Assessment Severity of Community Acquired Pneumonia By Curb-65

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Summary:

Background: Community acquired pneumonia is the most frequent infection-related cause of death. Illness severity might usefully guide a number of management decisions and predict mortality. Confusion, blood urea ,respiratory rate ,blood pressure and age 65 years or older (CURB-65) based largely on clinical assessment.

Objective: To evaluate the efficacy of CURB-65 score in assessment severity of community-acquired pneumonia and to predict mortality.

Patients and Methods: Fifty patients were enrolled in this prospective study between 1st. of March 2007 and 31st. of January 2008, recruited at Baghdad Teaching Hospital diagnosed as community acquired pneumonia depending on having lower respiratory tract infection symptoms , signs and new infiltrate on the chest radiograph.CURB-65 scoring system was applied and the patients were divided into three groups low risk[CURB-65= (0-1)], intermediate risk [CURB-65= (2)], and high risk [CURB-65= (3-5)] groups . The low risk group was managed at home with oral antibiotics, the intermediate and high risk groups were managed at hospital with intravenous antibiotics. The 30-day mortalities were established.

Results: There were 27(54%) females and 23 (46%) males at a median age of 68 year range from(15-90) year Thirty three patients (66%) had their age 65or older, 26 patients (52%) had B.U>7mmol/l, 11patients (22%) had R.R> 30/minute, 3 patients (6%) had systolic B.P<90 mm Hg, 11patients(22%) had diastolic B.P<60 mm Hg **and** 14 patients (28%) had confusion. Twenty patients (40%) were in the low risk group (CURB-65=0-1), 12 patients (24%) were in the intermediate risk group (CURB-65=2) and 18 patients (36%) were in the high risk group (CURB-65=3-5). The 30 day mortalities were (0%) in the low risk group, (16.5%) in the intermediate risk group and (30%) in the high risk.
The overall mortality was 8 (16%) patients.

Conclusion: CURB-65 effectively stratified patients regarding the site of medical care, type . route of administration of treatment and predicted mortality.

Keywords: Community Acquired Pneumonia.CURB- 65

Introduction:

Community-acquired pneumonia (CAP) is a disease in which individuals who have not recently been hospitalized develop an infection of the lung.CAP is associated with significant morbidity, mortality and utilization of health service resources affecting about 1/1000 of the adult population per year (1). Streptococcus is the most common bacterial cause of CAP, Other causes include Haemophilus influenzae, Legionella, mycoplasma, chlamydia, viruses , fungii and parasites(2) CAP occurs most commonly in very young and very old people (3) . The reference standard to diagnose CAP is a new infiltrate on chest radiograph in the presence of recently acquired respiratory symptoms and signs (4, 5). CURB-65 is a clinical prediction rule that has been used toassesse severity and predicts mortality in CAP.

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The CURB-65 is based on the earlier CURB score proposed by the British Thoracic Society and modified by Neill *et al* (6) which relies on four easily measurable clinical features. A number of studies over the last 2 years have studied the value of this score in different healthcare settings (7). The score is an acronym for each of the risk factors measured, each risk factor scores one point, for a maximum score of 5:
1. Confusion (defined as a mental test score of 8 or less.
2. Urea greater than 7 mmol/l.
3. Respiratory rate of 30 breaths per minute or more.
4. Blood pressure less than 90 systolic or diastolic blood pressures 60 or less.
5. Age 65 or older.
Patients with a CURB-65 score of 3 or more are at high risk of death and should be managed as having severe pneumonia, those with a score of 2 are at some increased of risk of death and should be considered for short stay inpatient treatment or supervised outpatient

treatment, and those with a score of 0 or 1 are at low risk of death and may be suitable for home treatment (8).

Patients and Methods:

Fifty patients (27 females and 23 males) at a median age of 68 year range from(15-90) year , males (46%) and females (54%) with a median age of (68) year were enrolled to this prospective study from 1st. of March 2007 to 31st. of January 2008 at Baghdad Teaching Hospital diagnosed as CAP depending on having lower respiratory tract infection symptoms(fever, cough, dyspnoea and pleural pain) signs of bronchial breathing,, crackles and new infiltrate on the chest radiograph.. Patients were excluded from the study if they had one or more of the following features: A non-pneumonia diagnosis of respiratory tract infection. , aspiration, hypostatic or hospital-acquired pneumonia. The initial diagnosis of CAP was changed before discharge from the hospital ,,immunocompromised patients. malignancy, chronic respiratory disease, age<12 year ,patients whom their radiological features did not improved during the30 day period of follow up and cases of pulmonary tuberculosis. CURB -65 scoring system was applied and the patients were divided into three groups (low, intermediate and high risk groups). The low risk group was managed at home with oral antibiotics, the intermediate and high risk groups were managed at hospital with intravenous antibiotics. The patients were reviewed daily until discharge from the hospital or death. The 30-day mortalities were established, deaths after discharge or in outpatient group were
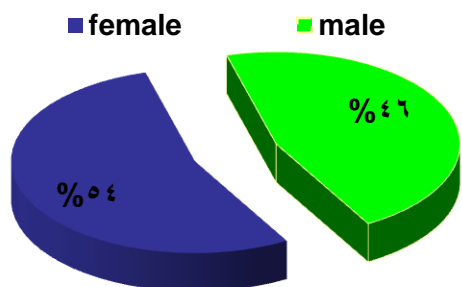
established by follow up in the outpatient clinic and contact with patients by cell phone.

Results:

There were 27(54%) females and 23 (46%) males as in figure1 at a median age of 68 year range from(15-90) year Thirty three patients (66%) had their age 65or older, 26 patients (52%) had B.U>7mmol/l, 11patients (22%) had R.R> 30/minute, 3 patients (6%) had systolic B.P<90 mm Hg, 11patients(22%) had diastolic B.P<60 mm Hg **and** 14 patients (28%) had confusion as in table (1). Nine patients (18%) had score (0), 11 patients (22%) had score (1), 12 patients (24%) had score (2), 11 patients (22%) had score (3), 5 patients (10%) had score (4) and 2 patients (4%) had score (5) as in table (2). Twenty patients (40%) in the low risk group (CURB-65=0-1) treated at home with oral antibiotics and followed up at outpatient clinic , 12 patients (24%) in the intermediate risk group (CURB-65=2) treated at hospital with short course I.V then oral antibiotics and 18 patients (36%) in the high risk group (CURB-65=3-5) treated at hospital with I.V antibiotics with close monitoring and 3 patients admitted to the Respirotary Care Unit(RCU) (table 3 and table 4). The 30 day mortalities were (0%) in the low risk group, (16.5%) in the intermediate risk group and (30%) in the high risk group as in table (5). The 30 day mortality regarding each CURB-65 score : 0 patient (0%) were in scores(0 and 1), 2 patients (16%) were in score(2), 3 patients (27%) were in score(3), 2 patients (40%) were in score(4) and 1 patient (50%) was in score(5) as in table (6). The overall mortality was (16%).

Figure 1: Distribution of patients according to their gender

Table1: Distribution of Studied sample regarding their criteria.

CURB65 criteria	Number of patients (%) n =50
Confusion	14 (28%)
B.U >7mmol/l	26 (25%)
R.R > 30/minute	11 (22%)
Systolic B.P<90 mmHg	3 (6%)
Diastolic B.P<60 mmHg	11 (22%)
Age >65	33 (66%)

Table2: Distribution of Patients according to CURB65 Score.

CURB65 score	Number of patients (%)
0	9 (18%)
1	11 (22%)
2	12 (24%)
3	11 (22%)
4	5 (10%)
5	2 (4%)
Total	50 (100%)

Table3: Distribution of Patients in to the three CURB65 risk groups.

CURB65 score	Risk group	Number of patients (%)
(0 - 1)	Low risk	20 (40%)
(2)	Intermediate risk	12 (24%)
(3 - 5)	High risk	18 (36%)

Table4: The management guidelines according to severity.

CURB65 score	Number of patients	Management guideline
(0 - 1)	20	Treated at home with oral antibiotics.
(2)	12	Treated at hospital with short course I.V then oral antibiotics.
(3 – 5)	18	Treated at hospital with I.V antibiotics with close monitoring and 3 patients admitted to the RCU.

Table5: The 30 day mortality according to risk group.

CURB65 score	Number of patients	30-day mortality. (%)
(0 - 1)	20	(0%)
(2)	12	2 (16.5%)
(3 – 5)	18	6 (30%)

Table-6 the 30 day mortality regarding each CURB65 score.

CURB65 score	Number of patients	30-day mortality*. (%)
0	9	0 (0 %)
1	11	0 (0%)
2	12	2 (16.5%)
3	11	3 (27%)
4	5	2 (40%)
5	2	1 (50%)

*The over mortality 8/50 (16%).

Discussion:

In our study the female to male ratio was (1.2:1) and this is similar to Barlow, Nathwani et al   (9) who found it (1.1:1) and this probably reflects the sex distribution in our population.In this study there were 33 (66%) patients at age ≥ 65 which was comparable to Lim et al (10) study at Netherlands which was (62%), this differences probably reflects the age distribution in communities studied ,In our study (28%) of patients had confusion ,in Barlow et al (11) study it was (32%) of patients had it, this probably a reflection of the differences in median age studied sample (68 year in our study and 74year in Barlow et al   as the last study included a wider range of ages than our study did. In this study (25%) of patients had B.U>7mol/l. this is comparable to Aujesky D et al study (12) which was (27 %) ,In our study (22%) of patients had R.R>30/minute this is comparable to Aujesky D et al study (12) which was (21%) ,In our study (6%) of patients had systolic B.P<90mmHg and (22%) of patients had diastolic B.P<60mmHg which was similar to the results of Lim et al study (10) which were (6%) and (21%) respectively. Barlow et al (11) found that (35%) of patients were in the low risk group which was higher than our study(24%)   and this is probably because many of our patients were partially treated at health care centers and outpatient clinics before they were presented to us. In our study (36%) of patients were in the high risk group this is comparable to Lim et al (10) who found it (35%). Lim et al (10) found that (4%) mortality in the low risk group which is higher than our study (0%) this is probably because of the small number of patients in our study and the difficulties of follow up. Lim et al ⁽10) found that (33%) mortality in CURB65 score 5 (which is 50% in our study), this is probably because of the better facilities in respirotary care unit in which their patients had received .

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