< 0.0001
P value summary	***
Exact or approximate P value?	Gaussian Approximation
Is the correlation significant? (alpha=0.05)	Yes

From above Table 3 it is clear that there was strong correlation between Prognostic score and mortality of the patients which was statistically highly significant i.e. Spearman r= 0.8450, P value (two-tailed) was < 0.0001***
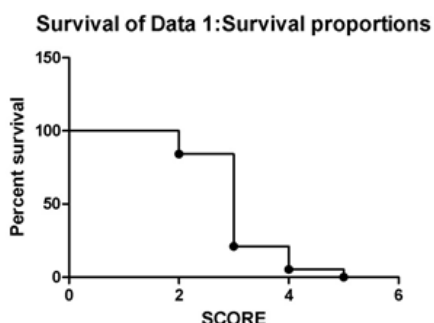
Graph 2 : Showing the survival percentage with respect to prognostic Score

From above Graph 1 it is clear that survival rate for the Score 0, 2 was almost 100% and as the score increases i.e. 3,4,5,6 there survival percentage also decrease approximately to 25 %, 5% and 0%,0% respectively.

DISCUSSION:
Since the disease's potential life-threatening nature was recognised, physicians and researchers from all around the world have collaborated to collect data and identify individuals at risk of a more severe COVID-19 clinical course. Several observational studies have identified demographic and clinical risk factors for severe disease progression and death, including age, male gender, hypertension, and obesity [8]. Patients with comorbidities such as chronic obstructive pulmonary disease, cardiovascular illness, hypertension, and patients who present with dyspnoea are also more prone to severe morbidity and mortality after infection, according to previous reports [9,10]. Most such risk factors have been identifed from detecting people in the general population, not in hospital, who are at increased risk of becoming infected with COVID-19 or being admitted to hospital with the disease. Tese risk factors therefore identify those patients in the community who are most vulnerable, but not mortality risk in-hospitalised patients with COVID-19. Since the pandemic, several risk scores including those specifc to COVID-19 such as the Brescia-COVID[11] and more generic sepsis-related risk scores like the SOFA (Sequential Organ Failure Assessment)8 or SIC (Sepsis induced coagulopathy) [12] score have been used in clinical situations to guide management of COVID-19 patients. Furthermore, whilst a number of haematological, biochemical and radiological characteristics have also been associated with adverse prognosis [8,13], there is currently no easy-to-use prognostic risk score to calculate 30-day mortality in patients admitted to hospital with COVID-19.

In our study we have seen that The majority of the patients were in the age group of 61-70   were 28% , followed by

51-60 were 24%, 71-80 were 22%, 41-50 were 14% , 30-40 & >80 were 6%.

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From above Graph 1 it is clear that survival rate for the Score 0, 2 was almost 100% and as the score increases i.e. 3,4,5,6 there survival percentage also decrease approximately to 25 %, 5% and 0%,0% respectively.

This was similar to Ying **X.Gue et al** [14] they found The score was highly predictive of 30-day mortality with an area under the receiver operating curve of 0.7933 (95% CI 0.745–0.841). The optimal cut-point was a score ≥ 4, which had a specifcity of 78.36% and a sensitivity of 67.59%. Patients with a score ≥ 4 had an odds ratio of 7.6 for 30-day mortality compared to those with a score< 4 (95% CI 4.56–12.49, p< 0.001).

CONCLUSION :
It can be concluded from our study that there was significantly higher coreltaion between the Prognostic score and mortality of the patients hence this score could be reliable tool for the assessment of the severe patients and prompt and aggressive treatment for the better outcome

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