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Abstract No. 001

WHEN FOOD BECOMES FOE: DJENKOLISM-INDUCED OBSTRUCTIVE UROPATHY IN RESOURCE-LIMITED PRIMARY CARE

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Introduction: Djenkolism is a unique urological emergency in Southeast Asia caused by djenkolic acid crystal precipitation in the urinary tract. The primary pathology is a mechanical obstruction that can manifest as acute kidney injury. Managing this toxidrome is challenging in rural primary care due to the absence of advanced laboratory facilities, demanding high clinical suspicion and cost-effective treatment strategies.

Case Summary: A 24-year-old Komering female, a National Health Insurance (BPJS) beneficiary, presented to a rural emergency unit with a 15-hour history of acute anuria, nausea, and severe colicky flank pain. Symptoms emerged after consuming approximately 30 raw djenkol beans over three days, compounded by inadequate hydration (1 L/day). Examination revealed hypertension (153/100 mmHg) alongside pronounced bilateral costovertebral and suprapubic tenderness. Diagnostic catheterization bypassed the obstruction, yielding 10 mL of grossly hematuric urine, strongly indicating severe urothelial irritation by needle-like crystals. Abdominal ultrasonography revealed Grade 2 bilateral hydronephrosis. A clinical diagnosis of djenkolic-acid obstructive uropathy was established. Aggressive conservative management was initiated to prevent irreversible renal damage from tiered referral delays to a tertiary hospital. This consisted of intravenous hydration (1500 mL/day of 0.9% NaCl), urine alkalization via oral sodium bicarbonate, and intravenous furosemide. The response was remarkable; urine output increased to 350 mL within 5 hours post-intervention and reached 2500 mL of clear urine over 24 hours, completely resolving pain without invasive procedures.

Discussion: In resource-limited settings, the triad of acute anuria, secondary hypertension, and gross hematuria upon catheterization is sufficient to clinically diagnose severe djenkolism. This case demonstrates that prompt alkalization and diuresis prevent permanent renal damage, circumvent referral delays, and optimize national healthcare resources at the primary care level.

Keywords: Djenkolism, resource-limited setting, mechanical obstruction

Abstract No. 003

LAPORAN KASUS JARANG: REAKSI REVERSAL PADA KUSTA TIPE LEPMATOMOSA DENGAN EDEMA PERIFER DAN NEURITISKeyko Putri Prayogo^{1*}; Lusiana²

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Pendahuluan: Secara klinis kusta menyerupai berbagai penyakit kulit dan sistemik, terutama pada fase reaksi. Reaksi reversal umumnya ditemukan pada kusta tipe *borderline* dan jarang pada tipe lepromatosa. Diagnosis tepat dan cepat diperlukan untuk mencegah komplikasi.

Ilustrasi kasus: Laki-laki 54 tahun mengeluhkan bengkak disertai nyeri kedua tangan dan kaki sejak 1,5 tahun memberat dalam lima bulan terakhir. Karena keluhannya, pasien berobat ke puskesmas dan dinyatakan gagal ginjal kronik. Pasien dirujuk ke dokter spesialis penyakit dalam. Pada pemeriksaan laboratorium, fungsi ginjal dalam batas normal. Pasien lalu dirujuk ke poliklinik kulit dan kelamin dengan dugaan dermatitis stasis. Pemeriksaan fisik ditemukan madarosis, infiltrat difus sewarna kulit pada daun telinga, serta edema multipel di wajah, dorsum manus, dan dorsum pedis bilateral. Saraf ulnaris, dorsalis pedis, dan tibialis posterior bilateral membesar disertai nyeri tekan. Terdapat gangguan sensibilitas pada digit III, IV, dan V pedis bilateral. Apusan kulit dari daun telinga menunjukkan basil tahan asam. Pasien didiagnosis kusta multibasilar tipe lepromatosa dengan reaksi reversal disertai edema perifer dan neuritis serta mendapatkan *multi drug therapy* multibasilar, metilprednisolon 2x16 miligram/hari, dan vitamin B kompleks. Evaluasi dilakukan dalam dua minggu untuk pertimbangan penurunan dosis kortikosteroid. Pada kunjungan ulang, pasien mengalami perbaikan klinis yang ditandai dengan berkurangnya edema dan nyeri tekan saraf perifer.

Diskusi: Tantangan diagnosis kusta disebabkan manifestasi klinis yang tidak spesifik, fase awal asimtomatik, serta keterbatasan pengetahuan tenaga kesehatan terhadap spektrum kusta. Gejala akut reaksi kusta berupa edema perifer dan neuritis menjadi faktor utama yang mendorong pasien untuk segera mencari bantuan medis. Edema perifer dapat menyerupai diagnosis banding lain. Pada dermatitis stasis, bengkak dan nyeri bertambah jika berdiri lama. Manifestasi klinis reaksi kusta yang beragam menjadi pemicu salah diagnosis. Pelatihan kusta multidisiplin penting untuk meningkatkan ketepatan diagnosis kusta dan tata laksana guna mencegah mencegah morbiditas, deformitas, serta disabilitas.

Kata kunci: edema perifer, kusta, neuritis, reaksi kusta, tantangan diagnosis

Abstract No. 006

THE ROLE OF INTRANASAL LEPTIN AND ALPHA-2 AGONISTS IN REDUCING PERIOPERATIVE OPIOID USE TO MINIMIZE RESPIRATORY DEPRESSION IN PATIENTS WITH OBESITY

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Introduction: Obesity is associated with an increased risk of perioperative respiratory depression, a complication that may be exacerbated by excessive opioid use. Multimodal analgesia has been proposed to minimize opioid requirements, and emerging evidence suggests that intranasal leptin and alpha-2 agonists may serve as effective opioid-sparing agents. This study aimed to evaluate the effectiveness of intranasal leptin and alpha-2 agonists as perioperative management strategies in patients with obesity. **Methods:** This review utilized search engines such as *Pubmed*, *Google Scholar*, *Cochrane* and *ScienceDirect* to search for articles. The main keywords used in this searching process were “Intranasal Leptin”, “Alpha-2 Agonist”, “Opioids”, “Respiratory Depression” and “Obesity” using boolean operators to get structured and specific search results. The literature search identified 456 records. After duplicate removal, title/abstract screening, and eligibility assessment, five studies met the inclusion criteria and were included in this review. The inclusion criteria were based on PICOS framework containing five dimensions, those are populations (obese patients, experimental animal-induced obese, or artificial media-induced obese), intervention (intranasal leptin, alpha-2 agonist), comparison (placebo, control or opioid), outcome (reduction of respiratory depression), and study design (experimental or observational).

Results: Several articles (n=2) stated that alpha-2 agonist is proven to be safe and effective as a management agent for obese patients. However, there is one article (n=1) that stated otherwise as alpha-2 agonist gives no effect on obese patients. A couple of articles (n=2) reported that intranasal leptin has been proven to be a safe and effective treatment option for obese patients. Nevertheless, this study has several limitations as it does not determine the dose-dependent effect of alpha-2 agonist or intranasal leptin as a perioperative management agents in obese patients thus further reviews are needed. **Conclusion:** Alpha-2 agonist or intranasal leptin may serve as opioid-sparing perioperative management agents in obese patients.

Keywords: *alpha-2 agonist, intranasal leptin, opioid, respiratory depression, obesity*

Abstract No. 007

SURVIVING THE ISCHEMIC CASCADE: MANAGEMENT OF SEVERE MULTIORGAN FAILURE, BLEEDING DILEMMAS, AND MALIGNANT ARRHYTHMIA FOLLOWING HIGH-RISK MYOCARDIAL INFARCTION

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Introduction. Acute myocardial infarction complicated by cardiogenic shock carries a formidable mortality rate. Simultaneous multiorgan failure, life-threatening ventricular arrhythmias, and major bleeding pose substantial diagnostic and therapeutic challenges, particularly when balancing electrical stabilization, hemodynamic support, and antithrombotic therapy in patients with severely compromised circulatory reserve.

Case Summary. A 67-year-old male with chronic heart failure presented with cardiogenic shock and respiratory failure. Despite blunted troponin I (0.048 ng/mL), angiography confirmed a 90% proximal-mid left anterior descending artery thrombosis, successfully treated with early PCI. Anti-thrombotics included DAPT (aspirin 80mg, clopidogrel 75mg) and unfractionated heparin (UFH) at 750 IU/hour (later titrated to 500–700 IU/hour). The course was complicated by ischemic hepatitis, acute kidney injury, and an arrhythmic storm managed with lidocaine and digoxin. On day 4, the patient developed massive hematuria, likely induced by triple therapy compounded by catheter-associated *Enterococcus gallinarum* bacteremia that required UFH discontinuation. Confounders included advanced HFrEF and bacteremia. Following multidisciplinary ICU care, the patient stabilized, transferred to the ward on June 1st, discharged on June 6th, and remained stable at 6-day follow-up (June 12) with de-escalated anti-thrombotics (SAPT and VKA).

Discussion. This case illustrates that Type 1 MI can be diagnosed despite low troponin in advanced HFrEF, where myocardial reserve is depleted and biomarker release is blunted, based on ischemic symptoms, RWMA, and angiographic thrombotic occlusion. Managing hematuria required balancing stent thrombosis against bleeding whereas temporary UFH suspension was safe due to established DAPT. Enterococcal bacteremia and severe HFrEF confounded outcomes but were resolved via targeted antibiotics and precise fluid titration. Aggressive and individualized multidisciplinary management can achieve favorable outcomes in such critically ill patients.

Keywords: Non-ST-Elevation Myocardial Infarction; Cardiogenic Shock; Multiple Organ Failure; Ventricular Tachycardia; Hematuria

Abstract No. 009

QUANTITATIVE FLOW RATIO-GUIDED VERSUS ANGIOGRAPHY-GUIDED PERCUTANEOUS CORONARY INTERVENTION IN ST-SEGMENT ELEVATION MYOCARDIAL INFARCTION: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: Quantitative Flow Ratio (QFR) is an angiography-derived physiological assessment that may support decision-making during percutaneous coronary intervention (PCI) without pressure wires. Its role in patients with ST-segment elevation myocardial infarction (STEMI) has been evaluated in several primary studies, but the evidence remains limited and uncertain. This study compared the efficacy and safety of QFR-guided PCI versus conventional angiography-guided PCI in STEMI patients.

Methods: A systematic search was conducted in PubMed, Scopus, ScienceDirect, and OpenAlex. Randomized controlled trials and observational comparative studies evaluating QFR-guided PCI versus angiography-guided PCI in patients with STEMI were included. Risk of bias was assessed using the Risk of Bias 2 and ROBINS-I tools. Of 946 identified records, three eligible studies involving 2,578 patients were included. Outcomes were all-cause mortality, repeat revascularization, and number of implanted stents.

Results: Three studies involving 2,578 patients were analyzed. QFR-guided PCI significantly reduced repeat revascularization compared with conventional PCI (risk ratio 0.68; 95% confidence interval 0.50–0.93; $p = 0.01$). No significant difference was found in all-cause mortality (risk ratio 0.51; 95% confidence interval 0.08–3.35; $p = 0.48$) or number of implanted stents (mean difference -0.33 ; 95% confidence interval -0.77 to 0.11 ; $p = 0.15$).

Conclusion: In patients with STEMI undergoing PCI, QFR-guided PCI significantly reduced repeat revascularization compared with angiography-guided PCI. However, QFR-guided PCI showed no significant benefit in all-cause mortality or the number of implanted stents. These findings suggest that QFR-guided PCI may provide an advantage in reducing repeat revascularization, although its effect on other clinical and procedural outcomes remains uncertain.

Keywords: ST-segment elevation myocardial infarction, Quantitative Flow Ratio, Percutaneous Coronary Intervention, Revascularization, Meta-analysis.



Abstract No. 010

**SPONDILITIS TUBERKULOSIS VERTEBRA TORAKAL ATAS
DENGAN PARAPARESIS SPASTIK PROGRESIF: LAPORAN KASUS**Fathia Al Aida Hassa^{1*}; Yunisa Laksita Utami¹; Yullytia Franika Maryati²; Nazwan Hassa³

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Pendahuluan: Spondilitis tuberkulosis (TB) atau Pott's disease, mencakup sekitar 50% dari seluruh kasus TB tulang dan sendi. Meskipun predileksi tersering berada pada regio torakolumbal, manifestasi pada regio torakal atas relatif jarang dan dikategorikan sebagai lokasi atipikal sehingga meningkatkan risiko kompresi medula spinalis yang cepat.

Ringkasan Kasus: Seorang wanita berusia 18 tahun datang ke IGD RSUD Banyumas dengan keluhan utama kelemahan progresif sejak dua bulan disertai nyeri punggung atas disertai munculnya benjolan, demam sore hari, dan gangguan sensorik berupa kebas dari dada ke bawah. Pemeriksaan neurologis menunjukkan paraparesis spastik kekuatan otot skala 3. Hasil laboratorium menunjukkan anemia ringan dan trombositosis, sementara rontgen thorax menunjukkan infiltrat yang mengarah ke TB paru. MRI total spine kontras mengkonfirmasi diagnosis spondilitis TB dengan stenosis kanalis spinalis pada level VTh 1-3 disertai abses paravertebral. Urgensi kondisi neurologis pasien mendasari penegakan diagnosis secara presumptive melalui korelasi klinis radiologis untuk memulai terapi segera demi meminimalisir risiko disabilitas fungsional permanen. **Diskusi:** Lokasi lesi atipikal pada vertebra torakal atas (VTh 1-3) dapat cepat meningkatkan risiko kompresi medula spinalis karena diameter kanalis yang sempit. Temuan klinis gibbus mengkonfirmasi keterlibatan tipe paradiskal dengan destruksi korpus anterior. Meskipun terdapat stenosis signifikan, inisiasi cepat regimen OAT 4FDC dan kortikosteroid dosis tinggi menunjukkan perbaikan neurologis yang progresif. Pasca sepuluh hari perawatan, kekuatan motorik meningkat menjadi skala 4 dan pasien mulai mampu berjalan kembali dengan bantuan. Penggunaan CTLSO brace dan fisioterapi berperan vital dalam menjaga stabilitas mekanis dan mendukung pemulihan fungsional. Tindak lanjut jangka panjang dilakukan pengobatan selama 9-12 bulan untuk memastikan eradikasi kuman dan mencegah disabilitas permanen. Kasus ini menekankan diagnosis dini dan manajemen multidisiplin yang tepat sangat menentukan luaran klinis pada spondilitis TB atipikal.

Kata Kunci: Obat anti tuberkulosis, Paraparesis spastik, Pott's disease, Spondilitis TB, TB ekstrapulmoner



Abstract No. 011

**SEIZURES AT STROKE ONSET IN SUBARACHNOID
HEMORRHAGE: A CASE REPORT**Karenia Praptiningtyas^{1*}; Aditya Eka Octavian²; Untung Gunarto³

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Introduction: Seizure approximately occurs at the onset in 2.3% of all strokes and more frequently in subarachnoid hemorrhage (SAH). The seizures create a dual diagnostic challenge: an initial manifestation of the stroke itself or serve as a stroke mimic. Stroke often accompanied by hyperglycemia. Chronic hyperglycemia has been independently implicated in lowering the seizure threshold through mechanisms including free radical accumulation and iron deposition. This paper aims to display a case report of seizures at stroke onset in subarachnoid hemorrhage.

Case Summary: A 62-year-old male with uncontrolled hypertension and diabetes mellitus presented with sudden loss of consciousness, generalized tonic-clonic seizures, nausea, and vomiting. On examination, Glasgow Coma Scale was E1M1V1, with anisocoria and right-sided lateralization. Laboratory findings revealed leukocytosis (20,900/ μ L) and hyperglycemia (375 mg/dL). Non-contrast head CT demonstrated a hyperdense lesion (58 HU) in the left parieto-occipital cortex consistent with SAH (Fisher Grade 1). The patient was managed with phenytoin (200 mg IV loading, then 100 mg every six hours for three days), mannitol, citicoline, and insulin regimen. By the following day, he regained full consciousness. At discharge on day five, neurological examination revealed mild slurred speech and cranial nerve VII and XII palsies without limb weakness, with a Glasgow Coma Scale was E4M6V5.

Discussion: This case displays a complex interplay between SAH, seizures, and hyperglycemia. Seizures in SAH arise from acute biochemical disruption and cortical irritation caused by subarachnoid blood. Despite the posterior location of the lesion, cortical involvement conferred an elevated epileptogenic risk. Hyperglycemia contributes as an additional pro-convulsant factor by lowering seizure threshold so early identifying abnormal glucose level is important for further treatment. Phenytoin administered over three days achieves effective seizure control without prophylactic continuation. Mannitol was used to manage elevated intracranial pressure, and prompt multidisciplinary care contributed to the favorable functional outcome. Prophylactic antiepileptic therapy beyond the acute phase was appropriately withheld in accordance with current evidence-based guidelines.

Keywords: *subarachnoid hemorrhage, seizures at stroke onset, hyperglycemia, phenytoin, case report*

Abstract No. 012**LAPORAN KASUS ANALISIS FORENSIK PADA PENEMUAN JASAD BAYI: BAYI LAHIR MATI ATAU INFANTISIDA?**

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Pendahuluan: Penemuan jasad bayi memerlukan investigasi medikolegal yang sistematis untuk menentukan penyebab, cara kematian, serta implikasi hukumnya. WHO mendefinisikan bayi lahir mati sebagai kematian janin pada usia kehamilan lebih dari 28 minggu sebelum atau saat persalinan, sedangkan infantisida merupakan pembunuhan bayi oleh ibunya sendiri setelah lahir hidup. Penentuan mengenai bayi lahir hidup atau mati merupakan aspek penting dalam penegakan diagnosis forensik dan penerapan hukum.

Presentasi kasus: Dilaporkan penemuan jasad bayi laki-laki di kamar mandi sebuah lapangan di Jawa Tengah. Bayi ditemukan bersama ibunya yang mengaku tidak mengetahui kehamilannya. Berat badan bayi 1706 gram, panjang badan 43 cm, lingkar kepala 29 cm, dengan usia gestasi diperkirakan 30-32 minggu berdasarkan formula De Haas. Plasenta dan tali pusat masih melekat utuh. Pemeriksaan luar menunjukkan kemerahan pada wajah dan kepala tanpa lebam mayat, kaku mayat, maupun tanda pembusukan. Pemeriksaan dalam menemukan perdarahan petekial pada paru dan jantung, jendalan darah pada kepala, serta perlengketan pada otak. Tes apung paru menunjukkan hasil negatif, yang didukung pemeriksaan histopatologi berupa tidak ditemukannya pengembangan alveoli. Tidak ditemukan tanda-tanda perawatan terhadap bayi.

Diskusi: Temuan kemerahan pada kulit mengarah pada proses maserasi akibat kematian janin intrauterin, sedangkan berat badan lahir rendah mengindikasikan kemungkinan restriksi pertumbuhan intrauterin. Perdarahan intrakranial dan tanda hipoksia diduga terjadi selama atau sesaat sebelum persalinan. Hasil tes apung paru dan pemeriksaan histopatologi menunjukkan bayi tidak pernah bernapas setelah lahir. Berdasarkan hasil pemeriksaan forensik, diperoleh kesimpulan berupa kematian intrauterin akibat asfiksia disertai perdarahan. Interpretasi medicolegal pada kasus ini dibatasi oleh tidak tersedianya riwayat obstetri dan psikososial ibu serta pemeriksaan penunjang tambahan. Kasus ini menegaskan pentingnya pemeriksaan forensik yang komprehensif untuk membedakan kasus bayi lahir mati atau infantisida sehingga penegakan hukum dapat dilakukan dengan tepat.

Kata kunci: bayi lahir mati, infantisida, asfiksia, forensik, tes apung paru

Abstract No. 013

ANALISIS MOLECULAR DOCKING SENYAWA BIOAKTIF GINKGO BILOBA TERHADAP AKT1 DAN ERK2 PADA JALUR NEUROPROTEKTIF STROKE ISKEMIK

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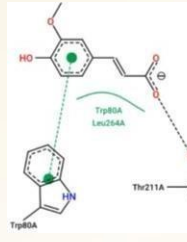
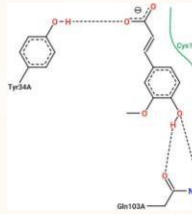
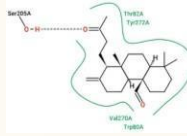
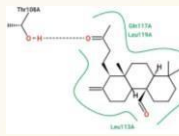
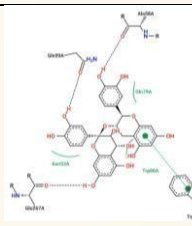
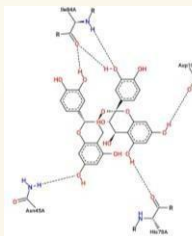
Pendahuluan: Stroke iskemik merupakan penyebab utama kecacatan dan kematian akibat apoptosis, inflamasi, dan stres oksidatif. Protein RAC-alpha serine/threonine-protein kinase (AKT1) dan extracellular signal-regulated kinase 2 (ERK2) berperan dalam regulasi kelangsungan hidup neuron. Ginkgo biloba dipilih karena mengandung berbagai senyawa bioaktif yang dilaporkan memiliki aktivitas antioksidan dan antiinflamasi, namun interaksi kelompok senyawanya terhadap AKT1 dan ERK2 masih belum banyak dievaluasi. Penelitian *in silico* ini bertujuan menganalisis afinitas pengikatan senyawa bioaktif Ginkgo biloba terhadap AKT1 dan ERK2 menggunakan molecular docking dengan edaravone sebagai pembanding.

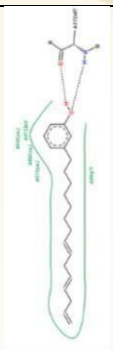
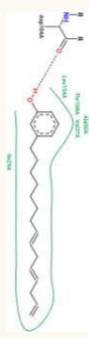
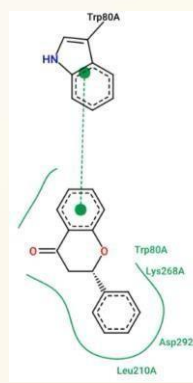
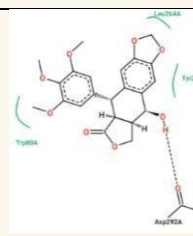
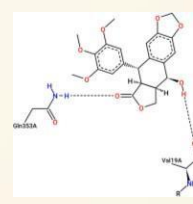
Metode: Penelitian ini merupakan penelitian *in silico* dengan pendekatan molecular docking. Enam kelompok senyawa bioaktif yang terdapat dalam Ginkgo biloba, yaitu flavonoid, lignan, proantosianidin, terpenoid, cardanol, dan asam ferulat, dievaluasi kelayakannya sebagai kandidat obat menggunakan Lipinski's Rule of Five dan parameter farmakokinetik melalui SwissADME, sedangkan prediksi absorpsi, distribusi, metabolisme, ekskresi, dan toksisitas (ADMET) dilakukan menggunakan pkCSM. Struktur protein target AKT1 dan ERK2 diperoleh dari Protein Data Bank, kemudian simulasi molecular docking dilakukan menggunakan PyRx. Analisis meliputi kelayakan senyawa, nilai binding affinity, serta interaksi ikatan hidrogen pada residu aktif protein.

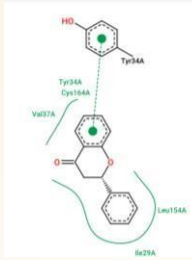
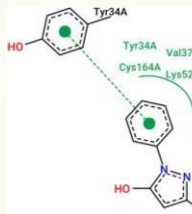
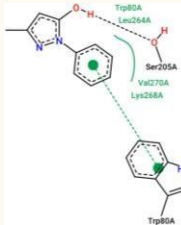
Hasil: Sebagian besar senyawa memenuhi Lipinski's Rule of Five serta menunjukkan profil farmakokinetik dan ADMET yang baik. Lignan dan flavonoid memiliki binding affinity tertinggi terhadap AKT1, masing-masing $-10,3$ dan $-9,8$ kcal/mol. Pada ERK2, flavonoid menunjukkan binding affinity tertinggi ($-9,2$ kcal/mol), sedangkan terpenoid dan asam ferulat terendah ($-6,5$ kcal/mol). Edaravone sebagai pembanding memiliki binding affinity $-7,9$ kcal/mol terhadap AKT1 dan $-7,1$ kcal/mol terhadap ERK2.

Kesimpulan: Berdasarkan simulasi molecular docking, flavonoid dan lignan dari Ginkgo biloba menunjukkan binding affinity dan interaksi ikatan hidrogen yang lebih baik dibandingkan edaravone terhadap AKT1 dan ERK2. Temuan ini menunjukkan potensi kedua kelompok senyawa tersebut sebagai kandidat inhibitor AKT1 dan ERK2 secara *in silico*.

Kata kunci: Stroke iskemik, *Ginkgo biloba*, Molecular docking

Kelompok Senyawa	Target Protein	Binding Affinity (kcal/mol)	Interaksi dengan asam amino			Visualisasi 2D
			Ikatan hidrogen	Ikatan vanderwalls	Ikatan tambahan	
Ferulic acid	AKT1	-6.9	Thr211A	Trp80A, Leu264A	Trp80 A	
Ferulic acid	ERK2	-6.5	Tyr34A, Gln103A	Cys164A	Tyr34 A	
Terpenoid	AKT1	-9.6	Ser205A	Thr82A, Val270A, Trp80A, Tyr272A	Tyr27 2A	
Terpenoid	ERK2	-6.5	Thr108A	Leu113A, Leu119A, Gln117A	-	
Proanthocyanidin	AKT1	-8.3	Ala58A, Gln59A, Glu267A	Asn53A, Gln79A, Trp80A	Trp80 A	
Proanthocyanidin	ERK2	-7.5	Ile84A, Asn45A, Asp104A, His78A	Ile84A, Asn45A, Asp104A, His78A	Trp80 A	

Kelompok Senyawa	Target Protein	Binding Affinity (kcal/mol)	Interaksi dengan asam amino			Visualisasi 2D
			Ikatan hidrogen	Ikatan vanderwalls	Ikatan tambahan	
Cardanol	AKT1	-8.3	Thr211A	Leu264A, Val270A, Lys268A, Leu210A, Trp80A	Trp80 A	
Cardanol	ERK2	-7.3	Asp104A	Ile29A, Leu154A, Thr108A, Val37A, Ala50A	Trp80 A	
Flavonoid	AKT1	-9.8	-	Leu210A, Lys268A, Asp292A, Trp80A	Trp80 A	
Lignans	AKT1	-10.3	Asp292A	Trp80A, Leu264A, Tyr272A	Trp80 A, Tyr27 2A	
Lignans	ERK2	-6.7	Gln353A, Val19A	Gln353A, Val19A	Tyr	

Kelompok Senyawa	Target Protein	Binding Affinity (kcal/mol)	Interaksi dengan asam amino			Visualisasi 2D
			Ikatan hidrogen	Ikatan vanderwalls	Ikatan tambahan	
Flavonoid	ERK2	-9.2	Tyr34A	Val37A, Leu154A, Ile29A, Cys164A	Tyr34 A	
Aderavone	ERK2	-7.1	-	Val37A, Cys164A, Lys52A	Tyr34 A	
Aderavone	AKT1	-7.9	Ser205A	Leu264A, Val270A, Lys268A	Trp80 A	

Abstract No. 015

COMPARISON OF INFLAMMATORY BIOMARKERS, LIPID INDICES, AND CLINICAL RISK SCORES FOR IN-HOSPITAL MACE RISK STRATIFICATION IN FIBRINOLYSIS-TREATED STEMI: AN EXPLORATORY COHORT STUDY

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Background: Early prediction of in-hospital major adverse cardiovascular events (MACE) remains crucial in fibrinolysis-treated ST-elevation myocardial infarction (STEMI). This study compared the prognostic performance of inflammatory biomarkers, lipid indices, and clinical risk scores for predicting in-hospital MACE.

Methods: An exploratory retrospective cohort study was conducted using medical records of STEMI patients treated with fibrinolytic therapy at An Ni'mah General Hospital, Central Java, Indonesia, between January 2024 and March 2026. Inflammatory biomarkers (NLR, PLR, NPR, SII, and SIRI), lipid-derived indices (LDL/HDL ratio, LDL cholesterol, atherogenic index of plasma [AIP], non-HDL cholesterol, and triglyceride-glucose [TyG] index), and clinical risk scores (TIMI, GRACE, and HEART) were compared between patients with and without in-hospital MACE. Receiver operating characteristic (ROC) curve analysis was performed to evaluate discriminative performance using area under the curve (AUC), sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV).

Results: A total of 47 patients were included, of whom 26 (55.3%) experienced in-hospital MACE. None of the inflammatory biomarkers or lipid-derived indices differed significantly between the MACE and non-MACE groups (all $p > 0.05$). Among inflammatory biomarkers, NPR demonstrated the highest discriminative performance (AUC 0.603, sensitivity 96.2%, specificity 81.0%), followed by SIRI (AUC 0.580) and SII (AUC 0.551), although none reached statistical significance. Among clinical risk scores, the GRACE score demonstrated the highest predictive performance (AUC 0.659, $p = 0.046$), outperforming TIMI (AUC 0.601) and HEART (AUC 0.549). Overall, established clinical risk scores showed greater prognostic performance than inflammatory biomarkers and lipid-derived indices for predicting in-hospital MACE.

Conclusion: In this exploratory study, established clinical risk scores, particularly the GRACE score, demonstrated more favorable discriminative performance than inflammatory biomarkers and lipid-derived indices for predicting in-hospital MACE among fibrinolysis-treated STEMI patients. These findings should be interpreted cautiously and warrant validation in larger prospective studies.

Keywords: ST-elevation myocardial infarction; major adverse cardiovascular events; inflammatory biomarkers; lipid indices; clinical risk scores

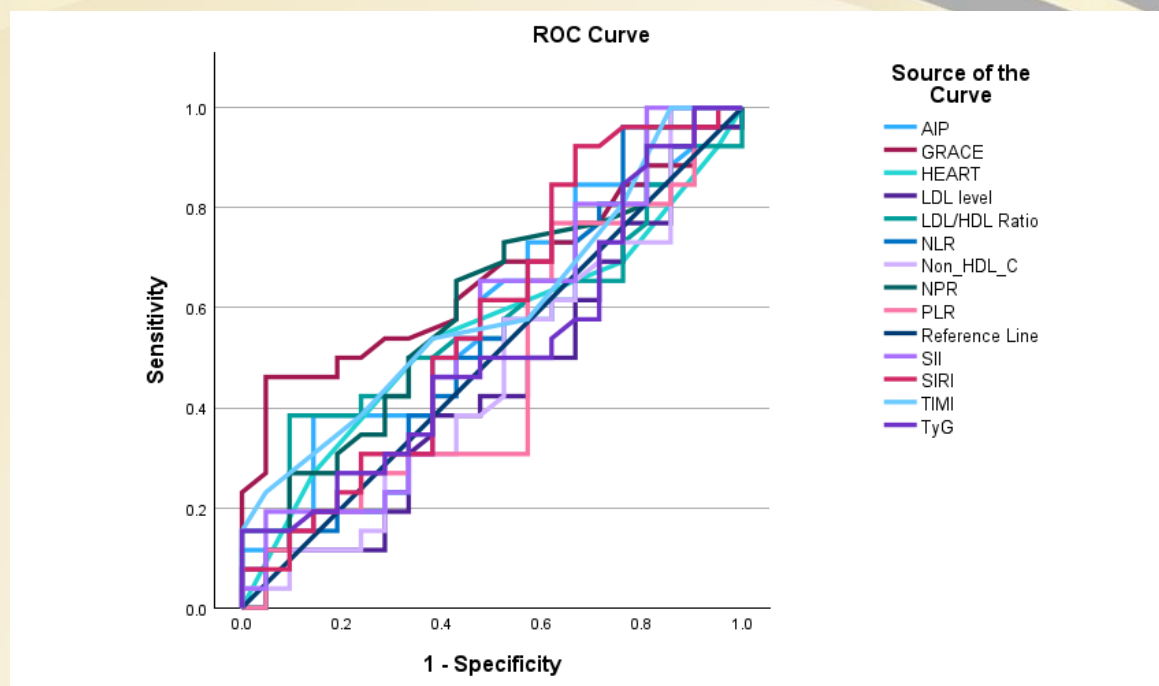


Figure 1. ROC Analysis of Inflammatory Biomarkers, Lipid Indices, and Clinical Risk Scores for Predicting In-Hospital Major Adverse Cardiovascular Events

Abstract No. 016

PERBANDINGAN AKURASI PROGNOSTIK NEWS2 DAN QSOFA DALAM MEMPREDIKSI MORTALITAS PASIEN SEPSIS DEWASA DI UNIT GAWAT DARURAT NEGARA BERPENGHASILAN RENDAH DAN MENENGAH: SYSTEMATIC REVIEW DAN META-ANALISIS

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Pendahuluan: Sepsis menyebabkan lebih dari 11 juta kematian per tahun, dengan 85% terjadi di negara berpenghasilan rendah dan menengah. qSOFA banyak digunakan sebagai alat skrining di unit gawat darurat, namun sensitivitasnya rendah (17–46%) membuat banyak pasien terlewat. NEWS2 kini direkomendasikan oleh *Surviving Sepsis Campaign 2026*, namun bukti di negara berpenghasilan rendah dan menengah masih sangat terbatas. Penelitian ini bertujuan membandingkan akurasi prognostik NEWS2 dan qSOFA dalam memprediksi mortalitas pasien sepsis dewasa di unit gawat darurat negara berpenghasilan rendah dan menengah.

Metode: *Systematic review* dan meta-analisis dilakukan mengikuti pedoman PRISMA 2020. Pencarian literatur dilakukan pada *PubMed*, *Scopus*, dan *ScienceDirect* mencakup publikasi tahun 2016–2026. Studi yang diinklusi adalah kohort dan observasional pada pasien dewasa (≥ 18 tahun) dengan suspek sepsis di unit gawat darurat negara berpenghasilan rendah dan menengah, yang melaporkan AUROC. Risiko bias dinilai menggunakan QUIPS. Meta-analisis menggunakan model *random-effects* *DerSimonian-Laird*.

Hasil: Enam studi memenuhi kriteria inklusi ($n=2.488$ pasien) dari India ($n=3$), Thailand ($n=2$), dan Colombia ($n=1$). AUROC *pooled* NEWS2 adalah 0,71 (95% CI: 0,64–0,79) dibandingkan qSOFA 0,65 (95% CI: 0,59–0,72). NEWS2 mengungguli qSOFA pada 5 dari 6 studi. Perbedaan terbesar ditemukan pada studi Casallas et al. 2025 (NEWS2: 0,80 vs qSOFA: 0,59; $p=0,0009$). Satu-satunya pengecualian terjadi pada subkelompok lansia (≥ 60 tahun), di mana qSOFA sedikit lebih tinggi (0,70 vs 0,68) namun tidak bermakna secara statistik.

Kesimpulan: NEWS2 memiliki performa prognostik lebih baik dibandingkan qSOFA dalam memprediksi mortalitas pasien sepsis di unit gawat darurat negara berpenghasilan rendah dan menengah, selaras dengan rekomendasi SSC 2026. Penerapannya memerlukan ketersediaan *pulse oximetry* di setiap pos triase. Penelitian validasi berskala besar di LMIC Asia Tenggara termasuk Indonesia masih sangat diperlukan.

Kata Kunci: *Low-Middle Income Country, NEWS2, qSOFA, sepsis, unit gawat darurat.*

Abstract No. 017

POLA FAKTOR RISIKO MULTIDRUG-RESISTANT TUBERCULOSIS (MDR-TB) PARU DI NEGARA BERKEMBANG DAN NEGARA MAJU: A SCOPING REVIEWHana Amada Nafisyah¹; Haziq Hidayatusibyan^{1*}; Siwi Mars Wijayanti²; Khaidar Ali²

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Latar Belakang: *Multidrug-resistant Tuberculosis* (MDR-TB) masih menjadi tantangan dalam pengendalian tuberkulosis global karena menyebabkan tingginya kegagalan pengobatan, lamanya durasi terapi, serta meningkatnya beban pembiayaan kesehatan. Perbedaan karakteristik epidemiologi dan sistem pelayanan Kesehatan antara negara berkembang dan negara maju diduga memengaruhi pola faktor Risiko MDR-TB. Penelitian ini bertujuan mengidentifikasi dan membandingkan faktor Risiko MDR-TB pada negara berkembang dan negara maju.

Metode: Penelitian ini menggunakan desain *Scoping Review* dengan mengikuti pedoman PRISMA-ScR. Pertanyaan penelitian disusun berdasarkan kerangka *Population, Concept, and Context* (PCC), meliputi pasien tuberkulosis sebagai populasi, faktor risiko MDR-TB sebagai konsep, serta negara berkembang dan negara maju sebagai konteks. Penelusuran literatur dilakukan melalui PubMed, Scopus, ScienceDirect, dan Google Scholar. Sebanyak 1.286 artikel teridentifikasi pada pencarian awal, kemudian dilakukan penghapusan duplikasi, skrining judul dan abstrak, serta seleksi teks lengkap berdasarkan kriteria inklusi dan eksklusi.

Hasil: Sebanyak 20 artikel dianalisis, terdiri atas 10 penelitian dari negara berkembang dan 10 penelitian dari negara maju. Riwayat pengobatan tuberkulosis sebelumnya merupakan faktor risiko yang paling konsisten ditemukan pada kedua kelompok negara. Faktor risiko yang dominan di negara berkembang meliputi riwayat kontak dengan pasien MDR-TB, merokok, diabetes melitus, status gizi kurang, keterlambatan diagnosis, dan rendahnya kepatuhan pengobatan. Sementara itu, pada negara maju faktor risiko yang dominan meliputi riwayat kontak dengan pasien MDR-TB, status *foreign-born*, usia lebih muda, dan riwayat migrasi dari negara dengan beban tuberkulosis tinggi.

Kesimpulan: Faktor risiko MDR-TB menunjukkan pola yang berbeda antara negara berkembang dan negara maju, meskipun riwayat pengobatan tuberkulosis sebelumnya merupakan faktor yang paling konsisten pada kedua kelompok negara. Temuan ini memberikan gambaran mengenai variasi faktor risiko MDR-TB yang dapat menjadi dasar dalam penyusunan strategi pencegahan dan pengendalian yang disesuaikan dengan karakteristik epidemiologi dan sistem kesehatan masing-masing negara.

Kata kunci: Faktor Risiko, MDR-TB, *Scoping Review*, Negara Berkembang, dan Negara Maju.

**Abstract No. 019****STEVENS JOHNSON SYNDROME TOXIC EPIDERMAL NECROLYSIS OVERLAP
IN PEDIATRIC PATIENT: A RARE CASE REPORT**Juwita Retnoringtyas^{1*}; Muhammad Rezza²

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Introduction: Stevens Johnson Syndrome Toxic Epidermal Necrolysis Overlap is a rare dermatological emergency. The incidence is estimated at only 1 to 10 cases per 1 million population per year and rarely encountered in children under 3 years of age, as their immune systems are generally under-developed. Drug hypersensitivity is the primary cause in more than 50% of cases and Amoxicillin is the common antibiotic that cause allergy.

Case Summary: An 11-month-old female infant presented to the emergency room with red rashes, blisters, erosions and crusts in entire body including mouth and eyes rushes. Three days prior to admission, the patient experienced cough and cold then treated with Amoxicillin syrup for the first time. Dermatological examination revealed multiple erythematous macules, loose-walled bullae containing clear fluid, crusts, and erosions with an erythematous base all over her body. Epidermolysis affected approximately 20% of the body surface area, with a positive Nikolsky sign. Routine blood tests were normal. Tzank smear revealed leukocytes and necrotic basal cells without multinucleated giant cells. The patient was treated with intravenous Dexamethasone and Ceftriaxone, followed by topical Hydrocortisone and Sodium Fusidate after saline compresses. The patient's skin improved with desquamation, disappearance of erythema and erosions, and the former lesions transformed into hypopigmented macules after 5 days of hospitalization.

Discussion: Although the mortality rate in children is lower than in adults, pediatric patients carry a higher risk of complications and recurrence. Common complications include severe pneumonia, gastrointestinal damage, and sepsis being the most frequent cause of mortality.

Keywords: Stevens Johnson Syndrome Toxic Epidermal Necrolysis Overlap, Pediatric, Dermatological Emergency

Abstract No. 020**SEVERE ULCERATIVE TYPE 1 REACTION IN BORDERLINE LEPROMATOUS LEPROSY: A CASE REPORT**

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Introduction: Borderline lepromatous (BL) leprosy is immunologically unstable, predisposing patients to leprosy reactions during multidrug therapy (MDT). Type 1 (reversal) reaction occurs in one-third of borderline patients, but ulcerative presentation is uncommon and marks high clinical severity. Such ulcers pose a diagnostic challenge, as they are more classically associated with erythema nodosum leprosum (ENL) or Lucio's phenomenon. We report a rare case of severe ulcerative type 1 leprosy reaction (T1LR) in borderline lepromatous leprosy.

Case Summary: 48-year-old male presented with progressive, painless ulcers on the face, hands, and feet, three months into multidrug therapy multibaciler (MDT-MB), preceded by hypopigmented macules and bilateral lower-limb hypesthesia and non-pitting edema. Examination showed erythematous plaques with central ulceration and necrotic eschar; hemoglobin was 10.7 g/dL. Excisional biopsy confirmed chronic granulomatous inflammation with perineural extension. Findings established BL leprosy complicated by severe ulcerative T1LR, differentiated from ENL and Lucio's phenomenon by the absence of systemic symptoms, ulceration confined to pre-existing plaques, and localized distribution. The coexistence of severe ulcerative T1LR and suspected dapsone-induced toxicity required individualized management, including replacement of standard MDT with rifampicin, clofazimine, azithromycin, and minocycline, together with tapered corticosteroids and topical wound care. At follow-up, plaques had nearly resolved, ulcers demonstrated marked healing, and hemoglobin recovered to 11.5 g/dL.

Discussion: Ulcerative type 1 leprosy reaction remains an uncommon clinical presentation, particularly in borderline lepromatous leprosy. In this patient, clinicopathological correlation was essential to distinguish T1LR from other ulcerative reactional states. Despite suspected dapsone-induced toxicity complicating management, favorable long-term outcomes were achieved following MDT modification and corticosteroid therapy.

Keywords: borderline lepromatous leprosy; leprosy reactions; reversal reaction; ulcerative type 1 reaction

Abstract No. 022

PROSEDUR THIERSCH SEBAGAI TATALAKSANA PROLAPS REKTUM FULL THICKNESS PADA PASIEN PEDIATRI : STUDI LAPORAN KASUS

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Latar belakang: Prolaps rektum *full thickness* merupakan kondisi keluarnya seluruh lapisan dinding rektum melalui sfingter ani. Kondisi ini umumnya terjadi pada bayi dan anak usia kurang dari 4 tahun dengan angka insidensi sekitar 0,25%-0,45%, sedangkan kasus pada usia remaja relatif jarang dilaporkan. Kami melaporkan seorang pasien berusia 13 tahun dengan prolaps rektum *full thickness* yang menjalani tindakan *Thiersch procedure*.

Ringkasan kasus: Seorang anak laki-laki usia 13 tahun dibawa ke rumah sakit dengan keluhan utama benjolan keluar dari anus secara berulang disertai pendarahan setelah buang air besar cair. Pemeriksaan fisik menunjukkan keluarnya benjolan rektum melalui anus disertai perdarahan dan sisa feses. *Rectal toucher* dilakukan guna menunjang diagnosa, sedangkan hasil laboratorium pre operatif berada dalam batas normal. Pasien didiagnosis prolaps rektum *full thickness* dan dilakukan tindakan *Thiersch procedure* oleh ahli bedah anak. Pasca operasi, hasil evaluasi *rectal toucher* menunjukkan tonus otot dalam batas normal, mukosa licin, ampula rektum tidak kolaps serta tidak ditemukan darah dan lendir.

Diskusi: Kasus ini ditatalaksana secara operatif berdasarkan gambaran klinis yang khas sedangkan pemeriksaan penunjang seperti defekografi yang direkomendasikan tidak dilakukan karena keterbatasan fasilitas kesehatan. Tindakan *Thiersch* diawali dengan membuat empat sayatan arah jam 3, 6, 9, dan 12, kemudian benang jahit vicryl, *absorbable*, ukuran 4.0, *taper*, dipasang membentuk *encirclement* yang mengelilingi kanal anus. Hegar dilator ukuran 17 mm digunakan untuk mempertahankan diameter lumen anus dan mencegah stenosis pasca operasi, kemudian luka insisi ditutup. Tindakan *Thiersch procedure* memberikan dukungan mekanis pada kanalis ani tanpa reseksi rektum atau diseksi intraabdomen, dan minimal invasif dibandingkan prosedur lain.

Kesimpulan: Prolaps rektum *full-thickness* pada usia remaja termasuk kasus yang jarang dijumpai. Tindakan *Thiersch procedure* dapat dipertimbangkan sebagai salah satu tindakan operatif dengan sayatan minimal. Meskipun tidak adanya kebaruan, kasus ini diangkat karena dapat memberikan pembelajaran klinis terkait prolaps rektum pada anak dan pemilihan tatalaksana operatif yang sesuai.

Kata Kunci: Bedah pediatri, laporan kasus, prolaps rektum *full thickness*, prosedur Thiersch

Abstract No. 023

OMPHALOCELE ASSOCIATED WITH PATENT URACHUS: A DIAGNOSTIC CHALLENGE IN NEONATAL EMERGENCY CASE

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Introduction: Omphalocele is a congenital abdominal wall defect that presents as neonatal emergency and has been frequently reported with other congenital anomalies. Patent urachus is a congenital anomaly resulting from failure of urachal obliteration, leading to a persistent connection between the urinary bladder and the umbilicus. Early recognition is essential for determining an appropriate surgical approach.

Case Summary: A male neonate was delivered by cesarean section with a congenital abdominal wall defect. Antenatal ultrasonography suggested omphalocele with bladder exstrophy. The pregnancy was uneventful, with high risk maternal age (40 years) and multiparity as the only notable findings. After birth, the patient was referred to the pediatric surgery department with a preliminary diagnosis of umbilical cord hernia and bladder exstrophy. Examination revealed urinary discharge from the membrane-covered abdominal defect. During urinary catheterization, the catheter tip emerged through the defect, suggesting an abnormal connection between the urinary bladder and abdominal wall. Intraoperatively, an 8-cm abdominal wall defect with small bowel evisceration and patent urachus was identified. Urachal excision and primary abdominal wall closure were performed. The patient was discharged with an urinary catheter, which was removed during follow-up with a dry surgical wound.

Discussion: Combination of omphalocele and patent urachus is a rare condition with limited reports in the literature. Omphalocele is commonly associated with other congenital anomalies, including cardiac defects, diaphragmatic hernia, and anorectal malformations. In this case, patent urachus was identified during further evaluation and confirmed intraoperatively, presenting a diagnostic challenge due to its rarity. This case report highlights the importance of considering associated anomalies in patients with omphalocele. Early recognition allows optimal surgical planning and reduces the risk of postoperative complications.

Keywords: Omphalocele; Patent urachus; Congenital; Neonatal emergency



Figure 1 Excision of patent urachus

Abstract No. 024

EVALUASI KUANTITATIF PENGGUNAAN ANTIBIOTIK PADA PASIEN INFEKSI PARU DI BANGSAL PENYAKIT DALAM RSUD BANYUMAS DENGAN METODE DEFINED DAILY DOSE (DDD)

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Latar belakang: Infeksi paru merupakan salah satu penyebab utama morbiditas dan mortalitas pada pasien rawat inap, sehingga penggunaan antibiotik menjadi komponen penting dalam penatalaksanaan infeksi paru. Penggunaan antibiotik tanpa disertai evaluasi dan pemantauan yang tepat berpotensi menyebabkan ketidakrasionalan terapi serta peningkatan resistensi antibiotik. Penelitian ini bertujuan mengevaluasi penggunaan antibiotik secara kuantitatif pada pasien infeksi paru di bangsal penyakit dalam RSUD Banyumas menggunakan metode Defined Daily Dose (DDD) dan Drug Utilization (DU) 90%.

Metodologi: Penelitian ini merupakan studi observasional deskriptif retrospektif dengan menggunakan data sekunder yang diperoleh dari rekam medis pasien infeksi paru di bangsal penyakit dalam RSUD Banyumas yang memenuhi kriteria inklusi. Analisis penggunaan antibiotik dilakukan secara kuantitatif menggunakan metode

DDD per 100 *patient-days* serta analisis *Drug Utilization* (DU) 90%.

Hasil: Terdapat 11 jenis antibiotik yang digunakan dengan total konsumsi sebesar 97,756 DDD/100 *patient-days*. Seftriakson parenteral merupakan antibiotik yang paling banyak digunakan dengan nilai 44,44 DDD/100 *patient-days* dan menempati persentase tertinggi dalam segmen DU 90%. Penggunaan antibiotik pada pasien infeksi paru di RSUD Banyumas didominasi oleh antibiotik golongan *watch* dan *reserve* yang mencerminkan tingginya penggunaan antibiotik spektrum luas.

Kesimpulan: Penggunaan antibiotik pada pasien infeksi paru di RSUD Banyumas menunjukkan perlunya evaluasi dan pemantauan penggunaan antibiotik secara berkelanjutan untuk meningkatkan rasionalitas penggunaan antibiotik dan menekan risiko resistensi.

Kata Kunci: *defined daily dose*, *drug utilization* 90%, antibiotik, infeksi paru, resistensi antibiotik

Abstract No. 026

FINGER THORACOSTOMY IN TRAUMA: WHAT DOES THE EVIDENCE REALLY SAY? A SYSTEMATIC REVIEWPutri Eka Sesariana^{1*}, Diza Fara Ramadhanti², Putri Nur'afni Sa'adah³

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Background: Finger thoracostomy is an emergency technique for pleural decompression in trauma patients with suspected or confirmed pneumothorax and/ or hemothorax. Although increasingly used in prehospital care, evidence regarding its clinical effectiveness and complications remains limited.

Methods: This systematic review was conducted in accordance with the PRISMA 2020 guidelines. PubMed, ScienceDirect, Scopus, and Europe PMC were searched from inception to July 2026. Prospective and retrospective observational studies evaluating finger thoracostomy in trauma patients were eligible for inclusion. Outcomes of interest included effectiveness, physiological response, and procedure-related complications. Owing to heterogeneity in study design and outcome reporting, the findings were synthesized narratively.

Results: Six observational studies involving 569 trauma patients were included. One study was prospective, and five were retrospective. Of these, 444 patients underwent finger thoracostomy. Overall, the included studies suggested that finger thoracostomy was effective for pleural decompression and was associated with improvements in physiological parameters, particularly oxygenation. Procedure- related complications were generally uncommon, although the types and frequencies of complications varied across studies.

Conclusions: Finger thoracostomy may be an effective and generally safe emergency pleural decompression technique for selected trauma patients, particularly in prehospital settings. However, the available evidence is predominantly observational and heterogeneous, limiting definitive conclusions. Further prospective comparative studies are required to establish its optimal indications, effectiveness, and safety.

Keywords: *finger thoracostomy; thoracic decompression; tension pneumothorax; trauma; hemothorax*

Abstract No. 027

BEYOND FREE MEALS: DOES INDONESIA'S FREE NUTRITIOUS MEAL PROGRAM ADDRESS THE ROOT CAUSES OF MALNUTRITION? A SCOPING REVIEW

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Introduction: Malnutrition remains one of Indonesia's persistent public health problems, with cognitive and socioeconomic consequences. The 2023 Indonesian Health Survey recorded stunting in 21.5% of children under five, wasting in 8.5% (up from 7.7% in 2022) and underweight in 15.9%. The free nutritious meal program, implemented from January 2025, reached 63 million beneficiaries by Juni 2026. Whether it addresses the determinants of malnutrition beyond food provision remains uncertain.

Methods: A scoping review was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews. PubMed, Scopus, ScienceDirect, Google Scholar and Garuda were searched for records published between January 2015 and June 2026, combining terms for free nutritious meal, school feeding, stunting, malnutrition determinants and Indonesia. Agency and ministry reports were hand-searched, and two reviewers screened records independently. Data were charted against the immediate, underlying and enabling determinants framework and synthesized narratively. Of 1,246 records screened, 41 were included.

Results: Pooled evidence from low- and middle-income countries showed that school feeding produced modest twelve-month gains in height (0.32 cm), weight (0.58 kg) and attendance (2.6%), but no significant change in height-for-age z-score (0.02; 95% confidence interval -0.06 to 0.10). Linear growth responds to interventions delivered within the first 1,000 days, whereas most beneficiaries are of school age. Structural determinants persisted: inadequate food consumption affected 7.89% of the population in 2025 and 27.8% lacked health insurance, a long side sanitation and nutrition-literacy gaps. Implementation risk was substantial, with 445 suspected foodborne outbreaks affecting 37,673 beneficiaries by May 2026.

Conclusion: The program improves access to nutritious meals, but evidence does not support food provision alone as a means of reducing stunting. Effectiveness depends on integration with first-1,000-days interventions, nutrition education, health services, sanitation and social protection, supported by food-safety governance and outcome monitoring.

Keywords: free nutritious meal program; malnutrition; stunting; nutrition policy; scoping review

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ASSOCIATION BETWEEN GACHA, LOOT BOX, AND BLIND BOX WITH SUICIDE AND PROBLEM GAMBLING: A SCOPING REVIEWKeysa Putra Syahrinto^{1*}, Adrian Akbar Dewandaru², Purwa Riana Isnaya², Okto Prihermes³

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Introduction: Suicide is a neglected psychiatric emergency in emergency settings with high underreporting in Indonesia that can be caused by problem gambling. Random reward mechanism (RRM), such as gacha, loot box, and blind boxes, can activate the brain's reward system and thereby potentially induce problem gambling. However, there is a dearth of systematic reviews that explore the association between gacha, loot box, and blind box with suicide and problem gambling. Therefore, this study aims to identify the key factors that associate gacha, loot box, and blind box with suicide and problem gambling.

Methods: This study is a scoping review conducted using the JBI methodological framework. Literature search was performed across three electronic databases: PubMed, Scopus, and APA PsycArticles and Google Scholar to search for grey literature. The study selection process was carried out by the first and second authors using PRISMA-ScR.

Results: This scoping review comprised 35 quantitative and three qualitative studies. Our analysis found an association between expenditure, engagement, problematic use, sellable items, number of games played, entry age, frequency, daily time spent playing, and motives for using gacha, loot box, and blind box with problem gambling. From thematic analysis, we found that the player's feeling, limited time event, targeted item, game effect, loot box's content, and social media were also associated with problem gambling. Furthermore, we found associations between engagement, frequency, expenditure, tolerance, and the amount of money borrowed for blind boxes with suicide risk which was mediated by depression and anxiety. This study supports mesolimbic dopamine dysregulation that triggers problem gambling and suicide.

Conclusion: In this study, we identified the key factors that associate gacha, loot box, and blind box with suicide and problem gambling. However, further study is needed to explore this association in Indonesia.

Keywords: Gacha, Loot Box, Blind Box, Suicide, Problem Gambling