

THE CORRELATION BETWEEN THORAX TRAUMA SEVERITY SCORE AND THE OCCURENCE OF ARDS IN THORACIC TRAUMA PATIENTS AT RSUP Dr. SARDJITO

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Abstract

Background: Thoracic trauma represents a prevalent injury pattern in clinical practice. Pulmonary contusion, a frequent sequela of thoracic trauma, constitutes a significant risk factor for the development of Acute Respiratory Distress Syndrome (ARDS). The Thoracic Trauma Severity Score (TTSS) provides a comprehensive assessment by integrating both anatomical and physiological parameters to stratify trauma severity and predict morbidity and mortality.

Objective: This study aimed to evaluate the correlation between TTSS scores and ARDS incidence in patients presenting with thoracic trauma.

Methods: We conducted an observational, cross-sectional study utilizing a quantitative analytical approach. Data were retrospectively collected from medical records and subjected to both descriptive and inferential statistical analyses using SPSS software (version XX). Univariate, bivariate, and multivariate analyses were performed. Categorical variables, including early mortality and length of hospitalization, were analyzed using the Chi-square test. Multivariable logistic regression was employed to assess the predictive capacity of independent variables for ARDS development.

Results: Our analysis revealed a statistically significant association between TTSS scores and ARDS occurrence ($p < 0.001$). The TTSS demonstrated the following diagnostic characteristics: sensitivity 45% (95% confidence interval [CI]: 23.2–66.8%), specificity 100% (95% CI: 100%),



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Hubungan Antara Thorax Trauma Severity Score Dengan Terjadinya ARDS Pada Pasien Trauma Toraks Di

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positive predictive value (PPV) 100% (95% CI: 100%), negative predictive value (NPV) 75.5% (95% CI: 63.0–88.1%), and overall accuracy 79.63% (95% CI: 68.9–90.4%).

Conclusion: These findings substantiate that TTSS scores exhibit a significant correlation with ARDS development following thoracic trauma. A TTSS threshold of ≥ 13 points emerges as a clinically relevant predictor for ARDS risk stratification in this patient population.

Keywords: Thoracic trauma; Acute Respiratory Distress Syndrome; Trauma scoring; Thoracic Trauma Severity Score; Pulmonary contusion

HUBUNGAN ANTARA *THORAX TRAUMA SEVERITY SCORE* DENGAN TERJADINYA ARDS PADA PASIEN TRAUMA TORAKS DI RSUP Dr. SARDJITO

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Latar Belakang: Trauma toraks merupakan trauma yang sering terjadi. Kontusio pulmo adalah cedera umum pada pasien trauma toraks, berisiko menyebabkan *Acute Respiratory Distress Syndrome* (ARDS). Sistem skoring *Thoracic Trauma Severity Score* (TTSS) menilai dengan menggabungkan parameter anatomis dan fisiologis untuk tingkat keparahan trauma toraks, morbiditas dan mortalitas.

Tujuan: Hubungan TTSS dengan ARDS pada pasien trauma toraks.

Metode: Penelitian observasional dengan rancangan *cross-sectional* dan pendekatan kuantitatif. Pengumpulan data secara deskriptif dan analitik dari rekam medis. Pengolahan data menggunakan SPSS analisis univariat, bivariat, dan multivariat. Uji *Chi-Square* digunakan untuk data kategorikal mortalitas dini dan lama rawat inap. Dilakukan uji regresi logistik untuk menganalisis pengaruh variabel independen terhadap kejadian ARDS.

Hasil: Penelitian menunjukkan hubungan signifikan antara kejadian ARDS pada pasien trauma thoraks dan nilai TTSS ($p < 0,001$). TTSS memiliki sensitivitas 45% (95% CI: 23,2–66,8%), spesifisitas 100% (95% CI: 100%), PPV 100% (95% CI: 100%), NPV 75,5% (95% CI: 63,0–88,1%), dan akurasi 79,63% (95% CI: 68,9–90,4%).

Kesimpulan: Berdasarkan hasil penelitian, nilai TTSS berhubungan secara signifikan terhadap kejadian ARDS pada pasien trauma thoraks. Nilai TTSS ≥ 13 poin dapat digunakan sebagai prediktor kejadian ARDS pada pasien trauma thoraks.

Kata kunci: Trauma thorax, ARDS, Skoring, TTSS