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ORIGINAL ARTICLE

Artificial Intelligence Assisted Scoring System for Prognosis and Mortality Prediction of Acute Pancreatitis

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Abstract

Background: In this study, we aimed to evaluate the prognostic value of the Pancreatitis Artificial Intelligence (PanAI) score, a new AI-based scoring system, in predicting disease severity and in-hospital mortality in patients with acute pancreatitis (AP).

Methods: The study included 76 patients admitted to the emergency department with a diagnosis of AP between 01.01.2023 - 01.01.2024. Clinical and laboratory data of the patients were analyzed retrospectively. PanAI score, Ranson score, 48th hour Ranson score and Balthazar Computed Tomography Severity Index (CTSI) scores were calculated and their relationships with disease severity and in-hospital mortality were evaluated. Model performance was compared by ROC analysis.

Results: The mean age of the patients included in the study was 61.95±17.40 years and 44.2% of the patients were classified in the severe AP group. In-hospital mortality rate was 13.2%. The PanAI score was more accurate than other scores in predicting severe AP and in-hospital mortality (AUC=0.911). In logistic regression analysis, PanAI score was found to be an independent predictor of severe AP and mortality ($p<0.001$).

Conclusion: The PanAI score stands out as a strong prognostic indicator in predicting disease severity and mortality risk in AP patients. Due to its higher accuracy compared to traditional scoring systems, it can be an important tool in clinical decision-making.

Keywords: Acute Pancreatitis; Mortality; Risk Classification; Severity Assessment; PanAI Score.

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INTRODUCTION

Acute pancreatitis (AP) is a frequent exocrine inflammatory disease of the pancreas that can cause severe abdominal pain and multi-organ failure that can lead to pancreatic necrosis and permanent organ failure (1). AP is among the most common gastrointestinal disorders requiring acute hospitalization and is an important cause of morbidity and mortality, with an estimated incidence of 33.74 cases per 100,000 people per year and an estimated mortality rate of 1.16 per 100,000 people per year (2,3).

While most patients with AP have a self-limiting mild form of the disease, approximately 10-15% of patients have a severe form of the disease characterized by local and systemic complications with high morbidity and mortality rates (4). Therefore, early assessment of severity and identification of patients at risk is important for early intensive treatment and timely intervention, which has also been shown to improve prognosis and survival. The high-risk patient group may benefit from specific therapeutic procedures such as aggressive fluid resuscitation, close monitoring for the development of organ failure, appropriate administration of antibiotics and radiological interventions (5).

The Atlanta Classification has been acknowledged as the world-standard instrument for determining the severity of AP since its establishment in 1992 (5). Over time, however, some of the definitions in the original Atlanta Classification have proven to be confusing, particularly the definition of "severity". Permanent organ failure was emphasized in the 2012 revision of the Atlanta Classification (6). Multifactorial scoring systems, including the Ranson score and the Acute Physiology and Chronic Health Evaluation II (APACHE II) severity score, have been used since the 1970s to assess the severity of AP (7,8). Balthazar-based computed tomography severity index (CTSI) score is an imaging-based scoring system developed in 1990 (9). It has been determined that these prognostic techniques are a crucial instrument for determining the severity of AP. However, it has been reported that these multifactorial scoring systems do not achieve a high level of sensitivity and specificity on a clinical basis (10).

With the continuous improvement of statistical theory and the remarkable advances in computers over the last few years, machine learning has gained increasing popularity and application in clinical practice. The emerging use of artificial intelligence (AI) in healthcare can be used to predict prognosis and mortality in the management of complex diseases such as severe and mortal acute pancreatitis. In particular, machine learning and deep learning can significantly improve the predictive accuracy of severity assessments by integrating various types of data, including clinical parameters, laboratory results, imaging data and patient demographics (11). This capability could provide clinicians with tools that offer real-time insights and high predictive accuracy for severe acute pancreatitis (12).

In this study, we aimed to evaluate the prognostic value and clinical efficacy of the Pancreatitis Artificial Intelligence (PanAI) score, which was developed as an AI-based scoring system for early prediction of disease severity in patients with AP. Our hypothesis is that the PanAI score may improve clinical decision-making by providing higher accuracy in predicting disease severity and mortality risk compared to existing scoring systems.

MATERIALS AND METHODS

Study Design and Population

This study was performed retrospectively on patients admitted to the Emergency Department of a tertiary care hospital between 01.01.2023 - 01.01.2024 and diagnosed with AP. The study was approved by the local clinical research ethics committee (Decision No: 2024/59). The ethical principles of the Declaration of Helsinki were followed at all stages of the study.

The study was conducted in patients aged 18 years and older who presented to the emergency department with symptoms and signs of AP (abdominal pain, nausea, vomiting, etc.) and were diagnosed with AP as a result of their evaluation. The diagnosis of AP was defined as the presence of at least two of the following criteria: typical epigastric pain, serum amylase levels at least three times higher than normal levels and the presence of characteristic findings for AP on computed tomography (CT). Patients under 18 years of age, pregnant women, patients admitted after trauma, patients who were followed up for less than 48 hours or referred to an external center, and those with missing data in their files were excluded from the study.

Sample Size

Based on power analysis, a minimum total of 68 patients was calculated to be required for the study including two groups with and without severe pancreatitis, with α=0.05, power (1-β)= 0.8, and to detect a moderate difference (Cohen's effect size = 0.61).

Data Collection and Laboratory Assessment

Demographic information such as age and gender of the patients participating in the study were also recorded in the study form. Blood samples were collected in standardized tubes containing dipotassium ethylene dinitro tetra acetic acid (EDTA) for complete blood count (CBC). Plasma C-reactive protein (CRP) level was measured using a turbidimetric immunoassay. Venous blood samples taken for biochemistry analysis were studied with gel tubes. Leukocyte count, hemoglobin, hematocrit, platelet, neutrophil, lymphocyte, monocyte, immature granulocyte (IG), aspartate aminotransferase (AST), alanine aminotransferase (ALT), lactate dehydrogenase (LDH), glucose, creatinine, amylase, lipase, CRP levels were recorded on the study form. Neutrophil to lymphocyte ratio (NLR=Neutrophil/lymphocyte), systemic inflammatory response index (SIRI=Neutrophil×Platelet/Lymphocyte), systemic immune inflammation index (SII=Neutrophil×Monocyte/Lymphocyte) were calculated according to the results obtained from the hemogram parameters. The abdominal CT images of the patients were evaluated by an experienced radiologist and the CT findings were recorded on the data collection form.

Ranson and 48th hour Ranson scores were calculated according to the findings of the patients and recorded on the data collection form. Balthazar's CTSI score was calculated according to the CT findings and recorded on the data collection form.

AI Modelling

In this study, an artificial intelligence-assisted scoring algorithm was developed using the Claude 3.7 Sonnet model, an advanced AI system released by Anthropic in 2025. Claude 3.7 Sonnet was selected for its strong capabilities in processing complex clinical data, its ability to synthesize medical literature, and its effectiveness in multivariable analysis. These features make it well suited for integration into clinical decision support systems.

The AI model was trained using data and findings from eight previously published studies related to acute pancreatitis (13–20). It was provided with comprehensive information about the disease, including common clinical scoring systems used for mortality prediction. The model was instructed to analyze this input and generate a scoring system that could offer improved prognostic accuracy. Based on the output, a clinically applicable scoring algorithm, termed PanAI, was developed.

To create the PanAI score, data from patients with acute pancreatitis were analyzed, including admission values (demographics, inflammatory indices, hematologic and biochemical parameters, and CRP levels), 48-hour laboratory data, the Ranson score, and Balthazar CT severity scores.

The PanAI score includes the following parameters:

- Demographics: Age >55 years, male gender, non-biliary etiology
- Inflammatory indices: SII >2000, SIRI levels
- Hematological parameters: WBC >12.000 cells/mm3; hemoglobin >16 g/dL or <12 g/dL; hematocrit >44%; neutrophils >10,000 cells/mm3; monocytes >800 cells/mm3; IG >0.5%
- Biochemical parameters: Glucose >200 mg/dL; creatinine >1.4 mg/dL; ALT >123 U/L; AST >99 U/L; amylase 330 U/L; lipase >450 U/L; LDH >350
- CRP levels: >150 or >300 mg/L
- 48-hour values: Increase in BUN, decrease in hematocrit >10%, calcium <8 mg/dL, PaO_2 <60 mmHg, increased base deficit, fluid deficit >6 L, and Ranson score ≥3
- Imaging findings: Balthazar CT grade A–D

Patients were categorized into risk groups based on their total PanAI score:

- Low-risk (score <20): Expected mortality <1%
- Moderate-risk (score 20–27): Mortality risk 1–5%
- High-risk (score 28–35): Mortality risk 5–20%
- Very high-risk (score >35): Mortality risk 20–40%

The scoring criteria and cut-off values used for the PanAI score are presented in Table 1.

Assessment Criteria and Outcomes

Using the Revised Atlanta Classification, patients were divided into two risk groups: severe AP and mild/moderate AP. The primary outcome was defined as

Table 1. Parameters used for the PanAI Score and the scoring table used for scoring

A) Admission Parameters		B) 48-Hour Parameters		C) Imaging (Balthazar CT Score)	
Variables	**Points**	**Variables**	**Points**	**Variables**	**Points**
1. Demographic Data		Increase in BUN	3 Points	Grade A	4 Points
Age >55 years	3 Points	Hematocrit decrease >10%	3 Points	Grade B	8 Points
Sex (Male)	2 Points	Calcium <8 mg/dL	3 Points	Grade C	12 Points
Etiology (Non-biliary)	2 Points	PaO2 <60 mmHg	3 Points	Grade D	16 Points
2. Inflammatory Indexes		Increase in base deficit	3 Points		
SII >2000	3 Points	Fluid deficit >6L	3 Points		
SIRI 2-4	3 Points	Ranson ≥3	3 Points		
SIRI 4-6	5 Points				
SIRI >6	8 Points				
3. Hematological Parameters					
WBC >12.000 cells/mm^3	2 Points				
Hemoglobin >16 g/dL	2 Points				
Hemoglobin <12 g/dL	2 Points				
Hematocrit >44%	2 Points				
Neutrophil >10.000 cells/mm^3	2 Points				
Monocyte >800 cells/mm^3	2 Points				
Immature granulocyte >0.5%	1 Point				
4. Biochemical Parameters					
Glucose >200 mg/dL	2 Points				
Creatinine >1.4 mg/dL	2 Points				
ALT >123 U/L	2 Points				
AST >99 U/L	2 Points				
Amylase >330 U/L	2 Points				
Lipase >450 U/L	2 Points				
LDH >350 U/L	3 Points				
5. CRP					
CRP >150 mg/L	4 Points				
CRP >300 mg/L	6 Points				

Low Risk (<20 points): Mortality rate is <1% ; Clinical Outcome: Ward follow-up

Moderate Risk (20-27 points): Mortality rate is 1-5%; Clinical Outcome: Ward/High-dependency unit follow-up

High Risk (28-35 points): Mortality rate is 5-20% ; Clinical Outcome: Intensive care unit follow-up

Very High Risk (>35 points): Mortality rate is 20-40% ; Clinical Outcome: Intensive care unit follow-up

ALT: Alanine Aminotransferase, AST: Aspartate Aminotransferase, LDH: Lactate Dehydrogenase, CRP: C-Reactive Protein, CT: Computed Tomography, PanAI: Pancreatitis Artificial Intelligence, SII: Systemic Immune-Inflammation Index, SIRI: Systemic Inflammation Response Index, WBC: White Blood Cell count, BUN: Blood Urea Nitrogen, PaO2: partial oxygen pressure.

having Severe AP. The secondary outcome was defined as in-hospital 30-day mortality. Patients were divided into two groups as dead and alive according to whether in-hospital mortality occurred. The performance of the developed PanAI algorithm was compared with Ranson and Balthazar's CTSI score and inflammatory parameters and their performance in detecting in-hospital mortality was analyzed. ROC analysis was performed for the PanAI algorithm, Ranson and Balthazar's CTSI score and inflammatory parameters and the accuracy rates in mortality prediction were compared.

Statistical Analyses

Statistical Package for the Social Sciences (SPSS) version 27 (IBM, Armonk, New York, USA) was used to conduct the statistical analysis. Both analytical (Kolmogorov-Smirnov/Shapiro-Wilk test) and visual (histograms, probability plots) techniques were used to evaluate the distribution of variables. Numerical variables with a normal distribution were expressed as mean±standard deviation (SD), while those without a normal distribution were expressed as median (25th–75th percentile). Frequencies and percentages were used to represent categorical variables. For comparisons of numerical variables between independent groups, the Mann-Whitney U test was applied for non-parametric data, and the Student's t-test for parametric data. For comparisons of categorical variables between independent groups, the Chi-Square test or Fisher's Exact test was used. ROC analysis was performed to predict mortality of NLR, SII, SIRI, Ranson, Ranson48, CTSI and PanAI scores. The area under the curve (AUC) and cutoff values for each parameter were calculated. Sensitivity and specificity values were determined to evaluate the diagnostic performance of each parameter. Univariate Logistic Regression of patients were analyzed for predicting severity of AP and in-hospital mortality. A p-value<0.05 was considered statistically significant in all analyses.

RESULTS

A total of 76 patients aged between 29-93 years were included in the study and the mean age of the patients was 61.95±17.40 years. 59.2% of the patients were female. According to the Revised Atlanta Score, 44.2% (n=34) of patients were classified as severe pancreatitis and 13.2% (n=10) had in-hospital mortality, which was the primary outcome. 45.2% (n=14) of men and 44.4% (n=20) of women were classified as severe pancreatitis and no statistical difference was found (p=0.951). The median age of patients in the group classified as severe pancreatitis was significantly higher than those with mild/moderate pancreatitis (p=0.004). Patients with severe pancreatitis had higher WBC, neutrophil, NLR, SII, SIRI, CRP levels and lower lymphocyte levels than patients with mild/moderate pancreatitis (p<0.05). Ranson scores at admission, 48th hour Ranson scores and PanAI scores were significantly higher in the severe pancreatitis group (p<0.001). Balthazar CTSI score was not significant in the severe pancreatitis group compared to the mild/moderate group (p=0.180). The relationship between demographic characteristics and laboratory findings of the patients and the severity of AP is shown in demographic characteristics and laboratory findings of the patients and the severity of AP is shown in Table 2.

According to the results of logistic regression analysis, NLR (OR:1.108, p=0.002), SII (OR:1.001, p<0.001), SIRI (OR:1.268, p<0.001), Ranson (OR:2.827, p=0.001), Ranson48 (OR:4.195, p<0.001), Balthazar CTSI (OR:2.172, p=0.01) and PanAI (OR:1.153, p<0.001) scores successfully predicted severe AP. In addition, NLR (OR:1.296, p<0.001), SII (OR:1.00, p=0.001), SIRI (OR:1.196, p<0.001), Ranson (OR:2.368, p=0.007), Ranson48 (OR:4.269, p<0.001), and PanAI (OR:1.248, p=0.001) scores were predictors of in-hospital mortality. Information on logistic regression analysis is shown in Table 3.

According to the results of the ROC analysis performed to evaluate the performance of the variables in predicting in-hospital mortality, the PanAI score showed the best performance with an AUC of 0.911 for a cut-off point of 38.5, followed by Ranson48 with an AUC of 0.895 for a cut-off point of 2.5 and SIRI with 0.871 for a cut-off point of 7.896. The ROC graph is shown in Figure 1 and the performance characteristics of the variables in predicting in-hospital mortality are shown in Table 4.

DISCUSSION

In the present study, an AI-assisted prognostic scoring system for patients with AP was developed and validated in an external population. Logistic regression analy-

Table 2. The relationship between severity of acute pancreatitis and patient demographic characteristics, PanAI Score, scoring systems and laboratory findings

	Revised Atlanta Score		
	Mild/Moderate (n=42)	**Severe (n=34)**	**p values**
Sex; n (%)			
Female	25 (55.6%)	20 (44.4%)	0.951
Male	17 (54.8%)	14 (45.2%)	
Age (year)	56.52±17.67	68.65±14.7	**0.002**
WBC count (cells/mm^3)	9.27±2.4	12.54±5.47	**0.002**
Hemoglobin (mg/dL)	13.31±1.98	12.81±2.07	0.287
Platelet count (cells/mm^3)	263.07±71.46	262.71±99.8	0.985
Neutrophil count (cells/mm^3)	7.4(5.63-8.33)	14.95(10.58-17.65)	**<0.001**
Lymphocyte count (cells/μl)	1.99(1.53-2.54)	0.86(0.71-1.17)	**<0.001**
Monocyte count	0.71(0.49-0.8)	0.66(0.55-0.83)	0.762
NLR	3.28(2.55-4.63)	15.94(9.57-26.07)	**<0.001**
SII	893.22(664.4-1143.15)	4610.22(2087.87-6337.34)	**<0.001**
SIRI	2.2(1.35-3.75)	10.01(5.17-20.42)	**<0.001**
Glucose (mg/dl)	117(97.25-146.75)	144(121.75-163)	**0.013**
Creatinine	0.7(0.6-0.83)	1(0.8-1.3)	**0.001**
Amylase	551.5(222.25-1457)	517.5(171.75-1952.5)	0.975
Lipase	800(749.65-1061.83)	800(586.17-986.78)	0.330
AST (U/L)	47(18-198.25)	75(29-168.5)	0.361
ALT (U/L)	35(15.75-181.25)	55.5(25.25-138.75)	0.461
LDH (U/L)	214(173.75-291.5)	280.5(204-357.5)	**0.041**
CRP	6.35(2.22-16.08)	14.8(4.77-96.08)	**0.017**
IG (mmol/L)	0.3(0.2-0.5)	0.4(0.2-0.6)	0.150
Ranson	1(0-1)	1.5(1-2)	**<0.001**
Ranson48	1(0-1)	2(1-3.25)	**<0.001**
CTSI	1(0-2)	2(0-3)	0.180
PanAI Score	17.05±7.26	31.24±13.12	**<0.001**

Values are presented as mean ± SD, median (IQR), or n (%).
ALT: Alanine aminotransferase, AST: Aspartate aminotransferase, CRP: C-Reactive Protein, CTSI: Computed tomography severity index, IG: Immature granulocyte, LDH: Lactate dehydrogenase, NLR: Neutrophil to lymphocyte ratio, SII: Systemic immune-inflammation index, SIRI: Systemic inflammatory response index, WBC: White blood cells, PanAI: Pancreatitis Artificial Intelligence.

Table 3. Univariate logistic regression of PanAI score, Ranson scores, Balthazar CTSI, and inflammatory indices predicting severity of acute pancreatitis and predicting in-hospital mortality

Variables	Predicting Severity of AP		Predicting in-Hospital Mortality	
Parameters	**OR (%95 CI)**	**p value**	**OR (%95 CI)**	**p value**
NLR	1.296(1.147-1.464)	**<0.001**	1.108(1.039-1.182)	**0.002**
SII	1.001(1-1.001)	**<0.001**	1(1-1.001)	**0.001**
SIRI	1.268(1.127-1.426)	**<0.001**	1.196(1.086-1.317)	**<0.001**
Ranson	2.827(1.537-5.201)	**0.001**	2.368(1.26-4.452)	**0.007**
Ranson48	4.195(2.115-8.32)	**<0.001**	4.269(1.948-9.354)	**<0.001**
CTSI	1.328(0.919-1.919)	0.131	2.172(1.204-3.919)	**0.010**
PanAI	1.153(1.079-1.233)	**<0.001**	1.248(1.098-1.418)	**0.001**

AP: Acute pancreatitis, CI: confidence interval, CTSI: Computed tomography severity index, NLR: neutrophil-lymphocyte ratio, OR: Odds ratio, SII: systemic immune-imflammation index, SIRI: Systemic inflammatory response index, PanAI: Pancreatitis Artificial Intelligence.

Table 4. Diagnostic performance of PanAI score, Ranson scores, Balthazar CTSI, and inflammatory indices in predicting in-hospital mortality among patients with acute pancreatitis: ROC analysis results

Parameters	AUC	95% CI	Cutoff	Specificity	Sensitivity	p values
NLR	0.841	(0.729-0.953)	22.805	0.909	0.700	0.001
SII	0.859	(0.765-0.953)	2927.05	0.788	0.900	<0.001
SIRI	0.871	(0.765-0.977)	7.896	0.727	0.900	<0.001
Ranson	0.761	(0.583-0.938)	1.5	0.727	0.700	0.008
Ranson48	0.895	(0.733-1)	2.5	0.909	0.900	<0.001
CTSI	0.727	(0.528-0.927)	3.5	0.969	0.400	0.021
PanAI	0.911	(0.748-1)	38.5	0.900	0.985	<0.001

AUC: Areas under the curve, CI: Confidence interval, CTSI: Computed tomography severity index, NLR: Neutrophil-lymphocyte ratio, SII: Systemic immune-inflammation index, SIRI: Systemic inflammatory response index, PanAI: Pancreatitis Artificial Intelligence.

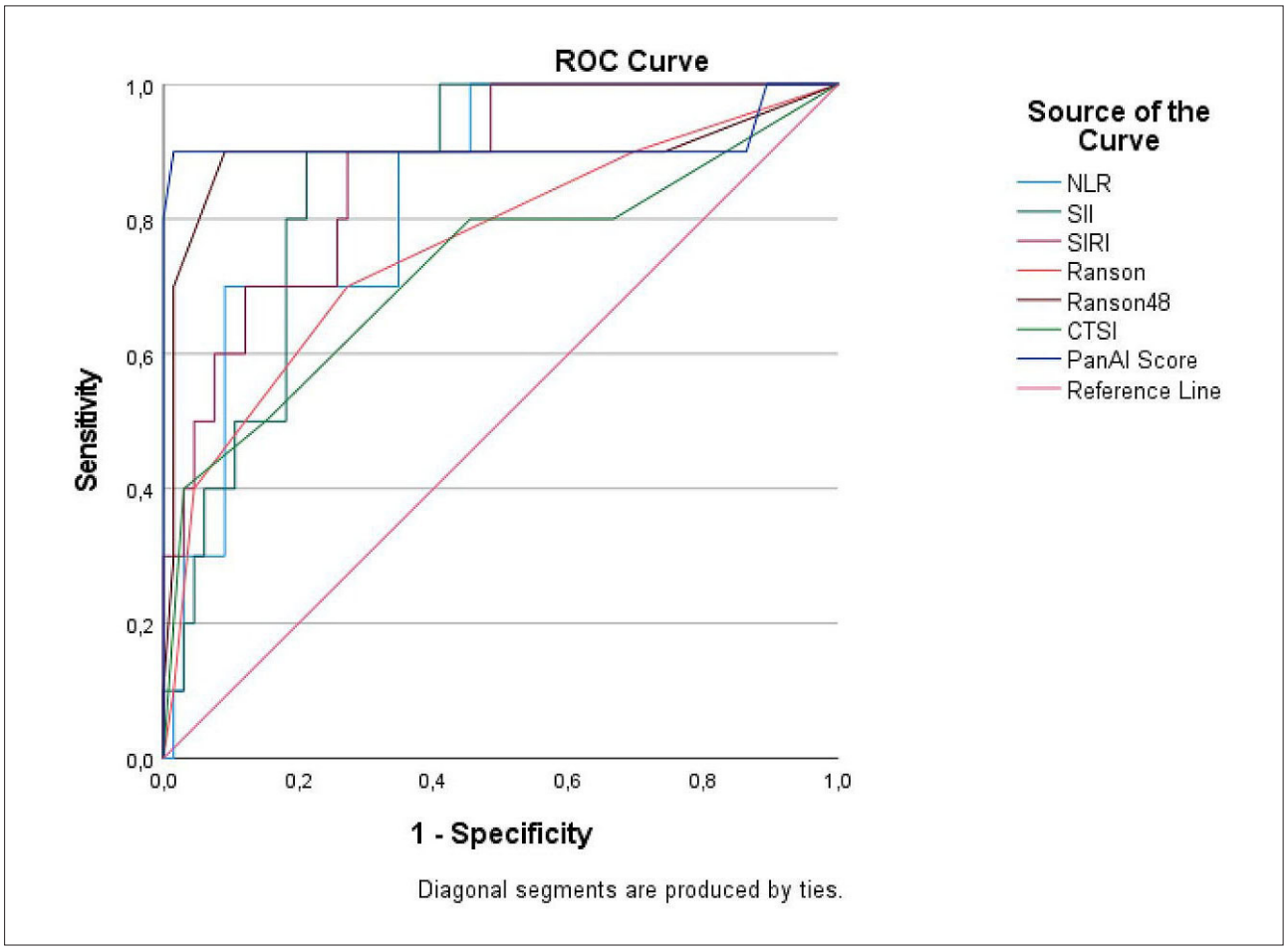

Figure 1: ROC analysis of the variables in predicting in-hospital mortality

CTSI: Computed tomography severity index, NLR: neutrophil-lymphocyte ratio, SII: systemic immune-imflammation index, SIRI: Systemic inflammatory response index, PanAI: Pancreatitis Artificial Intelligence

sis revealed that both PanAI score and severe AP were predictors of in-hospital mortality. In ROC analysis, the PanAI score outperformed inflammatory indices such as NLR, SII and SIRI, as well as the Ranson, 48-hour Ranson and Balthazar CTSI scores used to predict the prognosis of patients with AP. The PanAI score had higher AUC and sensitivity compared to these parameters.

AP is characterized by high morbidity and mortality rates and is among the leading causes of hospital admission for gastrointestinal causes. Although mortality rates are between 3-10%, this rate increases to 50% in severe AP form (20). Considering the high mortality rates and prevalence of AP, it is important to stratify the risk of the disease. Identifying the risk of disease at an early stage brings many clinical benefits. Primarily identifying patients in the high-risk group may alert clinicians to the need for aggressive treatment, close follow-up and critical care (21,22). Previous studies have shown that patients with severe AP benefit from early intensive treatment and have reduced morbidity and mortality rates (23). Another advantage of risk stratification is that by identifying patients in the low-risk group, inappropriate aggressive treatment may reduce the length of hospitalization and thus health care costs (24).

There are many scoring systems such as Ranson, Balthazar, CTSI and biomarkers such as NLR, SII, SIRI for risk stratification and prognosis prediction in AP. These traditionally developed risk classification systems have

some limitations such as the need for 48th hour parameters and focusing on only one of the laboratory or radiologic imaging findings (25). Unlike traditional scoring systems, AI can detect the complex and non-linear relationship between multiple parameters and disease and generate prognostic models (26). In recent years, many AI models have been developed to predict prognosis and disease severity in patients with AP (27). Keogan et al. showed that the AI model (AUC=0.83) outperformed both Ranson (AUC, 0.68) and CTSI (AUC, 0.62) scores in predicting disease severity in patients with AP (28). In another study, Pearce et al. compared the model they developed using a machine learning model with the APACHE-II score and showed that this model had a higher AUC than APACHE-II (0.82 vs. 0.74) (29). Similarly, Anderson et al. compared the model they developed using an artificial neural network with APACHE-II in predicting severe AP and reported that the artificial neural network-supported model outperformed APACHE-II with an AUC of 0.63 versus 0.84 (30).

In the current study, data from 8 different studies (13–20) investigating the severity and prognosis of AP in the literature were taught to AI to develop a machine learning model. It was asked to develop a model using the findings of existing studies and the results of statistical analysis, and this model was converted into a scoring system and calculated on the patients included in the study. In accordance with the studies in the literature investigating AI models in the prognosis of AP, the developed PanAI score was found to perform better than the traditional scoring systems Ranson, 48th hour Ranson and CTSI scores in predicting severe AP. Unlike the studies in the literature, the performance of the PanAI score developed in the present study was also compared with inflammatory biomarkers. We also investigated the effects of the PanAI score in predicting in-hospital mortality in addition to disease severity. The PanAI score performed well in predicting both in-hospital mortality and severe AP and outperformed inflammatory markers (NLR, SII and SIRI) in addition to traditional scoring systems.

This study has some limitations. First, since the study was retrospectively designed, some potential biases may have occurred during the data collection process. Second, the study was conducted in a single center and the patient population was relatively limited. Further research on larger patient groups will better establish the validity of the PanAI score in different patient subgroups and clinical scenarios. Further validation studies are also needed for the integration of the PanAI score into decision support processes in clinical practice. In order for AI-based systems to be used effectively in clinical practice, they need to be validated with prospective studies and software-based integration processes need to be developed.

The findings of the present study showed that the PanAI score provides higher accuracy in predicting both severe acute pancreatitis and in-hospital mortality compared to traditional scoring systems. The PanAI score can be used as an important tool in clinical decision support processes and may facilitate early risk stratification in the management of AP patients. In conclusion, PanAI score is a reliable and effective prognostic marker for predicting disease severity and mortality risk in patients with acute pancreatitis. Integration of this AI-supported scoring system into clinical use could improve patient management and contribute to strategies to reduce mortality.

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Abbreviations List

AI: Artificial Intelligence
ALT: Alanine Aminotransferase
AP: Acute Pancreatitis
APACHE II: Acute Physiology and Chronic Health Evaluation II
AST: Aspartate Aminotransferase
AUC: Area Under the Curve
BUN: Blood Urea Nitrogen,
CI: Confidence Interval
CRP: C-Reactive Protein
CT: Computed Tomography
CTSI: Computed Tomography Severity Index
EDTA: Dipotassium Ethylene Dinitro Tetra Acetic Acid
IG: Immature Granulocyte
LDH: Lactate Dehydrogenase
NLR: Neutrophil to Lymphocyte Ratio
OR: Odds Ratio
PanAI: Pancreatitis Artificial Intelligence
PaO2: Partial Oxygen Pressure.
SD: Standard Deviation
SII: Systemic Immune Inflammation Index
SIRI: Systemic Inflammatory Response Index
WBC: White Blood Cell

Ethics Approval and Consent to Participate

This study was approved by Ordu University Clinical Research Ethics Committee. Decision No: 2024/59.

Consent for Publication

We hereby confirm that all authors have read and approved the final version of the manuscript entitled "Artificial Intelligence Assisted Scoring System for Prognosis and Mortality Prediction of Acute Pancreatitis" and consent to its publication in Archives of Current Medical Research. All authors have contributed significantly to the work and agree to be accountable for all aspects of the manuscript. There are no conflicts regarding authorship or content, and we collectively provide our full consent for the article to be published.

Availability of Data and Materials

The data that support the findings of this study are available on request from the corresponding author.

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Author Contributions

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