COMPARATIVE STUDY OF PNEUMONIA SEVERITY INDEX AND CURB65 IN ASSESING THE SEVERITY OF COMMUNITY ACQUIRED PNEUMONIA

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ABSTRACT: Pneumonia is one of the leading causes of death and morbidity, both in developing and developed countries and is the commonest cause of hospitalization in adults and children. In the assessment and management of Community Acquired Pneumonia [CAP], disease assessment is crucial, guiding therapeutic options. Knowledge of relevant prognostic factors might be useful for early identification of patients at high risk requiring intensive care treatment. **AIMS AND OBJECTIVES**: To study and compare Pneumonia Severity Index and CURB-65 in assessing the severity of Community Acquired Pneumonia. **MATERIALS AND METHODS:** 60 cases of Community Acquired Pneumonia admitted in the Department of General Medicine, Victoria hospital and Bowring and Lady Curzon hospital, BMCRI, Bangalore between the periods of October 2010 to September 2012 were included in the study. All the patients are assessed using Pneumonia Severity Index scoring and CURB65 scoring. **STATISTICAL METHODS**: Analysis of variance (ANOVA) has been used to find the significance of study parameters between three or more groups of patients, Chi-square/ Fisher Exact test has been used to find the significance of study parameters on categorical scale between two or more groups. **RESULTS AND CONCLUSIONS**: The comparison between mortality rates in different risk classes in our study and that of the previous studies showed that in all the studies mortality rates progressively increases with increasing risk scores in both PSI and CURB-65 risk classes.

The comparison of PSI and CURB-65 with respect to sensitivity, specificity and predictive values has good specificity and NPV but sensitivity and PPV are less impressive. Specificity of CURB-65 was found to be better than PSI probably because a major limitation of the PSI is the unbalanced impact of age on the score, resulting in a potential underestimation of severe CAP particularly in younger otherwise healthy individuals. In predicting ICU admission, both PSI and CURB65 has good specificity and in predicting ventilation, PSI has better sensitivity than CURB65.

By using the knowledge of these criteria, patients of CAP can be better prognosticated as regards severity of their illness with consequently better triaging of patients, utilisation of resources and appropriate treatment to improve the outcome in this disease

INTRODUCTION: Pneumonia is an acute inflammation of the pulmonary parenchyma that can be caused by various infective and non-infective origins, presenting with physical and radiological features compatible with pulmonary consolidation of a part or parts of one or both lungs.[1]

Community acquired pneumonia is an acute illness acquired in the community with symptoms suggestive of LRTI (lower respiratory tract infection), together with presence of a chest radiograph of intra pulmonary shadowing which is likely to be new and has no clear alternative cause. [1, 2]

Pneumonia is one of the leading causes of death and morbidity, both in developing and developed countries and is the commonest cause of hospitalization in adults and children.[3] It is estimated that India together with Bangladesh, Indonesia and Nepal account for 40% of global acute respiratory infection; 90% of mortality is due to pneumonia, mostly bacterial in origin.[4] Community Acquired Pneumonia is a common disease with an incidence of about 20%-30% in developing countries to an incidence of 3-4% in developed countries. In the assessment and management of Community Acquired Pneumonia [CAP], disease assessment is crucial, guiding therapeutic options. Knowledge of relevant prognostic factors might be useful for early identification of patients at high risk requiring intensive care treatment. Even though most of the burden in terms of mortality and morbidity occurs in the developing world, little studies have been done to know the factors associated with an adverse prognosis in CAP in this region. Little information is available from India regarding prognostic factors in patients with community acquired pneumonia [CAP].

PNEUMONIA SEVERITY INDEX: The PSI was originally developed as part of the Pneumonia Patient Outcomes Research Team (PORT) project, with the goal of deriving a clinically applicable prediction rule for short-term mortality among patients with CAP.[5] Pneumonia Severity Index consists of following parameters.

Demographics	Points Assigned
If Male	+Age (yr)
If Female	+Age (yr) – 10
Nursing home resident	+10
Comorbidity	
Neoplastic disease	+30
Liver disease	+20
Congestive heart failure	+10
Cerebrovascular disease	+10
Renal disease	+10
Physical Exam Findings	
Altered mental status	+20
Pulse ≥125/minute	+20
Respiratory rate >30/minute	+20
Systolic blood pressure <90 mm Hg	+15
Temperature <35°C or ≥40°C	+10
Lab and Radiographic Findings	
Arterial pH <7.35	+30
Blood urea nitrogen ≥30 mg/dl (9 mmol/liter)	+20
Sodium <130 mmol/liter	+20
Glucose ≥250 mg/dl (14 mmol/liter)	+10
Hematocrit <30%	+10
Partial pressure of arterial O2 <60mmHg	+10
Pleural effusion	+10

PSI Risk Stratification

Risk	Class	Score
Low	I	<51
Low	II	51 - 70
Low	III	71 - 90
Medium	IV	90 - 130
High	V	>130

CURB65

CURB-65, also known as the CURB criteria, is a clinical prediction rule that has been validated for predicting mortality in community-acquired pneumonia and infection of any site.

The CURB-65[5] is based on the earlier CURB score and is recommended by the British Thoracic Society for the assessment of severity of pneumonia.

The CURB65 score was developed based on a study of over 1000 prospectively studied patients with CAP from three countries: the UK, New Zealand and the Netherlands. The score is an acronym for each of the risk factors measured. Each risk factor scores one point, for a maximum score of 5:

- Confusion of new onset (defined as an Abbreviated Mental Test of 8 or less)
- Urea greater than 7 mmol/l (19 mg/dL)
- Respiratory rate of 30 breaths per minute or greater
- Blood pressure less than 90 mmHg systolic or diastolic blood pressure 60 mmHg or less
- Age 65 or older

2. AIMS AND OBJECTIVES

-To study and compare Pneumonia Severity Index and CURB-65 in assessing the severity of Community Acquired Pneumonia.

3. MATERIALS AND METHODS

SOURCE OF DATA

60 cases of Community Acquired Pneumonia admitted in the Department of General Medicine, Victoria hospital and Bowring and Lady Curzon hospital, BMCRI, Bangalore between the periods of October 2010 to September 2012 were included in the study.

Prior approval for the study and protocol was obtained from the Institution ethical committee.

After explaining the need of the investigations and the treatment options available, all the cases were included in the study. Informed written consent was obtained from responsible attendant before actual study was performed

INCLUSION CRITERIA:

1. Age more than 18yrs
2. Patients with clinical diagnosis of Pneumonia and chest radiograph consistent with diagnosis of Pneumonia.

EXCLUSION CRITERIA:

1. Patients known to be infected with HIV.
2. Chronically immunosuppressed patients (patients on steroids ,neutropenic patients, immunosuppressive agents)
3. Patients hospitalised within previous 14 days
4. Patients with alternate diagnosis during follow up.
5. Patients who are pregnant.

METHOD OF COLLECTION OF DATA:

Complete clinical history and physical examination of 60 patients were done. Patients with clinical and radiological diagnosis of CAP underwent following investigations.

- Complete blood count
- Chest radiograph
- ECG
- Arterial blood gas analysis
- RFT,LFT.
- Serum electrolytes.
- Sputum for Acid fast bacilli, gram staining and culture.
- Random blood sugar
- Throat swab for H1N1
- IgM, IgG Dengue test

All the patients are assessed using Pneumonia Severity Index scoring and CURB65 scoring. At the clinical end points, the following parameters are recorded:

1) Death
2) Need for admission to ICU
3) Need for mechanical ventilation
4) Duration of antibiotics
5) Time taken for defervescence
6) Condition at the time of discharge

STATISTICAL METHODS: Descriptive and inferential statistical analysis has been carried out in the present study. Results on continuous measurements are presented on Mean ± SD (Min-Max) and results on categorical measurements are presented in Number (%). Significance is assessed at 5 % level of significance. The following assumptions on data is made,

ASSUMPTIONS: 1. Dependent variables should be normally distributed, 2.Samples drawn from the population should be random, 3. Cases of the samples should be independent

Analysis of variance (ANOVA) has been used to find the significance of study parameters between three or more groups of patients, Chi-square/ Fisher Exact test has been used to find the significance of study parameters on categorical scale between two or more groups. Diagnostic statistics viz. Sensitivity, Specificity, PPV, NPV and Accuracy have been computed to find the correlation of PSI and CURB 65 for predicting the mortality.

Analysis of Variance (F test for K Population means), Chi square test and Fischer exact Test were used.

RESULTS:

Table 1 Age distribution of patients studied

Age in years	Number of patients	%
16-20	4	6.7
21-30	13	21.6
31-40	10	16.7
41-50	14	23.3
51-60	7	11.7
61-70	6	10.0
>70	6	10.0
Total	60	100.0

Table 2: Gender distribution of patients studied

Gender	Number of patients	%
Male	39	65.0
Female	21	35.0
Total	60	100.0

Table 3: Distribution of Duration of hospital stay (days) of patients studied

Duration of stay (days)	Number of patients	%
<7	23	38.3
7-14	35	58.4
>14	2	3.3
Total	60	100.0

Table 4: Distribution of need for ventilation of patients studied

Need for ventilation	Number of patients	%
No	27	45.0
Yes	33	55.0
Total	60	100.0

Table 5: Distribution of duration of ICU stay (days) of patients studied

Duration of ICU stay (days)	Number of patients (n=38)	%
<2 days	7	18.4
3-5 days	13	34.2
6-10 days	18	47.4
Total	38	100.0

Table 6: Distribution of duration of ventilation (days) of patients studied

Duration of ventilation (days)	Number of patients	%
<2 days	11	33.3
3-5 days	15	45.5
6-10 days	7	21.2
Total	33	100.0

Table 7: Distribution of duration of antibiotics (days) of patients studied

Duration of antibiotics(days)	Number of patients	%
<5	10	16.7
5-10	44	73.3
>10	6	10.0
Total	60	100.0

Table 8: Distribution of need for ICU of patients studied

Need for ICU	Number of patients	%
No	22	36.7
Yes	38	63.3
Total	60	100.0

Table 9: Distribution of time taken for defervescence (days) of patients studied

Defervesence (days)	Number of patients	%
<3	18	30.0
3-6	20	33.3
>6	22	36.7
Total	60	100.0

Table 10: Distribution of mortality of patients studied

Mortality	Number of patients	%
No	42	70.0
Yes	18	30.0
Total	60	100.0

Table 11: Distribution of co morbities of patients studied

Clinical manifestations	Number of patients(n=60)	%
Smoking	29	48.3
Diabetes	8	13.3
Hypertension	5	8.3
COPD	1	1.7
Other Co morbidities	7	11.7

Table 12: Distribution of symptoms of patients studied

Symptoms	Number of patients (n=60)	%
Cough	57	95.0
Purulent sputum	55	91.7
Breathlessness	52	86.7
Fever	50	83.3
Chest pain	10	16.7

Table 13: Distribution of vital statistics of patients studied

Vital statistics	Number of patients(n=60)	%
Temp>40		
• No	53	88.3
• Yes	7	11.7
Pulse rate>125		
• No	50	83.3
• Yes	10	16.7
Respiratory rate>30		
• No	21	35.0
• Yes	39	65.0

SBP mmHg<90		
• No	55	91.7
• Yes	5	8.3
DBP mmHg<60		
• No	56	93.3
• Yes	4	6.7

Table 14: Distribution of laboratory parameters of patient studied

	Number of patients (n=60)	**%**
Blood urea >60		
• No	42	70.0
• Yes	18	30.0
Sodium <130		
• No	45	75.0
• Yes	15	25.0
RBS >250		
• No	54	90.0
• Yes	6	10.0
HCT <30%		
• No	50	83.3
• Yes	10	16.7
PH<7.35		
• No	21	35.0
• Yes	39	65.0
PAO_2<60/SAO_2<90		
• No	16	26.7
• Yes	44	73.0
Pleural effusion		
• No	51	85.0
• Yes	9	15.0

Table 15: Distribution of PSI CLASS of patients studied

PSI CLASS	**Number of patients**	**%**
PSI Class1	1	1.7
PSI Class 2	6	10.0
PSI Class 3	10	16.7
PSI Class 4	29	48.3
PSI Class 5	14	23.3
Total	60	100.0

Table 16: Distribution of CURB 65score of patients studied

CURB65 score	Number of patients	%
CURB65 -0	2	3.3
CURB65 -1	29	48.3
CURB65 -2	23	38.3
CURB65 -3	3	6.0
CURB65 -4	3	5.0
CURB65 -5	-	-
Total	60	100.0

Table 17: Distribution of sputum culture of patients studied

Sputum culture	Number of patients	%
1.Normal commensal	31	51.7
2.Klebsiella	12	20.0
3.E coli	6	10.0
4.Swine flue- H1N1	5	8.3
5.MRSA	5	8.3
6.Candid SP	1	1.7
Total	60	100.0

Table 18: Correlation of clinical variables according to PSI class

Variables	PSI class					P value
	Class I (n=1)	Class II (n=6)	Class III (n=10)	Class IV (n=29)	Class V (n=14)	
Age in years	26.00	30.83±15.86	47.30±14.74	40.48±16.52	59.93±15.24	0.001*
Male	1(100.0%)	6(100.0%)	5(50.0%)	13(44.8%)	14(100.0%)	<0.001**
Female	0	0	5(50.0%)	16(55.2%)	0	
Mortality	0	1(16.7%)	4(40.0%)	7(24.1%)	6(42.9%)	0.619
Need for ICU admission	0	3(50.0%)	5(50.0%)	18(62.1%)	12(85.7%)	0.165
Need for Mechanical ventilation	0	1(16.7%)	3(30.0%)	17(58.6%)	12(85.7%)	0.007**
Duration of ICU in days	-	5.00±2.65	6.80±3.27	5.06±3.21	5.33±1.37	0.646
Duration of Mechanical	-	5.00±0.00	6.10±3.21	4.12±3.42	4.50±0.52	0.027*

ventilation						
Duration of hospital stay in days	9.00	11.67±4.63	8.60±1.71	9.17±3.04	8.71±3.04	0.137
Duration of antibiotics	8.00	9.17±1.17	9.30±1.70	8.10±2.02	8.14±3.05	0.159
Time taken for defervescene	5.00	6.67±1.37	5.50±3.65	4.17±3.22	5.71±3.29	0.098+

Table 19: Correlation of clinical variables according to CURB65

Variables	**CURB 65**					**P value**
	Class 0 (n=2)	**Class I (n=29)**	**Class II (n=23)**	**Class III (n=3)**	**Class IV (n=3)**	
Age in years	42.00± 0.0	38.59±14. 99	49.26±17. 00	42.33±28. 29	78.00±3.4 6	0.002**
Male	0	17(58.6%)	16(69.6%)	3(100.0%)	3(100.0%)	0.146
Female	2(100.0 %)	12(41.3%)	7(30.4%)	0	0	
Mortality	0	8(27.6%)	8(34.8%)	0	2(66.7%)	0.443
Need for ICU admission	0	18(62.1%)	14(60.9%)	3(100.0%)	3(100.0%)	0.182
Need for Mechanical ventilation	0	13(44.8%)	14(60.9%)	3(100.0%)	3(100.0%)	0.055+
Duration of ICU in days	-	4.94±3.09	4.86±1.70	9.67±0.58	6.00±0.00	0.024*
Duration of Mechanical ventilation	-	2.21±1.67	5.38±1.08	8.33±2.89	4.00±0.00	<0.001* *
Duration of hospital stay in days	12.00± 0.00	9.58±2.82	7.52±3.46	10.33±0.5 8	11.00±0.0 0	0.040*
Duration of antibiotics	10.00± 0.00	8.58±1.70	7.00±2.66	10.33±0.5 7	10.00±0.0 0	0.007**
Time taken for defervescene	7.00±0. 00	5.17±2.79	2.30±3.36	7.00±1.73	7.00±0.00	0.002**

Table 20: Sensitivity, Specificity, PPV, NPV and accuracy of PSI for predicting Mortality

PSI class	Sensitivity	Specificity	PPV	NPV	Accuracy
Class I	0.00	97.62	0.00	69.49	68.33
Class II	5.50	88.10	16.67	68.52	63.33
Class III	22.22	85.71	40.00	72.00	66.67
Class IV	38.89	47.62	24.14	64.52	45.00
Class V	33.33	80.95	42.86	73.91	66.67

Table 21: Sensitivity, Specificity, PPV, NPV and accuracy of CURB 65 for predicting Mortality

CURB 65	Sensitivity	Specificity	PPV	NPV	Accuracy
Class 0	0.00	92.86	0.00	68.42	65.00
Class I	44.44	84.00	66.67	67.74	67.44
Class II	44.44	61.54	34.78	70.59	56.14
Class III	0.00	92.86	0.00	68.42	65.00
Class IV	11.11	97.62	66.67	71.93	71.67

Table 22: Sensitivity, Specificity, PPV, NPV and accuracy of PSI and CURB65 for Need for admission to ICU, Need for ventilation, and Mortality

	Highest Class	Sensitivity	Specificity	AUROC	P value
Need for ICU					
• PSI class	>4.0	31.58	90.91	0.661	0.026*
• CURB 65	>2.0	15.79	100.00	0.612	0.128
Need for Ventilation					
• PSI class	>3.0	87.88	48.15	0.749	0.001**
• CURB 65	>1.0	60.61	66.67	0.681	0.008**
Mortality					
• PSI class	>4.0	33.33	80.35	0.567	0.418
• CURB 65	>1.0	55.56	54.76	0.565	0.432

Table 23: Spearman correlation between PSI and CURB 65 with duration of hospital stay, duration of antibiotics and Time taken for defervescence

	Spearman correlation	P value
PSI vs duration of hospital stay	-0.208	0.110
PSI vs duration of antibiotics	-0.270	0.037*
PSI vsTime taken for defervescence	-0.356	0.005**
CURB 65 vs duration of hospital stay	-0.218	0.084+
CURB 65 vs duration of antibiotics	-0.187	0.417
CURB 65 vs Time taken for defervescence	-0.184	0.158

DISCUSSION: In our study group majority of patients were middle aged and aged <50years. In the study of Dey etal[6]& others they have found out that patients aged > 50 years are more as compared to less than 50 years. It is well documented that pneumonia is commonly occurring disease in the community & its incidence rises sharply with extremes of age. In our study 31.7% patients were above 50 yrs and 69.3% patients were below 50 yrs, in study done by Dey etal[6]59% patients were above 50yrs and40% were below 50yrs.

In our study, there were 39 (69%) male patients and 21 (31%) female patients. In a study done by Metley etal[7] 80% were males and 20% were females. In a study done by Shah BA etal[8] (n=150), 89 (59.3%) were males. It was observed that majority of them were males compared to females. This could be attributed to the well-established fact that cigarette smoking and alcoholism, as well as underlying lung disease e.g. COPD predispose to pneumonia and are more common in developing country like India. In this study group majority of male patients are exposed to one or more of the above-mentioned predisposing factors.

In our study among 60 patients, 29 (48.3%) were smokers, 8 (13.3%) were diabetic, 5 (8.3%) had hypertension and one (1.7%) had COPD. 50 (83.3%) patients had one or other co morbidity. In a study done by Shah BA etal[8]eighty-nine patients (59.3%) were smokers of which 74 (83.2%) were males. Eighty-nine patients had one or more co-morbidities. The most common co morbidity was hypertension, followed by diabetes mellitus and chronic obstructive pulmonary disease (COPD).

In our study among the presenting symptoms, 57 (95%) patients had cough and in that 55 (91.7%) had purulent sputum. 52 (86.7%) patients had breathlessness, 50 (83.3%) patients had fever and 10 (16.7%) patients had pleuritic chest pain. In Mac Fartane[9] study of aetiology & outcome of CAP, cough was the most frequent symptom. The other symptoms were fever 86%, chest pain 62% and haemoptysis 15%.

In our study among 60 study population majority of them had total count >11000, which is about 41 patients (68.4%). Only 2 patients had total count <4000. In a study done by Joshua and Michael etal 58% patients had leucocytosis.

In our study it is found that 31 patients had sputum culture of normal commensal and 12 patients had Klebsiella pneumonia being more common pathogen on culture accounting for 20%.Next common is E coli, which accounts for 10%. MRSA and other constituted about 18.3%.

In the study done by Sanraj K. Basi[10] found that streptococcal was about 73% and Staphylococcal 32%.

In our study PSI class V has an average age of 59.93±15.24 yrs with a significant p value. In PSI class I have average age of 26yrs. Among 14 patients of PSI class V all were males and 16 females were in PSI class IV. CURB65 class IV has an average age of 78.00±3.46yrs with a significant p value. In CURB65 class I have average age of 38.59±14.99yrs. Among 3 patients of CURB65 class IV all were males and 12 females were in CURB65 class I.

In our study 18 patients died, 7(24.1%) were in PSI class IV and 6 (42.9%) were in PSI class V and no patients in PSI class 1 died. In 18 mortality patients 8 (34.8%) were in CURB65 class II and only 2 (66.7%) were in class IV and no patients in CURB65 class 0 died. In a study done by Shah BA[8] etal sixteen patients (10.7%) died. All the16 patients (100%) who died were in PSI class >IV. Mortality in PSI class I to III was 0%; in class IV, 14.1% and Class V, 34.8% and in CURB65, class III 2 (12.5%) patients died, class IV 11 (68.7%) patients and class V 3 (18.8%) patients died.

In our study PSI class IV has sensitivity of 38.89 in predicting mortality and class I has specificity of 97.62. PSI class V has sensitivity of 33.33% and specificity of 80.95 in predicting mortality. PSI class V has positive predictive value of 42.86 and negative predictive value of 73.91. CURB65 class IV has sensitivity of 11.11 in predicting mortality and class IV has specificity of 97.62. CURB65 class IV has positive predictive value of 66.67 and negative predictive value of 71.93. The comparison of PSI and CURB-65 with respect to sensitivity, specificity and predictive values has good specificity and NPV but sensitivity and PPV are less impressive. Specificity of CURB-65 was found to be better than PSI probably because a major limitation of the PSI is the unbalanced impact of age on the score, resulting in a potential underestimation of severe CAP particularly in younger otherwise healthy individuals.

In the study done by Shah BA etal[8]Sensitivity and specificity for PSI risk class >IV to predict death was 100% and 52.2% and PPV and NPV were 20% and 100%, respectively and class V had sensitivity of 50%, specificity of 88.8%, NPV of 93.7% and PPV of 34.8%. CURB65 class V had sensitivity of 18.8%, specificity of 97.8%, PPV of 50%, NPV of 91%.

In our study 18 (62.1%) patients in PSI class IV required ICU, 12 (85.7%) in PSI class V and no patients in PSI class I required ICU. In predicting need for ICU PSI class > 4 has sensitivity of 31.58 and specificity of 90.91 with a significant p value. 18 (62.1%) patients in CURB65 class I required ICU, all 3 (100%) patients in CURB65 class IV and no patients in class 0 required ICU. CURB65 >2 has sensitivity of 15.79 and specificity of 100. CURB65>2 has more specificity in predicting ICU admission. These results are comparable to those obtained by Shah BA etal[7]. In the study done by Shah BA etal[8] 18 (51.4%) patients in PSI class IV required ICU and 17 (48.6%) patients required ICU and sensitivity of PSI class V to predict ICU is 48.6%, specificity 94.8%, PPV 73.9%, NPV 85.8%. CURB65 class V has sensitivity of 17.1% and specificity of 100% in predicting ICU admission.

In our study, among those patients who required ventilation 17 (58.6%) patients belonged to PSI class IV and 12(85.7%) patients in PSI class V with a significant p value. PSI class>3 has sensitivity of 87.88 and specificity of 48.15 in predicting ventilation with a significant p value. Among those patients who required ventilation 13 (44.8%) patients belonged to CURB65 class I and 12 (60.9%) in CURB65 class II. CURB65 >2 has sensitivity of 60.61 and specificity of 66.67 with a significant p value. PSI>3 has better sensitivity in predicting ventilator requirement.

In study done by Chalmers JD etal[11] which is a systemic review and meta-analysis study involving 40 studies found that in PSI V predicted mortality was 27% and observed was 28.2% without a significant p value and CURB65B predicted mortality was 22.6% and observed was 22.3% without a significant p value. In this study PSI class V had sensitivity of 63.2% and specificity of 83.6%, CURB65 class>4 have sensitivity of 29% and specificity of 95.3% in predicting mortality. There were no significant differences in the AUC between PSI,CURB65 and CRB65 in the main analysis (PSI vs CURB65,p=0.1, PSI vs CRB65, p=0.09, CURB65 vs CRB65, p=0.5) or in any of the extensive sub analyses. PSI had a superior negative likelihood ratio and identified a higher proportion of patients as low risk compared with CURB65 and CRB65. The high risk groups of CURB65 and CRB65 had a higher positive likelihood ratio. This systematic review and meta-analysis found no difference in overall test performance between the PSI, CURB65 of CRB65 for predicting mortality in CAP.

In a study done by Ananda-Rajah MR etal[12] retrospectively reviewed the records of all patients admitted to the institution with confirmed community acquired pneumonia (CAP) for the 12 months from January 2002. 408 episodes were studied with an overall 30-d mortality of 15.4% and ICU admission of 10.5%. PSI classes IV/V were significantly better than CURB-65 score≥3 for predicting patients who died within 30 d (94% vs 62%; p<0.001), and those that needed ICU (86% vs 61%; p=0.01). In addition, for the patients identified as 'low risk' by PSI (classes I/II), there was only 1 death and 1 admission to an ICU compared to 8 deaths and 7 ICU admissions with CURB-65 scores of 0-1. Although easier to use, CURB-65 is neither sensitive nor specific for predicting mortality in CAP patients. Neither rule was sufficiently accurate for predicting need for an ICU, even when patients with 'not for resuscitation' orders were excluded.

CONCLUSION:

1. The comparison between mortality rates in different risk classes in our study and that of the previous studies showed that in all the studies mortality rates progressively increases with increasing risk scores in both PSI and CURB-65 risk classes.
2. The comparison of PSI and CURB-65 with respect to sensitivity, specificity and predictive values has good specificity and NPV but sensitivity and PPV are less impressive. Specificity of CURB-65 was found to be better than PSI probably because a major limitation of the PSI is the unbalanced impact of age on the score, resulting in a potential underestimation of severe CAP particularly in younger otherwise healthy individuals.
3. In predicting ICU admission, both PSI and CURB65 has good specificity and in predicting ventilation PSI has better sensitivity than CURB65.
4. There is significant correlation between PSI and duration of antibiotics and defervescence time.
5. The two scoring CURB-65 and PSI approaches are viewed as being complementary, as each has different strengths and weaknesses.
6. By using the knowledge of these criteria, patients of CAP can be better prognosticated as regards severity of their illness with consequently better triaging of patients, utilisation of resources and appropriate treatment to improve the outcome in this disease

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