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In-Hospital Mortality of Acute Coronary Syndrome in Patients over 70 Years Compared to Younger than 70

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Abstract

Background: Aging is an important risk factor for Cardiovascular Disease (CVD) and mortality among these patients. The scoring systems can be used to predict the risk of severity and the length of hospital stay. This stratification can, in turn, save the limited healthcare resources and improve the patient's prognosis.

Aims: To assess the outcomes in patients 70 years of age admitted to the Cardiac Intensive Care Unit (CICU) and test the predictive value of severity of illness scoring systems as a function of age.

Methods: Retrospective study that included patients who had acute coronary syndrome between 2018-2022 in a tertiary hospital in Riyadh, Saudi Arabia. Patients were divided by their age to either 70 years old or less than 70 years old. Multiple scores were used to assess the outcomes.

Results: The study's cohort included 863 patients, 507 (58.75%) aged less than 70 years and 356 (41.25%) aged 70 years or more, with a median age of 58 for the younger and 77 for the older groups. Patient's clinical characteristics showed 44.77% of younger age group patients presented with STMI, compared to only 21.63% of the elderly patients. In contrast to NSTEMI, NSTEMI affected 12.03% of the younger patients and 19.38% of the older ones. Hypertension, diabetes, dyslipidemia, chronic kidney disease, CVA, and cancer were all more common among elderly patients. 83.43% of older and 53.65% of younger patients had hypertension. The intervention showed that 48.13% of patients aged<70 years underwent PPCI, compared to 32.58% of the elderly ones.

Conclusion: The present study showed that patients aged>70 years have higher APACHE II scores and an increased risk of mortality as compared to patients less than 70 years of age. Age is thus an important predictor of the severity of illness, and mortality tends to vary as a function of age.

Keywords: Acute coronary syndrome; Mortality; Cardiovascular disease; Hypertension; Diabetes; Dyslipidemia

Introduction

Cardiovascular Disease (CVD), including heart and vascular diseases, has become the number one cause of mortality, leading to around one-third of deaths worldwide, according to the World Health Organization (WHO). This creates an increasing burden for high-load departments, especially Cardiovascular Intensive Care Units (CICUs), which provide specialized systemic management for patients with severe CVD. Cardiac operations currently represent 1–2% of USA healthcare costs [1].

Increasing age is an established risk factor for CVD, with a report from the USA showing the greatest CVD incidence among persons 60–80 years old. Thus, as the population ages, the burden of CVD treatment will continue to increase. 25% of the Saudi population is expected to be 60 years of age by 2050. Moreover, this age group is characterized by more common multimorbidities that make CVD diagnosis and management even more challenging, which will further increase the economic burden on CICUs [2].

One of the most important means of decreasing cost is the use of severity scales, *i.e.,* tools that assign scores for disease severity and utilize a probability model to predict patient mortality risk and, sometimes, the length of ICU stay. However, while using a severity scale can help in making clinical decisions, misapplication can waste time and effort and increase costs. For example, APACHE is one of the most accurate severity scoring systems, but it requires a large input of variables, making its use burdensome and costly. Based on the severity score, a patient will be referred to more or less expensive settings; therefore, it is critical that the severity scales are accurate and can correctly describe the population. Jentzer, et al. found that severity of illness scores used in the CICU are less accurate regarding predicting mortality in patients of 70 years old. In the present study, we aimed to test the hypothesis that when using these scoring systems in the CICU, the predictive value will decrease among patients of 70 years of age. The following study assesses the outcomes in patients 70 years of age admitted to CICU and tests the hypothesis that the predictive value of severity of illness scoring systems and the Braden skin score for mortality would vary as a function of age [3].

Materials and Methods

Trained medical students supervised by the principal investigator abstracted data from the electronic charts of all cases. Electronic best-care chart abstractions by the students were reviewed by the principal investigator for accuracy. Data on demographics information (age, weight, height and sex, ethnicity), medical condition (prior myocardial infarction, prior heart failure, prior stroke, prior chronic kidney disease, prior diabetes mellitus, prior cancer, prior lung disease, prior dialysis, atrial fibrillation, cardiogenic shock, hypertension, diabetes mellitus, acute coronary syndrome, coronary artery disease, heart failure, cardiomyopathy, cardiac arrest, sepsis, severe acute kidney injury), procedures (invasive ventilator use, noninvasive ventilator use, new dialysis start, CRRT, inpatient coronary angiography, inpatient PCI, central line in CICU, arterial line in CICU, IABP in CICU, transfusion in CICU), and therapies administered during the CICU (vasoactive drug use) and hospital stay (source of admission, length of stay in CICU, length of stay in hospital, discharge home, discharge to nursing facility) were collected. APACHE-III scores, APACHE-IV predicted mortality, SOFA scores, and OASIS were calculated automatically using data from the first 24 hours of ICU admission, with missing data imputed as normal. Charlson Comorbidity Index (CCI) was calculated electronically, as previously described. Delirium during the CICU stay was assessed by nursing staff based on the confusion assessment method for the ICU, as was the braden skin score (Braden scale) on CICU admission. Hospital discharge ICD-9 codes were reviewed. Data were entered in MS Excel to conduct data checking, proofing, and cleaning. SPSS 22 was used for data analysis and processing [4].

Results

This study included 863 patients, 507 (58.75%) aged less than 70 years and 356 (41.25%) aged 70 years or more (Table 1). The median age of the younger age group was 58 (50, 63) years, and the median age of the older age group was 77 (73, 83) years. The percentage of males was significantly higher in the younger age group (73.96% *vs.* 64.61%; p=0.003). Saudi patients constituted about two-thirds (66.27%) of the younger age group and the vast majority of the older group (91.57%; p<0.001). BMI was comparable among both age groups (28.39 (24.55, 33.24) *vs.* 28.25 (24.87, 31.78); p=0.6)). Most cases were referred to the ICU from the emergency room (73.37% *vs.* 62.08%). Other sources of admission are demonstrated in Table 1. The younger patients had a significantly shorter length of stay before admission (0.27 (± 1.55) years *vs.* 0.55 (± 2.04) years; p=0.007) as well as after ICU admission (7 (4, 17) days *vs.* 11 (5, 22) days; p<0.001). Both groups were comparable regarding frequency of readmission within the study period (5.92% *vs.* 7.87%; p=0.3) [5].

Table 1: Baseline and admission characteristics.

Characteristic	**<70 yrs., N=507[1]**	**≥ 70 yrs, N=356[1]**	**p-value[2]**
Age (years)	58.00 (50.00, 63.00)	77.00 (73.00, 83.00)	
Gender			0.003
Male	375.00 (73.96%)	230.00 (64.61%)	
Female	132.00 (26.04%)	126.00 (35.39%)	
Nationality			<0.001
Saudi	336.00 (66.27%)	326.00 (91.57%)	
Non-Saudi	171.00 (33.73%)	30.00 (8.43%)	
BMI	28.39 (24.55, 33.24)	28.25 (24.87, 31.78)	0.6
Source of admission			0.012
Emergency room	372.00 (73.37%)	221.00 (62.08%)	
Another hospital/clinic	72.00 (14.20%)	72.00 (20.22%)	
Wards	35.00 (6.90%)	38.00 (10.67%)	

Cardiac catheter lab	18.00 (3.55%)	14.00 (3.93%)	
Home	5.00 (0.99%)	8.00 (2.25%)	
Outpatient clinic	3.00 (0.59%)	2.00 (0.56%)	
Cardiac surgery department	1.00 (0.20%)	0.00 (0.00%)	
Cardiac clinic	1.00 (0.20%)	0.00 (0.00%)	
main hospital	0.00 (0.00%)	1.00 (0.28%)	
Length of stay before ICU admission (days)			0.007
Mean (± SD)	0.27 (± 1.55)	0.55 (± 2.04)	
Median (IQR)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	
Length of stay at ICU (days)	7.00 (4.00, 17.00)	11.00 (5.00, 22.00)	<0.001
Readmission	30.00 (5.92%)	28.00 (7.87%)	0.3
Note: [1]Median (IQR); mean (± SD); n (%); [2]Wilcoxon rank sum test; Pearson's *Chi-squared* test; Fisher's exact test.			

Patients' clinical characteristics are demonstrated in Table 2. 44.77% of younger age group patients presented with STMI, compared to only 21.63% of the elderly patients (p<0.001). On the contrary, NSTMI affected 12.03% of the younger patients and 19.38% of the older ones (p=0.003). Other acute presentations were far less common, including unstable angina (4.73% *vs.* 7.87%), atrial fibrillation (6.51% *vs.* 7.87%), cardiogenic shock (5.52% *vs.* 4.49%), cardiac arrest (3.16% *vs.* 5.34%), heart block (0.99 *vs.* 3.93%; p=0.004), infective endocarditis (0.79% *vs.* 0.56%), pericardial effusion (1.18% *vs.* 0.28%), pulmonary edema (0.59% *vs.* 2.53%; p=0.034), and pneumonia (0.99% *vs.* 1.69%). Coronary artery disease affected 20.91% of the younger group and 35.11% of the older one (p<0.001). Heart failure affected 18.35% of the younger and 26.4% of the older patients (p=0.005). Valvular heart disease also prevailed more in the older patients (12.08%) compared to the younger ones (4.54%; p<0.001). Both groups were comparable regarding the prevalence of cardiomyopathy (6.71%*vs.* 5.06%; p=0.3) and previous myocardial infarction (5.52% *vs.* 6.18%; p=0.7) [6].

Table 2: Clinical presentation and intervention characteristics.

Characteristic	<70 yrs, N=507[1]	≥ 70 yrs, N=356[1]	p-value[2]
Acute presentation			
ST elevation myocardial infarction	227.00 (44.77%)	77.00 (21.63%)	<0.001
Non-ST elevation myocardial infarction	61.00 (12.03%)	69.00 (19.38%)	0.003
Unstable angina	24.00 (4.73%)	28.00 (7.87%)	0.057
Atrial fibrillation	33.00 (6.51%)	28.00 (7.87%)	0.4
Cardiogenic shock	28.00 (5.52%)	16.00 (4.49%)	0.5
Cardiac arrest	16.00 (3.16%)	19.00 (5.34%)	0.11
Heart block	5.00 (0.99%)	14.00 (3.93%)	0.004
Infective endocarditis	4.00 (0.79%)	2.00 (0.56%)	>0.9

Pericardial effusion	6.00 (1.18%)	1.00 (0.28%)	0.2
Pulmonary edema	3.00 (0.59%)	9.00 (2.53%)	0.034
Pneumonia	5.00 (0.99%)	6.00 (1.69%)	0.4
Others	49.00 (9.66%)	28.00 (7.87%)	0.4
Cardiac morbidity			
Coronary artery disease	106.00 (20.91%)	125.00 (35.11%)	<0.001
Heart failure	93.00 (18.34%)	94.00 (26.40%)	0.005
Valvular heart disease	23.00 (4.54%)	43.00 (12.08%)	<0.001
Cardiomyopathy	34.00 (6.71%)	18.00 (5.06%)	0.3
Previous Myocardial infarction	28.00 (5.52%)	22.00 (6.18%)	0.7
Other comorbidities			
Hypertension	272.00 (53.65%)	297.00 (83.43%)	<0.001
Diabetes mellitus	272.00 (53.65%)	273.00 (76.69%)	<0.001
Dyslipidemia	153.00 (30.18%)	182.00 (51.12%)	<0.001
Acute kidney injury	22.00 (4.34%)	14.00 (3.93%)	0.8
Chronic kidney disease	52.00 (10.26%)	99.00 (27.81%)	<0.001
Cirrhosis	5.00 (0.99%)	4.00 (1.12%)	>0.9
Previous cerebrovascular accident	20.00 (3.94%)	36.00 (10.11%)	<0.001
Lung disease	41.00 (8.09%)	34.00 (9.55%)	0.5
Cancer	6.00 (1.18%)	14.00 (3.93%)	0.008
Sepsis	19.00 (3.75%)	7.00 (1.97%)	0.13
Intervention			
PPCI	244.00 (48.13%)	116.00 (32.58%)	<0.001
CABG	44.00 (8.68%)	26.00 (7.30%)	0.5
IABP	28.00 (5.52%)	24.00 (6.74%)	0.5
Percutaneous balloon valvuloplasty	3.00 (0.59%)	7.00 (1.97%)	0.1
Dialysis/CRRT	55.00 (10.85%)	71.00 (19.94%)	<0.001
Transfusion	1.00 (0.20%)	1.00 (0.28%)	>0.9
Neurosurgery	0.00 (0.00%)	1.00 (0.28%)	0.4
Note: [1]n (%);			

[2] Pearson's *Chi-squared* test; Fisher's exact test;
[3] CRRT: Continuous renal replacement therapy; PPCI: Primary Percutaneous Coronary Intervention; CABG: Coronary Artery Bypass Graft; IABP: Intra-Aortic Balloon Pump.

Hypertension was more common among elderly patients (83.43%) than younger ones (53.65%; p<0.001). They also had a higher prevalence of diabetes mellitus (76.69% *vs.* 53.65%; p< 0.001), dyslipidemia (51.12% *vs.* 30.18%; p<0.001), CKD (27.81% *vs.* 10.26%; p<0.001), previous CVA (10.11% *vs.* 3.94%; p<0.001), and cancer (3.93% *vs.* 1.18%; p=0.008). Both groups were comparable regarding the prevalence of AKI (4.34% *vs.* 3.93%; p=0.8), cirrhosis (0.99% *vs.* 1.12%; p>0.9), lung disease (8.09% *vs.* 9.55%; p=0.5), and sepsis (3.75% *vs.* 1.97%; p=0.13) [7].

Regarding the intervention carried out, 48.13% of patients aged<70 years underwent PPCI, compared to 32.58% of the elderly ones (p<0.001). Both groups were comparable regarding undergoing CABG (8.68% *vs.* 7.3%; p=0.5), IABP (5.52% *vs.* 6.74%; p=0.5), and percutaneous balloon valvuloplasty (0.59% *vs.* 1.97%; p=0.1). Fewer patients aged<70 needed dialysis/ CRRT (10.85% *vs.* 19.94%; p<0.001). One patient in each group needed a blood transfusion, and one patient in the elderly group needed neurosurgery [8].

Recorded ICU parameters are demonstrated in Table 3. Patients aged <70 years had a significantly lower APACHE-II score (15 (12, 21) *vs.* 22 (18, 29); p<0.001; Figure 1) and consequently a lower predicted mortality rate (20.97 (14.62, 38.91)% *vs.* 42.43 (29.13, 67.19)%; p<0.001; Figure 2). 46.94% of younger patients needed a central line, compared to 63.2% of elderly ones (p<0.001). Also, fewer younger patients required ventilation (39.64% *vs.* 51.89%; p=0.004). Younger patients had a significantly higher heart rate (83 (54, 80) bpm *vs.* 74 (60, 103) bpm; p=0.016), mean arterial blood pressure (82 (67, 98.75) mmHg *vs.* 80 (66, 93); p=0.022), HCO_3 (20 (18, 22) mEq/L *vs.* 19 (17, 21.08) mEq/L; p<0.001), urine output (300 (100, 650) ml/ days *vs.* 19 (17, 21.08) ml/days; p<0.001), Hematocrit (37 (29, 42) *vs.* 31 (27, 37)%; p<0.001), sodium (134 (132, 137) mEq/L *vs.* 133 (130, 136) mEq/L; p<0.001), bilirubin (13.9 (9.47, 22.3) µmol/L *vs.* 12.25 (8.2, 19.42) µmol/L; p=0.004), and albumin (34 (29, 37) g/L *vs.* 30 (26, 33) g/L; p<0.001) [9].

Table 3: Recorded ICU parameters.

Characteristic	**<70 yrs, N=507**[1]	**≥ 70 yrs, N=356**[1]	**p-value**[2]
APACHEII score	15.00 (12.00, 21.00)	22.00 (18.00, 29.00)	<0.001
Adjusted predicted mortality rate (%, for APACHE-II)	20.97 (14.62, 38.91)	42.43 (29.13, 67.19)	<0.001
Central line	238.00 (46.94%)	225.00 (63.20%)	<0.001
Ventilation			0.004
None	306.00 (60.36%)	172.00 (48.31%)	
Invasive	160.00 (31.56%)	147.00 (41.29%)	
Non-invasive	38.00 (7.50%)	33.00 (9.27%)	
Both	3.00 (0.59%)	4.00 (1.12%)	
Heart rate (bpm)	83.00 (63.00, 105.00)	74.00 (60.00, 103.00)	0.016
Temperature (°C)	37.00 (36.80, 37.20)	37.00 (36.90, 37.30)	0.083
Respiratory rate (breaths per minute)	18.00 (14.00, 27.00)	19.00 (14.00, 28.00)	0.2
Systolic blood pressure (mmHg)	116.00 (91.00, 144.00)	132.00 (95.00, 154.00)	0.003
Diastolic blood pressure (mmHg)	66.00 (54.00, 80.00)	58.50 (50.75, 69.00)	<0.001
Mean arterial blood pressure (mmHg)	82.00 (67.00, 98.75)	80.00 (66.00, 93.00)	0.022

pH	7.39 (7.32, 7.43)	7.37 (7.31, 7.42)	0.2
PAO_2 (mmHg)	85.20 (67.50, 117.80)	85.00 (66.95, 113.50)	0.6
PCO_2 (mmHg)	39.25 (33.88, 44.97)	39.70 (33.60, 46.40)	0.6
FiO_2 (%)	29.00 (21.00, 37.00)	31.00 (25.00, 50.00)	<0.001
HCO_3 (mEq/L)	20.00 (18.00, 22.00)	19.00 (17.00, 21.08)	<0.001
Urinary output (ml/ day)	300.00 (100.00, 650.00)	175.00 (40.00, 530.00)	<0.001
WBCs (× 10^9/L)	11.90 (8.80, 15.30)	11.80 (9.20, 15.30)	0.8
Hematocrit (%)	37 (29, 42)	31 (27, 37)	<0.001
Platelets (× 10^3 per microliter of blood)	269.00 (190.00, 338.00)	272.50 (172.25, 352.00)	0.8
Serum creatinine (μmol/L)	85.50 (63.00, 140.50)	130.00 (81.00, 238.50)	<0.001
Blood urea nitrogen (mmol/L)	7.80 (5.40, 12.77)	13.55 (8.10, 21.08)	<0.001
Sodium (mEq/ L)	134.00 (132.00, 137.00)	133.00 (130.00, 136.00)	<0.001
Potassium (mEq/ L)	4.30 (3.90, 4.80)	4.50 (3.80, 5.10)	0.059
Glucose (mmol/ L)	9.40 (6.50, 13.33)	10.95 (8.07, 15.90)	<0.001
Bilirubin (μmol/L)	13.90 (9.47, 22.30)	12.25 (8.20, 19.42)	0.004
Albumin (g/ L)	34.00 (29.00, 37.00)	30.00 (26.00, 33.00)	<0.001
Inotropes			
Dopamine (mcg/kg/minute)	4.26 (2.25, 5.00)	5.00 (3.00, 5.00)	0.2
Epinephrine (μg/kg/min)	0.06 (0.04, 0.35)	0.15 (0.05, 1.00)	0.03
Norepinephrine (μg/kg/min)	0.08 (0.04, 0.47)	0.20 (0.05, 0.90)	0.077
Dobutamine (μg/kg/min)	3.00 (2.75, 5.50)	2.00 (1.25, 4.53)	0.2
Median (IQR)			
Dopexamine (μg/kg/min)			>0.9
Mean (± SD)	0.30 (± 0.67)	0.10 (± 0.17)	
Median (IQR)	0.00 (0.00, 0.00)	0.00 (0.00, 0.15)	

Note: [1]Median (IQR); mean ((± SD); n (%)
[2]Wilcoxon rank sum test; Pearson's *Chi-squared* test; Fisher's exact test.

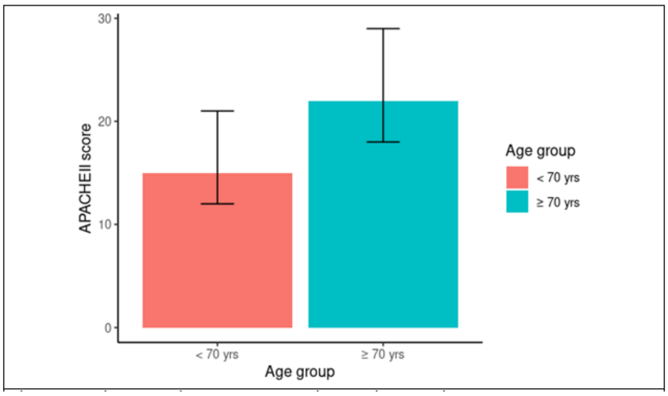

Figure 1: Bar chart comparing APACHE II score between the two study groups.

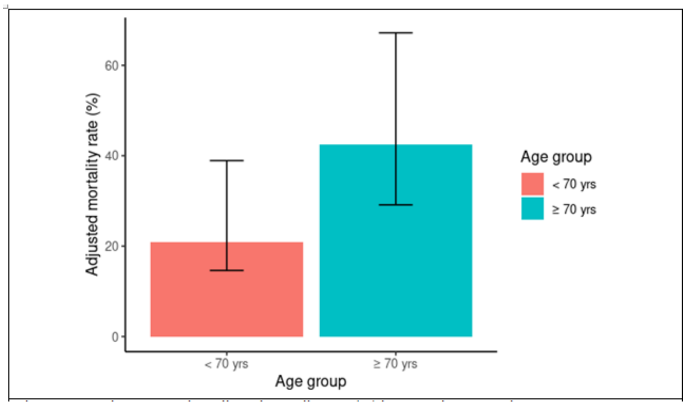

Figure 2: Bar chart comparing adjusted mortality rate (%) between the two study groups.

Younger patients had a significantly lower FiO_2 (29 (21, 37)% *vs.* 31 (25, 50)%; p<0.001), serum creatinine (85.5 (63, 140.5) µmol/L *vs.* 130 (81, 238.5) µmol/L; p<0.001), BUN (7.8 (5.4, 12.77) mmol/L *vs.* 13.55 (8.1, 21.08) mmol/ L; p<0.001), glucose (9.4 (6.5, 13.33) mmol/L *vs.* 10.95 (8.07, 15.9) mmol/L; p<0.001). Both groups were comparable regarding temperature, respiratory rate, pH, PaO_2, PCO_2, WBCs, platelets and potassium levels [10].

Received inotropes and their doses are also demonstrated in Table 3. Younger patients received a statistically lower dose of epinephrine (0.06 (0.04, 0.35) µg/kg/min *vs.* 0.15 (0.05, 1) µg/kg/min; p=0.03). Both groups received comparable doses of dopamine, norepinephrine, dobutamine and dopexamine [11].

Figure 3 demonstrates the correlation between age and calculated APACHE-II score. Among patients aged <70 years, there was a small degree of correlation (correlation coefficient=0.26; p<0.001). On the contrary, there was no correlation between age and APACHE-II score among patients aged 70 years or more (correlation coefficient=-0.001; p=0.98)[12].

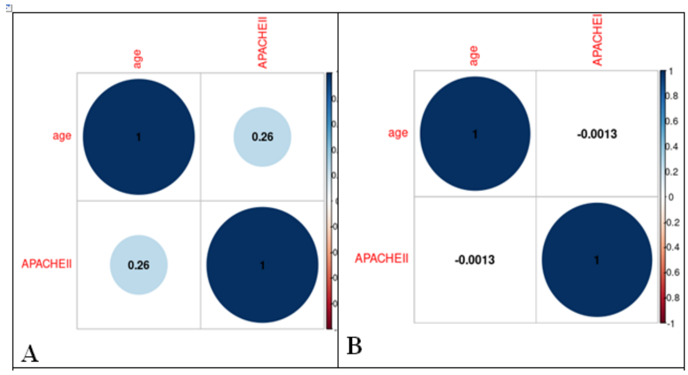

Figure 3: Correlation between age and APACHE-II score among patients aged less than 70 years (A) and those aged 70 years or older (B).

Discussion

The scoring systems are invaluable in predicting survival, length of hospital stay, and the risk of more severe outcomes for the patients admitted to the hospital ICU. These systems are based on a number of patient related variables. The present study aimed to investigate the role of age in the predictive efficacy of these tools for CICUs. Diverse studies have investigated whether age directly correlates with ICU patient mortality. Methodological and research population variations may potentially contribute to a portion of the observed variability in the outcomes of these inquiries [13].

Males predominate in ICU admissions compared to females. The present study replicated these trends for CICU, showing male preponderance in total admissions. Increased BMI is usually linked to severe disease outcomes. Cardiovascular disease patients with BMI in normal ranges tend to show better disease prognosis. The included patients for both the young (<70 years) and the older age group (>70 years) had a mean BMI in the normal ranges [14].

Length of stay at the hospital tends to increase with the patient's age. The present study found that the length of CICU admission was significantly longer in the older age group compared to the younger patient cohort. Age is thus an important predictor of the increased stay in the hospital [15].

Diagnosis may prove challenging due to the absence of a pathognomonic clinical appearance in acute myocarditis. Myocarditis patients may exhibit a variety of non-specific abnormalities as detected by an Electrocardiogram (ECG). ECG is, nevertheless, commonly employed as an initial screening technique for myocarditis. The higher age group patients are at an increased risk of myocardial infarction and ECG abnormalities. The present study found that patients >70 years of age were more likely to present with both ST-elevation myocardial infarction and non-ST elevation myocardial infarction. These findings have been reported in previous studies, whereby older patients were reported to be at higher risk of myocardial infarction [16].

Aging is a risk factor for several chronic diseases. Cardiovascular diseases are the most common diseases predominantly found in patients of higher-age groups. The present study showed that the higher age group patients are at a significantly higher risk of coronary artery disease and valvular heart disease. This is attributable to the increased prevalence of other comorbidities that increase the risk and accelerate the pathogenesis of cardiovascular disorders such as hypertension, diabetes mellitus, dyslipidemia, chronic kidney disease, and previous cerebrovascular accident [17].

The utility of the APACHE-II assessment system in classifying patients based on the severity of their diseases has been established. A negative correlation was observed between high scores and both the duration of hospitalization and increased mortality risks. However, the previous studies report mixed findings for the association of age and mortality according to APACHE-II scores. Tian, et al., recently reported that a score of >17 is the optimal cut-off value for defining patients at higher risk of mortality. These findings coincide with the findings of the present study whereby the mean APACHE-II scores were 15 for the <70 years' patients and 22 for >70 years patients. These values are, however, lower than previous cut-offs reported by Naqvi, et al. The study reported the optimal cut-off of <23 for mortality risk [18].

The optimal time of the scoring is also valuable. The recommended optimal time for the scoring is during the first 24 hours of ICU admission. The present study was based on the findings of scoring during the same time window. However, this greatly depends on the patient's primary disease and the cause of admission. In admissions with neurological manifestations, the most optimal scoring time is recommended as the third day, as the key manifestations present clinically by this time [19].

Several studies have employed the APACHE II score on post-cardiac arrest patients to assess the system's ability to differentiate between outcomes. However, there is substantial variation among the findings of these studies concerning age and the prevailing rating systems regarded as optimal. These investigations are conducted on a wide range of topics with diverse intentions. The research group comprised individuals with a diverse range of clinical characteristics, one of the contributing factors to the observed variations. Therefore, a more accurate prognostic biomarker is necessary to forecast the mortality rate of intensive care unit patients. Recent years have seen the development of several novel models capable of predicting the mortality rate of intensive care unit patients. However, most professionals continue to endorse the APACHE II score as the preferred model for predicting the mortality rate of critically ill patients. Considering this, further refinement of the APACHE II model, such as identifying a suitable time point for score computation through a comprehensive analysis of large-scale and multicenter research, remains an effective approach to enhance its precision. Furthermore, age has been shown to be an important predictor of mortality, where the higher age group patients tend to be at increased risk of higher scores and increased mortality [20].

Conclusion

This study assesses the outcomes in patients 70 years of age admitted to CICU and tests the hypothesis that the predictive value of severity of illness scoring systems and the Braden skin score for mortality would vary as a function of age. The present study showed that patients aged >70 years have higher APACHE II scores and an increased risk of mortality as compared to patients less than 70 years of age. Age is thus an important predictor of the severity of illness, and mortality tends to vary as a function of age.

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