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Prediction of Intensive Care Unit Mortality by APACHE II Score - A Pilot Study

Ajay M. Yadav[1], Bharti R. Daswani[2], Madeline J. Fernandes[3], Ashiya M. Parveen[3]

[1] BJGMC, Pune, Maharashtra, India
[2] Department of Pharmacology, Chhatrapati Sambhaji Maharaj Government Medical College and Hospital, Satara, Maharashtra, India
[3] Department of Pharmacology, BJGMC, Pune, Maharashtra, India

SUMMARY

Introduction: Quality healthcare is a fundamental right, yet it remains unaffordable for many, particularly in resource-limited settings such as the public healthcare sector. Majority of these limited resources are consumed by critically ill patients, that usually have low survival rates, leaving inadequate resources for the less critical patients. This results in inefficient resource utilization and suboptimal patient outcomes. Therefore, effective triage is essential to optimize resource allocation in such settings.
Aim: This study aims to evaluate the association between APACHE II scores and outcomes in the surgical ICU of a tertiary care hospital.
Material and Method: This observational longitudinal cohort study was conducted over a two-month period in 100 adult patients admitted to the Surgical/Trauma ICU of a tertiary care government hospital. All patients received standard ICU treatment as per institutional protocol. Data were collected using case record forms, to study the APACHE II scores, drug utilization patterns, and their association with patient outcomes.
Results: Of the 100 patients, 53 died while 47 survived. Non-survivors had significantly higher APACHE II scores and received more drugs. We observed that patients with an APACHE II score below 16 had a 33.3% mortality rate, while those with a score of 16 or above had a 79.06% mortality rate, a statistically significant difference. However, the use of high-cost medications like broad-spectrum antibiotics and albumin did not significantly differ between survivors and non-survivors. The average treatment cost was slightly higher for non-survivors, but not statistically significant.
Conclusion: Our study found that the APACHE II score is a reliable predictor of mortality in the ICU setting, with a score of 16 serving as an effective cut-off for categorizing patient risk. Higher APACHE II scores were associated with increased mortality, longer ICU stays, and relatively higher treatment costs. The use of expensive medications did not improve outcomes for critically ill patients. Nevertheless, future large-scale, multicentre studies utilizing extended tracking after discharge from ICU are warranted, to evaluate the intersection of clinical severity, pharmaceutical optimization, and healthcare economics, more comprehensively.

Keywords: Resource Allocation, Critical Care, Triage

Corresponding author:
Ashiya M. Parveen, MD
Department of Pharmacology, BJGMC, Pune, Maharashtra, India
E-mail: parveenashiya2210@gmail.com

INTRODUCTION

Quality healthcare is a fundamental right for all individuals, yet it remains unaffordable for many. Government healthcare facilities are often the only option for those unable to afford private care in low- and middle-income countries, but face significant resource limitations [1]. Critically ill patients need and receive substantial resources to maintain viability and support recovery [2]. However, given the limited resources, this happens at the expense of less critically ill patients who consequently receive fewer resources. Therefore, the desperate overuse of available resources for the more critical patients may lead to a mismatch between resource utilization and efficiency. The ICU of a government tertiary care centre exemplifies a setting where such resource constraints can contribute to suboptimal outcomes.

Optimizing resource use in government setups could be achieved through effective triage. The prospective identification of patients unlikely to survive has been proposed as a means to limit the utilization of critical care resources [3]. In critical care units, managing surgical patients involves estimating their chances of survival. Such assessment, performed on admission and repeated as the status of the patients changes, is usually not a formal pronouncement but a less rough estimate of likelihood of survival [3]. These assessments are utilized by the ICU staff when talking to the patient and his or her family about prognosis, in estimating the level and duration of the ICU care that will be required by the patient, and by the primary surgeon in evaluating the result of his or her treatment. More formal prognostic assessment has also been proposed as a means of determining whether a patient requires ICU admission or whether the level of care should be modified or discontinued following changes in the patient's clinical status after admission [4].

Objective scoring systems, that evaluate disease severity and status, can support these assessments. Commonly used ICU scoring systems for the adult population are: Acute Physiology and Chronic Health Evaluation II (APACHE II), Simplified Acute Physiology Score (SAPS), Mortality Prediction Model (MPM), Organ Dysfunction and Infection System, Sequential Organ Failure Assessment (SOFA), Multiple Organs Dysfunction Score (MODS), Logistic Organ Dysfunction Model and Three-day Re-calibrating ICU outcomes [5]. These systems, such as the Acute Physiology and Chronic Health Evaluation II (APACHE II) classification system, have been used extensively as measures of patient acuity and have been shown to correlate with outcome [6,7]. APACHE II, assigns a point score based on initial values of 12 routine physiological measurements, age, and previous health status, providing a general measure of disease severity. The score ranges from 0 to 71, with higher scores indicating more severe conditions and a higher risk of hospital death [6].

AIM

This study aims to evaluate the association between APACHE II scores and outcomes in the surgical ICU of a tertiary care hospital. It also seeks to examine the pattern of use of costly medications, including higher antibiotics, parenteral nutrition, and neuroprotective drugs, in the Surgical/Trauma ICU of a government tertiary care centre, and to assess the association of these medications with patient outcomes.

MATERIAL AND METHODS

Study design

This study is an academic, observational, prospective, cohort study conducted over two months, from June 2021 to July 2021. The study population comprised patients admitted to the trauma/surgical ICU of a tertiary care government hospital. Approximately 100 cases were included in the study. Adult patients admitted to the trauma/surgical ICU were included in the study. All paediatric patients were excluded from the study as the APACHE II score is used exclusively for adults.

Data collection

The study was approved by the Institutional Ethics Committee (Ethics Committee Approval No.: BJGMC/IEC/Pharmac/ND-ICMR 0221055-055). Eligible subjects were recruited after obtaining informed consent from the patients or their legally authorized representatives. Data were collected using a case record form, which included demographic information (age, gender), pre-existing comorbidities, Glasgow Coma Scale (GCS) scores, parameters used for calculating APACHE II scores, treatment details (medications administered), other relevant findings, and patient outcomes. All calculations including the APACHE II scores were performed by a single trained assessor under supervision of senior anaesthetist.

The GCS comprises three subscales: verbal response (five items), eye-opening response (four items), and motor response (six items), with a total score ranging from 3 to 15. The APACHE II score, calculated within the first 24 hours of ICU admission, includes 12 physiological variables: temperature, mean arterial pressure, heart rate, respiratory rate, A-aPO2 (for FiO2 > 50%) or PaO2 (for FiO2 < 50%), arterial pH or HCO3, serum sodium, potassium, creatinine, haematocrit, white blood cell count, and GCS. Each variable is weighted from 0 to 4. During the observation period, patients received standard ICU treatment according to existing protocols. No additional interventions were implemented for the study. Patients were followed until the outcome, and all relevant demographic and treatment data, including dosage and duration, were recorded in the case record form.

According to the institutional protocol, patients who showed clinical improvement were transferred from the ICU to the general ward, whereas those whose condition deteriorated after transfer were readmitted to the ICU. Mortality analyses were restricted to deaths that occurred during the ICU stay.

Data analysis

Information collected in the case record form was analysed to calculate:
- APACHE II Score of the patients in ICU
- Number of patients receiving costly drugs like broad spectrum antibiotics, parenteral nutrition, neuroprotective drugs, etc.
- Overall cost of the drugs per patient during the ICU stay
- Average daily cost of the treatment received by the patient (All costs are expressed in INR at 2021 and reflect only drug acquisition costs. They are not inclusive of drug administration costs/ overheads etc...)
- Average number of drugs administered to each patient

Data are expressed as mean ± standard deviation (SD) or as numbers and percentages for continuous and categorical variables, respectively. Suitable statistical data analysis was performed to study the:
1. Association between APACHE II Score and survival in our setup.
2. Association between use of costly drugs and outcome.
3. Association between average daily cost of treatment and survival of the patient.

Categorical variables were compared between survivors and non-survivors using the chi-square test, while continuous variables were compared using the unpaired t-test.

Receiver operating characteristics (ROC) analyses was conducted to evaluate the predictive value of the APACHE II scoring system. The optimal cut-off value was determined using the maximum Youden index.

Patients were subsequently classified into two groups: low-risk (less than cut-off point value) and high-risk (greater than or equal to cut-off point value). The low-risk and high-risk groups were compared for various parameters using suitable statistical tests as mentioned above.

A p-value of less than 0.05 was considered statistically significant.

RESULTS

The mean APACHE II score for the study population was 15.3 ± 8.19, with a median score of 14. Among the 100 study subjects, 28 patients had experienced trauma, 56 had undergone surgical procedures, and 16 fell into the „others" category, which included patients with comorbidities and did not undergo surgery.

A total of 100 patients admitted to the Surgical/Trauma ICU between June 2021 and July 2021 were enrolled in the study. The study population comprised 66% males and 34% females, with an average age of 43.60 ± 15.90 years (ranging from 17 to 80).

Various medications were administered to the subjects during their ICU stay, including higher antibiotics such as Piperacillin/Tazobactam, levofloxacin, vancomycin, colistin, meropenem, linezolid (higher antibiotics), and albumin (costly IV preparations), as detailed in Table 1.

Among the study participants, 4% were aged ≤20 years, 15% were aged >60 years, and 81% were between 20 and 60 years of age. Of the 100 patients, 53 died and 47 survived. Of the 100 patients, 53 died and 47 survived. Survivors and non-survivors were compared for various parameters like diagnosis, age, APACHE II score, length of ICU stay, average cost, average cost per day, average number of drugs, drugs received by both the groups, etc. as shown in Table 2.

The findings demonstrated significant differences between survivors and non-survivors in terms of diagnosis within the surgical ICU. An analysis using the chi-square test underscores a significant correlation between admission diagnosis and survival. The primary diagnosis at admission significantly differed between the two groups ($p = 0.008$). Post-surgical patients showed higher survival (34 survivors vs. 22 non-survivors), whereas trauma patients had a higher proportion of the non-survivors (20 non-survivors vs. 8 survivors). Non-survivors also had significantly higher APACHE II scores (19 vs. 11; $p < 0.000001$) and received a greater number of medications than survivors. Interestingly, the utilization of certain drugs, such as antimicrobials and costly medications like albumin, did not significantly differ between survivors and non-survivors.

No statistically significant differences were observed in either the average total cost of drugs (Rs. 1,695.87 for survivors vs. Rs. 2,685.55 for non-survivors; $p = 0.12$) or the average daily cost of drugs (Rs. 366.71 for survi-

Table 1. Subject demographics

Demographic and Clinical Characteristics	Value
Total number of patients	100
Trauma patient	28
Post-surgical	56
Others	16
Age (Mean ± SD)	43.60 ± 15.90
Gender (M/F)	66/34
APACHE II score (Median)	14
Length of ICU stay (mean ± SD)	4.68 ± 2.75
Drugs	
Name	**No. of patients**
Piperacillin/ Tazobactam	37
Levofloxacin	10
Vancomycin	3
Meropenem	5
Colistin	1
Linezolid	3
Albumin	10
Average number of drugs per patient (Min; Max)	13.18 + 4.71 (4; 28)
Average Total cost of drugs per patient (Rs)	2220.40 + 3250.08
Average Daily cost of drugs per patient (Rs)	426.66 + 511.16

Table 2. Comparison between the survivors and non-survivors

Group	Survivors	Non-survivors	p-value
Total Number of patients	47	53	
Diagnosis at admission to surgical ICU			.008071
Trauma patients	8	20	
Post-surgical patients	34	22	
Others	5	11	
Age (Mean ± SD)	44.27 ± 17.3	43 ±14.66	0.7
APACHE II SCORE (Median)	11	19	<0.000001
Length of ICU stay (mean ± SD)	4.25 ± 2.28	5.05 ± 3.09	0.14
Average number of drugs per patient (Min; Max)	11.43 ± 3.76 (6; 26)	14.74 ± 4.95 (4; 28)	0.0003
Average Total Cost of drugs (Rs)	1695.87	2685.55	0.12
Average Daily cost of drugs (Rs)	366.71	479.81	0.26
Drugs	**Survivors**	**Non-survivors**	**p-value**
Piperacillin/ Tazobactam	13	24	0.068
Levofloxacin	3	7	0.256
Vancomycin	3	0	0.062
Meropenem	2	3	0.748
Colistin	0	1	0.346
Linezolid	1	2	0.631
Albumin	3	7	0.258

vors vs. Rs. 479.81 for non-survivors; p = 0.26)

Furthermore, statistical analyses of individual high-use medications and broad-spectrum antimicrobials revealed no statistically significant differences in utilization between survivors and non-survivors.

Piperacillin/Tazobactam showed a strong trend toward higher utilization in non-survivors (24 patients) compared to survivors (13 patients), approaching but not reaching statistical significance (p = 0.068).

Vancomycin was utilized exclusively in 3 survivors and 0 non-survivors, showing a marginal trend (p = 0.062).

No significant differences in prescription rates were observed for Levofloxacin (p = 0.256), Meropenem (p = 0.748), Colistin (p = 0.346), Linezolid (p = 0.631), or Albumin (p = 0.258).

As per Knaus et al [6], APACHE II score of 25 points or less denotes less than 50% mortality, while points of 35 or more denotes more than 80% mortality. In our study, we found that amongst subjects with APACHE II score of 25 or less, mortality was seen in 47.7% and amongst subjects with APACHE II score of 35 or more, mortality was 100%. Together these results confirm that higher APACHE II score is associated with worst outcomes and is a reliable predictor of mortality even in our setup. To determine the optimal discriminatory threshold values of the APACHE II score, ROC curve was constructed, and the area under the ROC curve was calculated. The ROC curve for the study population was generated using Medcalc software (Figure 1).

The area under the ROC curve (AUC) was determined to be 0.798 (95% confidence interval: 0.706-0.872, p < 0.001), affirming its reliability. The ROC analysis identified a cut-off value of 16, determined by the Youden index, with a sensitivity of 64.15% and specificity of 84.11%. Consequently, study subjects were categorized into two groups based on the APACHE II score cut-off point: low risk (less than 16) and high risk (16 or greater). These 2 groups were then compared with each other for various parameters like age, mean APACHE II score, length of ICU stay, average cost, average cost per day, average number of drugs, drugs received by both the groups, impact of drugs etc. as shown in Table 3.

It was noted that individuals with an APACHE II score below 16 exhibited a mortality rate of 33.3%, whereas those with a score equal to or above 16 experienced a significantly higher mortality of 79.06%. This observed contrast was found to be statistically significant. Additionally, this analysis emphasizes that individuals with an APACHE II score of 16 or higher were more inclined to receive a greater number of medications compared to those with a score below 16.

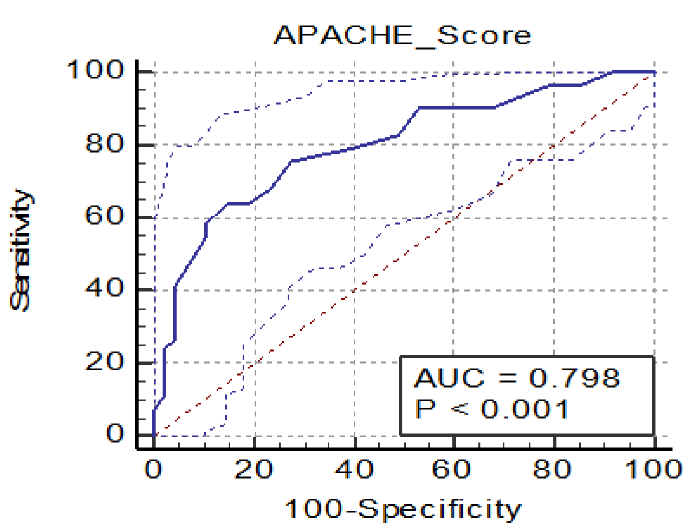
DISCUSSIONS

The present investigation was a prospective, observational cohort study involving patients admitted to the surgical ICU of a tertiary care hospital. Data were collected from 100 patients admitted between June 2021 and July 2021. The study population included patients with trauma, critically ill postoperative patients, and critically ill non-operated patients. Among them, 53 subjects did not survive, while 47 subjects recovered and were discharged. The

Figure 1. Area under the ROC curve (AUC)

Standard error[a] - 0.0445
95% Confidence interval[b] - 0.706 to 0.872
z statistic - 6.702
Significance level P (Area=0.5) - <0.0001

[a] DeLong et al., 1988
[b] Binomial exact



Group	APACHE score <16	APACHE score ≥16	p-value
Number of patients	57	43	
Age	41.82 ± 16.63	45.95 ±14.72	0.19
Survivor (%)	38 (66.6)	9 (20.9)	< 0.00001
Non survivors (%)	19 (33.3)	34 (79.06)	
Average length Of ICU stay	4.61 ± 2.71	4.76 ± 2.85	0.79
Average number of drugs per patient (Min; Max)	12.16 ± 3.85 (6; 24)	14.53 ± 5.41 (4; 28)	0.017
Average Total Cost of Drugs	1979.3	2523.52	0.40
Average Per Day Cost of Drugs	403.64	457.17	0.61
Drugs	**APACHE score <16**	**APACHE score ≥16**	**p-value**
Piperacillin/ Tazobactam	17	20	0.087
Levofloxacin	6	4	0.84
Vancomycin	1	2	0.40
Meropenem	3	2	0.89
Colistin	0	1	-
Linezolid	1	3	0.18
Albumin	4	6	0.42

Table 3. Comparison between groups APACHE score <16 and APACHE score ≥16

mean APACHE II score was 15.3 ± 8.19, with a median of 14. Subjects received higher antibiotics such as piperacillin/tazobactam, levofloxacin, vancomycin, meropenem, colistin, linezolid, and costly intravenous preparations such as albumin.

The findings of this study highlight critical clinical and economic indicators associated with mortality in patients admitted to the surgical Intensive Care Unit (ICU). Most notably, disease severity at admission—as quantified by the APACHE II score—and the overall burden of pharmacotherapy emerged as significant correlates of patient outcomes.

The primary objective of this study was to evaluate the correlation between the APACHE II score and outcomes. Upon categorizing subjects based on survival, it was observed that non-survivors had significantly higher APACHE II scores than survivors. According to the criteria proposed by Knaus et al [6], a score of 25 or less indicates less than 50% mortality, while a score above 35 indicates more than 80% mortality. Our study revealed a mortality rate of 47.7% for the group with an APACHE II score of 25 or less and 100% mortality for the group with a score above 35. These findings are consistent with those of Knaus et al, and support the reliability of the APACHE II scoring system in our specific setting.

Similarly, Borlase BC et al. reported in a prospective study that approximately half of the patients with APACHE II scores greater than18 did not survive [8]. Another study involving 598 consecutive patients admitted to the surgical ICU reported a mean APACHE II score of 14.2 among survivors and 22.4 among non-survivors [9].

Zou X. et al evaluated the association between APACHE II score and hospital mortality in patients with corona virus disease 2019, and to compare the predictive ability of APACHE II score, with sequential organ failure score and confusion, urea, respiratory rate, blood pressure, age 65 (CURB 65) score. The study concluded that the APACHE II score was an effective clinical tool to predict hospital mortality in patients with corona virus disease 2019 compared with sequential organ failure score and CURB 65. APACHE II score ≥17 serves as an early warning indicator of mortality and may provide guidance to make further clinical decisions [10]. Likewise, Paras P et al. demonstrated that the APACHE II scoring system has a good discrimination and calibration when applied to ICU patients with acute kidney injury and is a reliable predictor of prognosis [11]. Kruse JA. et al evaluated patients consecutively admitted to the medical ICU to compare the predictive accuracy of APACHE II with clinical assessments by critical care personnel in this prospective study. Mortality predictions from 57 doctors and 33 critical care nurses were obtained. Eventually, they could not find a significant difference in the accuracy of APACHE. They suggested that both the clinical evaluation and APACHE II highly predict the outcome [12].

In our current study, the median APACHE II score among survivors and non-survivors was 11 and 19, respectively. The ROC curve analysis yielded a cut-off of 16, with a sensitivity of 64.15% and specificity of 84.11%. In a prospective study by Bahtouee M et al, an APACHE II score of 15 exhibited the best diagnostic accuracy for predicting mortality, with sensitivity and specificity values of 85.3% and 77.4%, respectively [7]. In a study by Hosseini et al, using a cut-off score of 13.5, the APACHE II score predicted hospital mortality with a sensitivity of 96.6%, specificity of 62.8%, and an area under the ROC curve of 0.857 [13]. These findings are comparable to ours. Hence, we can conclude APACHE II score can be used as reliable indicator in tentatively predicting the mortality in a surgical ICU.

Another noteworthy finding in our study pertained to the significant association between the diagnosis leading to ICU admission and the ultimate outcomes. Specifically, we noted a mortality rate of 71.4% among trauma patients, while postoperative patients exhibited a mortality rate of 39.3%. Hence, the initial APACHE score upon ICU admission and the specific diagnosis leading to ICU admission prove to be vital predictors of patient survival within the surgical ICU.

Simultaneously, it should be kept in mind that severity score is just a tool, not a final decision. It should never be the only reason to limit care. Objective scoring systems must serve strictly as supportive prognostic tools, auxiliary to comprehensive, patient-centered clinical judgments and multidisciplinary ethical consensus. In light of these considerations, it is recommended that, following initial interventions for critical patients, a reassessment of those with APACHE II scores exceeding 16, particularly among trauma patients with head injuries, be contemplated.

The second objective of our study was to evaluate the utilization patterns of costly medications, such as advanced antibiotics, parenteral nutrition, and neuroprotective drugs, in the Surgical/Trauma ICU of a government tertiary care centre. Our findings revealed that 37% of patients received piperacillin tazobactam, 5% received meropenem, and 10% received albumin. Additionally, almost all patients with head injuries were prescribed neuroprotective agents such as piracetam and cerebroprotein hydrolysate, as well as injectable levetiracetam. Comparison of survivors and non-survivors demonstrated that non-survivors were subjected to a significantly higher polypharmacy burden, receiving an average of 14.74 ± 4.95 drugs per patient compared to 11.43 ± 3.76 among survivors. Similar findings were observed when subjects were categorized based on the cut-off APACHE II score, suggesting that individuals with higher scores tend to receive more medications. This increased medication burden likely reflects the intensive multisystem management required by hemodynamically unstable patients, including the empirical or targeted use of broad-spectrum antimicrobials, vasoactive agents, and organ-supportive therapies. It may imply that in more critical cases, treating doctors may resort to an increased use of drugs as a desperate measure to save the patient's life.

We further explored the association between the use of these medications and patient outcomes by comparing prescribing patterns between survivors and non-survivors. Our approach involved indirectly assessing this impact by comparing drug usage patterns between survivors and non-survivors. Intriguingly, the significant escalation in the number of prescribed drugs did not translate into a statistically significant rise in financial expenditure.

Consequently, it appears that there is minimal or no correlation between survival and the administration of higher antimicrobials and albumin.

The disproportionate consumption of hospital resources by more critically ill patients poses challenges, and despite earnest interventions, the extensive use of costly drugs and advanced antimicrobials may not necessarily improve outcomes. This observation emphasizes the importance of further research to optimize the utilization of available resources more effectively.

However, it is important to note that, though our study did not report improved outcomes with the use of advanced antimicrobials and costly medications such as albumin, these findings represent associations reported in an observational study and may be influenced by confounding by indication, as patients with greater illness severity (higher APACHE II) were more likely to receive these therapies. Thus, these results should not be directly interpreted as evidence against the clinical benefit of these medications or that withholding these drugs would be beneficial.

Finally, physicians caring for critically ill patients face a complex ethical challenge. On one hand, patients with the greatest clinical need appropriately require greater healthcare resources. On the other hand in resource-limited settings, clinicians may also need to consider the equitable allocation of finite resources to maximize overall patient benefit. This decision to triage resources for those who will benefit the most may present ethical challenges for the treating physician, but could simultaneously contribute to optimize the use of limited healthcare resources.

CONCLUSION

This prospective, observational study demonstrates that while indication for ICU admission could modify the outcome, an APACHE II score of 16 or higher and an increased volume of prescribed medications serve as robust, statistically significant indicators of high clinical severity and poor outcomes in a surgical Intensive Care Unit (ICU) setting. Yet, though disease severity scores remain highly predictive of group mortality rates, from an ethical perspective, they should never be used as isolated metrics to limit individual patient care.

Secondly, the use of advanced antimicrobials and costly medications like albumin did not demonstrate a substantial correlation with better outcomes in critically ill patients. However, it must be kept in mind that the present study was limited by its single-centre design, short study duration, and relatively small sample size (n = 100), which may restrict the generalizability of the findings. Furthermore, the small number of patients in several drug-specific subgroups (e.g., colistin and vancomycin) limited the statistical power of subgroup analyses.

Thus, a key limitation of this study is the potential for Type II errors in specific drug comparisons. Therefore, the lack of statistically significant differences needs to be interpreted with caution, as the analysis may have been under-powered to detect true clinical variations.

Further, because our primary outcome metric strictly accounted for intra-ICU mortality, deaths occurring in the general wards after step-down were excluded from the final count. This operational boundary means our mortality findings focus narrowly on immediate critical care outcomes and may underestimate the broader, long-term post-ICU mortality footprint.

Nevertheless, future large-scale, multicentre studies utilizing extended tracking after discharge from ICU are warranted, to evaluate the intersection of clinical severity, pharmaceutical optimization, and healthcare economics, more comprehensively.

CONFLICT OF INTEREST

All authors declare no conflict of interest.

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APACHE II skor kao prediktor mortaliteta u jedinici intenzivnog lečenja - pilot studija

Ajay M. Yadav[1], Bharti R. Daswani[2], Madeline J. Fernandes[3], Ashiya M. Parveen[3]

[1] BJGMC, Pune, Maharashtra, India
[2] Department of Pharmacology, Chhatrapati Sambhaji Maharaj Government Medical College and Hospital, Satara, Maharashtra, India
[3] Department of Pharmacology, BJGMC, Pune, Maharashtra, India

KRATAK SADRŽAJ

Uvod: Kvalitetna zdravstvena zaštita predstavlja osnovno pravo svakog pojedinca, ali je i dalje nedostupna velikom broju ljudi, naročito u sredinama sa ograničenim resursima, kao što je javni zdravstveni sektor. Većina ovih ograničenih resursa troši se na lečenje kritično obolelih pacijenata, koji često imaju nisku stopu preživljavanja, čime se smanjuje dostupnost resursa za manje kritično obolele pacijente. To dovodi do neefikasnog korišćenja zdravstvenih resursa i suboptimalnih ishoda lečenja. Zbog toga je efikasna trijaža od ključnog značaja za optimizaciju raspodele resursa u ovakvim uslovima.
Cilj: Ova studija ima za cilj da proceni vezu između APACHE II rezultata i ishoda na odeljenju hirurške intenzivne nege u bolnici tercijarne zdravstvene zaštite.
Materijal i metode: Ova opservaciona, longitudinalna kohortna studija sprovedena je tokom dvomesečnog perioda na 100 odraslih pacijenata primljenih u Hirurško-traumatološku jedinicu intenzivne nege tercijarne državne zdravstvene ustanove. Svi pacijenti lečeni su u skladu sa standardnim protokolima intenzivne nege ustanove. Podaci su prikupljeni pomoću obrazaca za prikupljanje podataka iz medicinske dokumentacije radi analize APACHE II skora, obrazaca primene lekova i njihove povezanosti sa ishodima lečenja.
Rezultati: Od ukupno 100 pacijenata, 53 je preminulo, dok je 47 preživelo. Pacijenti koji nisu preživeli imali su značajno više APACHE II skorove i primali veći broj lekova. Pacijenti sa APACHE II skorom manjim od 16 imali su stopu mortaliteta od 33,3%, dok je kod pacijenata sa skorom ≥16 stopa mortaliteta iznosila 79,06%, što je predstavljalo statistički značajnu razliku. Međutim, primena skupih lekova, kao što su antibiotici širokog spektra i albumin, nije se značajno razlikovala između preživelih i pacijenata koji nisu preživeli. Prosečni troškovi lečenja bili su nešto viši kod pacijenata koji nisu preživeli, ali ta razlika nije bila statistički značajna.
Zaključak: Rezultati naše studije pokazuju da je APACHE II skor pouzdan prediktor mortaliteta u jedinici intenzivne nege, pri čemu skor ≥16 predstavlja odgovarajuću graničnu vrednost za procenu rizika pacijenata. Viši APACHE II skorovi bili su povezani sa većim mortalitetom, dužim boravkom u jedinici intenzivne nege i relativno višim troškovima lečenja. Primena skupih lekova nije bila povezana sa poboljšanjem ishoda lečenja kod kritično obolelih pacijenata. Ipak, neophodna su buduća multicentrična istraživanja sa većim brojem ispitanika i produženim praćenjem nakon otpusta iz jedinice intenzivne nege kako bi se sveobuhvatnije procenila povezanost između težine bolesti, optimizacije farmakoterapije i ekonomskih aspekata zdravstvene zaštite.

Ključne reči: raspodela resursa, intenzivna nega, trijaža

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