



Published: 2020-12-26

## Pharmacology

### Controlled Clinical Trial Effect of Noni Fruit Extract (*Morinda citrifolia*) Toward Overactive Bladder Women through Observation of High-Sensitivity C-reactive Protein in Urine Levels

Edy Ardiansyah, M. F. G. Siregar, R. A. Ganie, I. B.utra (Author)  
706-710

PDF

## Gastroenterohepatology

### The Potential of Vitamin D3 to Repaired Mucosal Injury in Dextran Sulfate Sodium Induced Acute Colitis in Mice

Satrio Wibowo, Krisni Subandiyah, Kusworini Handono, Sri Poeranto (Author)  
931-936

PDF

### Anorectal Manometry on Children: A Moroccan Series and Literature Review

HANANE DELSA, Ilham Serraj, Mohamed Khalis, Nawal Kabbaj (Author)  
337-343

PDF

### Mesenteric Vessel Thrombosis Treatment Experience

Vladimir Beloborodov, Vladimir VorobeV, Svetlana Sokolova, Aleksandr Frolov, Denis Kornilov, Ludmila Sorokina, Igor Golub (Author)

PDF

### Increase Serum Tumor Necrosis Factor Alpha decreased Serum Cholesterol Level, but not Albumin, in Hemodialysis Patients with Non-Fibrotic Hepatitis C Infection

Rudi Supriyadi, Nenny Agustanti, Marcella Adisuhanto (Author)  
614-619

PDF

### The Effect of Uncaria gambir Roxb. Extract on Superoxide Dismutase Activity in Proteinuric Wistar Rats Model

Rosmayanti Syafriani Siregar, Aznan Lelo, Delyuzar Harris, Oke Rina Ramayani, Muhammad Ichwan (Author)  
1505-1509

PDF

### The Relationship between Serum Sclerostin Levels and Bone Mineral Disorders and Vascular Calcification in Hemodialysis Patients

Emad Abdallah, Nevine Sherif, Osama Mosbah, Amna Metwally (Author); Ibrahim Abd ElAzim; Ola Mahmoud, Mohamed Farouk, Samah Mamdouh, Samya El-Shishtawy, Asmaa Mohamed (Author)  
1664-1671

PDF

### Interleukin-31 Serum And Pruritus Dimension After Acupuncture Treatment In Hemodialysis Patients: A Randomized Clinical Trial

Dedi Ardinata, Rozaimah Zain-Hamid, Irma. D. Roesyanto-Mahadi, Hasan Mihardja (Author)  
196-201

PDF

### The Effect of Bariatric Surgery versus Intensive Medical Care on Prevention of Microalbuminuria in Patients with Type 2 Diabetes: 3 Year Experience of a Prospective Study

Amin Soliman; Haythum Soliman, Mervat Naguib (Author)  
202-207

PDF

### The Correlation between Estimated Glomerular Filtration Rate and Parathyroid Hormone Levels in Predialysis-chronic Kidney Disease Adult Patients at Sanglah General Hospital, Bali, Indonesia

1098-1104

PDF

### The Role of Endoscopic Retrograde Cholangiopancreatography in the Management of Biliary Complication Post-Laparoscopic Cholecystectomy

Mohamed Abdzaid Akool, Samer Makki Mohamed Al-Hakkak, Alaa Abood Al-Wadees (Author)  
313-317

PDF

### Bismuth Classification of Bile Duct Injury and Its Association with Increasing 30 Days Mortality after Revision Surgery

Budhi Ida Bagus, Metria Ida Bagus, Setyawati Ida Ayu (Author)  
272-275

PDF

### Vascular Endothelial Growth Factor Levels Difference among Hepatocellular Cancer Patients Based on Barcelona Clinic Liver Cancer Staging

Darmadi Darmadi, Riska Habriel Ruslie, Cennikon Pakpahan (Author)  
797-800

PDF

### The Difference of Hypoxic Inducible Factor-1 $\alpha$ , Vascular Endothelial Growth Factor, and Transforming Growth Factor- $\beta$ 1 Based on Liver Fibrosis Severity in Patients with Chronic Hepatitis B

Libya Husen, Gontar Alamsyah Siregar, Masrul Lubis (Author)  
91-95

PDF

## Nephrology

### Spectrum of Complications of Patients with Chronic Kidney Disease on Maintenance Continuous Ambulatory Peritoneal Dialysis: An Experience of Tertiary Nephrology Center in Najaf City-Iraq

Evan Noori, Rawaa Hadi, Yasir Sharba , Zahraa Fathi Sharba (Author)  
1529-1534

Sianny Herawati, Yenny Kandarini, I Putu Yuda Prabawa (Author)  
470-474

PDF

### Health-Related Quality of Life Difference between Early Diagnosed and Finished Therapy of Nephrotic Syndrome in Children

Riska Habriel Ruslie, Darmadi Darmadi, Cennikon Pakpahan (Author)  
801-805

PDF

### Midkine as an Early Biomarker of Contrast-induced Acute Kidney Injury in Chronic Kidney Disease Patients Undergoing Percutaneous Coronary Intervention for Acute Coronary Syndrome: A Single-center Prospective Study

Mohamed Ahmed, Gamal Hamed Ibrahim, Mahmoud Adel, Amira Ismail, Abdallah Almaghraby, Mahmoud Abdelnabi (Author)  
983-989

PDF

### The Relationship between Nutritional Status and Latent Tuberculosis in Routine Hemodialysis

Ria Bandiara, Lilik Sukei, Astried Indrasari, Iceu Dimas Kulsum, Mohammad Rudiansyah (Author)  
945-951

PDF

### Predominant Factors Affecting Sexual Dysfunction on Patients with Continuous Ambulatory Peritoneal Dialysis

Yuswinda Kusumawardhani, Krisna Yetti, I Made Kariasa (Author)  
373-377

PDF

### Serum Level of Uromodulin as an Early Predictor Marker of Kidney Disorders

Salwa Mostafa El-Shebini, Hend A. Essa, Maha I. A. Moaty, Nihad H. Ahmed, Ahmed M. S. Hussein, Magda S. Mohamed, Salwa T. Tapozada (Author)  
167-175

PDF

## Cardiology

### The Risk Factors of Coronary Heart Disease and its Relationship with Endothelial Nitric Oxide Synthase

Eka Fithra Elfi, Eva Decroli, Ellyza Nasrul, Yanwirasti Yanwirasti, Eryati Darwin (Author)  
451-456

PDF

### Knowledge and Application of Cardiovascular Disease Prevention Guidelines among Family Physicians: A Cross-sectional Study

Oleksii Korzh, Yevgenii Nikolenko, Anna Titkova, Yelizaveta Lavrova, Kira Vovk (Author)  
990-995

PDF

### The Role of Neutrophil Lymphocyte Ratio as a Major Adverse Cardiac Events Predictor and Its Correlation with Coronary Severity in Acute Coronary Syndrome Patients with Chronic Kidney Disease: A Case Control and Cross-Sectional Study

Suzanna Immanuel, Eka Ginanjar, Fahrani Imanina Putri Nurtyas, Ninik Sukartini, Yusra Yusra, Merci Monica B. R. Pasaribu (Author)  
1758-1763

PDF

### Lipid Accumulation Product as an Index for Visceral Obesity and Cardiovascular Risk among a Sample of Obese Egyptian Women

Nayera E. Hassan, Sahar A. El-Masry, Gamila S. M. El-Saeed, Mohamed S. El Hussieny (Author)  
1229-1236

PDF

### Primary Percutaneous Coronary Intervention in the Left Main ST-Elevation Myocardial Infarction and Cardiogenic Shock on Octogenarian Patient with Single Remaining Vessel

Mochamad Yusuf Alsagaff, Kandita Arjani, Yudi Oktaviono, Sondang Sitorus (Author)  
363-366

PDF

### Left Atrial Appendage Function Assessment by Tissue Doppler Transesophageal Echocardiography in Acute Ischemic Stroke Patients

### One-year Outcome of Different Unprotected Left Main Percutaneous Coronary Interventions Techniques in Acute Coronary Syndromes

Amr El-Hadidy, Mohamed Ali, Mahmoud Adel Gawish, Ayman Moharram, Khaled Taema (Author)  
878-884

PDF

### Implantable Cardiac Device Infections Prevalence: Diagnostic and Therapeutic Implications

Hend Yahia, Abdo Alazab, Randa Aly, Sameh Elmaraghi, Ashraf Andraos (Author)  
909-916

PDF

### The The Correlation between Serum Amyloid A, Mean Platelet Volume, and Creatine Kinase Myocardial B in Acute Coronary Syndrome

Syaiful Anwar, Purwanto Adhipireno, Ria Triwardhani, Edward Kurnia Setiawan Limijadi (Author)  
286-289

PDF

### NT pro- B-type Natriuretic Peptide in the Small Ventricular Septal Defect in Children

Rahmat Budi Kuswiyanto, Putra Apandi, Dany Hilmento, Muhammad Hasan Bashari, Sri Endah Rahayuningsih (Author)  
1677-1680

PDF

### Association between Coronary Artery Disease and Left Ventricle Remodeling Parameters in Hypertensive Patients: A Cross-Sectional Study in a Limited Resource Setting

Badai Tiksnadi, Erwan Martanto, Abednego Panggabean, Ary Indriana Savitri, Alberta Claudia Undarsa (Author)  
1364-1369

PDF

### Comparison of 24 h ECG Holter Monitoring with Real-time Long-term ECG Monitoring System using ECGAlert Software and Savvy Single-Lead Patch

Lidija Poposka, Marija Vavlukis, Hristo Pejkov, Marjan Gusev (Author)  
12-17

PDF

Tamer Abdel Mawla, Osama Momtaz, Mohamed Abdel Gayed, Gomaa Abdelrazek (Author)  
858-864

PDF

### Survival and Prognostic Factors After Carotid Artery Stenting in Patients with Concomitant Coronary Disease

Georgi Goranov, Maria Tokmakova, Petar Nikolov (Author)  
1470-1479

PDF

### Cardiovascular Diseases Healthy Diet Related Knowledge among a Sample of the General Population in Egypt

Marwa M. Zein, Ahmed Taher Mahmoud, Ahmed Sallam El Hawary, Nelly Hegazy (Author)  
1764-1771

PDF

### The Outcomes of Transcatheter Closure in Patients with Patent Ductus Arteriosus at Haji Adam Malik General Hospital, Indonesia

Putri Amelia, Rizky Adriansyah, Bastian Lubis, Muhammad Akil (Author)  
208-211

PDF

### Introduction of Cardiac Magnetic Resonance Imaging in Kosovo: First Fifty Consecutive Patients Registry Report

Ted Trajcheski, Lulzim Brovina, Biljana Zafirova, Lada Trajceska (Author)  
417-425

PDF

### Admissions and In-hospital Outcomes of Acute Coronary Syndromes during Corona Virus Disease 19 Pandemic in Albania

Leonard Simoni, Ilir Alimehmeti, Astrit Ceka, Ermir Tafaj, Mirald Gina, Alban Dibra, Artan Goda (Author)  
593-599

PDF

### Comparative Preliminary Analysis of Umbilical Cord Blood-, Healthy Adult Peripheral Blood- and Myocardial Infarct Peripheral Blood-Derived Endothelial Progenitor Cells

Wireni Ayuningtyas, Rachmawati Noverina, Dedy Kurniawan, Astrid F. Khairani, Nur Atik, Firman F. Wirakusumah, Ahmad Faried (Author)  
85-90

PDF

### Neurological Sequelae Following Pediatric Cardiac Interventions

Hala Mounir Agha, Mai Mahmoud Hussien, Marian Y Girgis, Omneya Gamal Eldin Afify, Mervat Ahmed Haroun (Author)  
137-143

PDF

### Myocardial Perfusion Grade by Coronary Angiography can Predict Final Infarct Size and Left Ventricular Function in Patients with ST-elevation Myocardial Infarction Treated with a Pharmacologic Invasive Strategy

Amal Hafez Ahmed, Amr ELHadidy, Mohamed Helmy, Ashraf Hussein, Abdalla Elagha (Author)  
184-190

PDF

## Pulmonology

### Cardiovascular Risk in Patients with COPD: Cardiovascular Comorbidities in Patients with COPD Increase CAT and mMRC Dyspnea Scores

Jagoda Stojkovic, Emilija Antova, Dragana Stojkovicj (Author)  
1772-1777

PDF

### The Diagnostic Value of Urinary Secretory Antigen Target of 6 kDa in Childhood Pulmonary Tuberculosis

Agustin Iskandar, Ella Melissa Lawanto, Maimun Zulhaidah, Ery Olivianto, Kusworini Handono, Muhammad Anshory, Andrea Aprilia, Aryati Aryati (Author)  
841-846

PDF

### Comparing the Asthma Control and Anti-inflammatory Effects of Different Fixed Combinations of Inhaled Corticosteroids Plus Long-acting Beta 2 Agonist; A Randomized Clinical Trial

Ashraf Elsayed Sileem, Ahmed Ali, Hanan Elnahas, Ahmed M. Gouda (Author)

771-778

PDF

### Diaphragmatic Function Assessed by Bed Side Ultrasonography in Patients with Sepsis or Septic Shock Admitted to Intensive Care Unit

Amal Zaki, Helmy Hassan El Ghawaby, Mostafa Mahmoud Mohammed Gad, Amira Mohamed Ismail, Amr Shafiq Nawar (Author)

1417-1423

PDF

### Associated Factors of the Results of Pulmonary Tuberculosis Treatment During the COVID-19 Pandemic in Makassar City

Syahridha Syahridha, Nasrum Massi, Ahyar Ahmad, Irawaty Djaharuddin (Author)

1001-1005

PDF

### Does Neurally Adjusted Ventilatory Assist Compared to Pressure Support Ventilation Decrease Patient Ventilator Asynchrony?

Hussam Abd Elfatah Mohamed, Mohamed Amin Fakhher, Moamen Arafa, Khaled Abd Wahab Selem, Alia Abd El Fatah (Author)

96-100

PDF

### Assessment of Lung Parenchyma Recovery after Antibiotic Administration using Lung Ultrasound in Critically Ill Patients with Pneumonia

Mai Adel Sahbal, Mohammed Omar Alghoneimy, Sally Salah Eldin, Amr Elsayed Elhadidy, Mahmoud Muhammad Kenawy (Author)

480-485

PDF

## Neurology

PDF

### Recent Advances in the Treatment of Gliomas: The Multimodal Care Therapy

Omar Ibrahim, Mohamed A. Hafez, Helmy Abdel Haleem, Hussein El Maghraby (Author)

503-508

PDF

## Psychiatry

### Levels of Interleukin 6 as a Predictor of Metabolic Syndrome in Schizophrenic Patients Receiving Combination Therapy of Typical and Atypical Antipsychotics

Syamsuddin Saidah, Lisal T. Sonny, Haryani Lilik, Bahar Burhanuddin, Rasyid Haerani, Thioritz Wempy (Author)

600-607

PDF

### Factors Correlating with the Emotional and Behavioral Problems among Adolescents with Legal Problems

Sri Hartini, Yuniske Penyami, Yayi Prabandari (Author)

1061-1065

PDF

### Psychometric Properties of Iranian Version of Emotional Processing Scale

Shirali Kharamin, Ali Asghar Shokraeezadeh, Yasaman Ghafaryan Shirazi, Mohammad Malekzadeh (Author)

217-224

PDF

### The Association between Smartphone Addiction and Insomnia Incidence in Students of the Faculty of Medicine Udayana University Batch of 2020 during the Coronavirus Disease-19 Pandemic

Anak Agung Bagus Putra Indrakusuma, I. Made Angga Sayoga, Stevanus Christian Surya, Agung Wiwiek Indrayani, I Gusti Ayu Artini (Author)

1207-1214

PDF

### Characteristics of Guillain-Barre Syndrome Patient Underwent Hyperbaric Oxygen Therapy at Lakesla 2016–2019

Ni Komang Sri Dewi Untari, Kurnia Kusumastuti, Guritno Suryokusumo, I Ketut Sudiana (Author)

1174-1179

PDF

### Negative Correlation between Serum Brain-derived Neurotrophic Factor Levels and Obesity Predictor Markers and Inflammation Levels in Females with Obesity

Slamet Raharjo, Adi Pranoto, Purwo Sri Rejeki, Ahmad Syahru Mubarak Harisman, Yualita Putri Pamungkas, Olivia Andiana (Author)

1021-1026

PDF

### Association of Vitamin D Level and Nerve Conduction Study Parameters with Cognitive Function in Diabetic Neuropathy Patients

Aida Fithrie, Fasihah Irfani Fitri, Muhammad Reza Putra (Author)

72-78

PDF

### Integrated Clinical Pathways: Communication and Participation in a Multidisciplinary Team

Mateja Šimec, Sabina Krsnik, Karmen Erjavec (Author)

1549-1555

PDF

### Online Health Survey on Epileptic Children during Coronavirus Disease-2019 Pandemic

Ashraf Azmy, Eman Mones Abushady, Mones M. Abu Shady (Author)

392-397

PDF

### Adolescents with Internet Gaming Disorder are more likely to have Lower Score of Cognitive Function: A Cross-sectional Study among Junior High School Students in Yogyakarta, Indonesia

Indarwati Setyaningsih, Agus Budi Bowo Leksono, Paryono Muhrodji, Abdullah Syafiq Edyanto, Amelia Nur Vidyanti (Author)

1111-1116

### Menopause Anxiety and Depression; How Food Can Help?

Suzanne Fouad, Salwa M. El Shebini, Maha Abdel-Moaty, Nihad Hassan Ahmed, Ahmed Mohamed Saied Hussein, HEND Abbas Essa, Salwa T. Tapozada (Author)

64-71

PDF

### Correlation between Interleukin-6 Levels and Total PANSS Scores in Batak People with Schizophrenia

Suniaty Dapotria Lumbantoran, Elmeida Effendy, Mustafa M. Amin (Author)

107-111

PDF

## Endocrinology

### Concordance between Triglyceride Glucose Index and Admission Insulin Resistance Index in Non-diabetic Subjects of Acute Coronary Syndrome

Andi Irfham, Husaini Umar, Fabiola Maureen Shinta Adam, Idar Mappangara, Syakib Bakri, Risna Halim, Alfian Zainuddin (Author)

1044-1047

PDF

### Influence of Ramadan Fasting on Hemoglobin A1C, Lipid Profile, and Body Mass Index among Type 2 Diabetic Patients in Najran City, Saudi Arabia

Hatem Mohamed, Anass M. Abbas, Mohammed Ayed Huneif, Seham M. Alqahtani, Awad Mohamed Ahmed, Asaad M. A. Babker, Ehab A. M. Elagab, Parvez I. Haris (Author)

318-325

PDF

### Association of Plasminogen Activator Inhibitor-1 and Cardiovascular Events Development in Patients with Prediabetes

Yelena Laryushina, Viktoriya Parakhina, Lyudmila Turgunova, Dinara Sheryazzanova, Raushan Dosmagambetova, Anar Turmukhambetova, Olga Ponamareva, Maria Orbetzova (Author)

726-733

PDF

### **The Effect of Soy Milk on Mounting Latency, Mounting Frequency, and Reproductive Development in Male Wistar Rats (Rattus Norvegicus)**

Nurdiana Nurdiana, Pradnyawati Chania, Rizki Nurvitasari, Azmiatun Nisa, Styan Wahyu Diana, Evalina Izzatur Rochmah, Elly Mayangsari, Bambang Rahardjo, Wayan Indrawan, Husnul Khotimah, Karyono Mintaroem, Dicky Faizal Irandi (Author)

670-678

PDF

### **Serum Vitamin D Levels and Risk Factors for Cardiovascular Complication in Diabetes**

Rina Amelia, Juliandi Harahap, Hendri Wijaya, Sry Suryani Widjaja, Isti Ilmiati Fujiati, Rusdiana Rusdiana (Author)

1394-1397

PDF

### **The Role Vascular Endothelial Growth Factor, Control Glycemic, Lipid Profile, and Hypoxia-inducible Factor 1-Alpha at Type 2 Diabetic Patients in North Sumatera, Indonesia**

Rusdiana Rusdiana, Sry Suryani Widjaja, Rina Amelia, Siti Syarifah, Rusmalawati Rusmalawati (Author)

1215-1218

PDF

### **The Prevalence of Signs of Thyroid Pathology among Students of the Karaganda Medical University According to the Survey**

Bekov Yernur Kasipovich, Omarbekova Nazgul Kakenovna, Akhmetova Mensulu Kanatovna, Pozdnyakova Yelena Vladimirovna, Moldabayeva Altyn Kabdollovna, Umirbaeva Assel Itaevna, Alibieva Dinara Toleutayevna, Alyiev Ondassyn Minbaevich, Batyrbekova Lyazat Sarsenbaevna (Author)

1329-1332

PDF

### **Non-alcoholic Fatty Liver and Vitamin D Levels in Extremely Obese Individuals: A Case-Control Study**

Mohamed Sayed, Ebthal Mahmoud Abozeid, Hoda M. Amin, Naglaa M. Elsayed, Yasser H. Nassar, Hend A. Elsheimy (Author)

541-546

PDF

### **The Clinical Course of Rheumatoid Arthritis in Kazakhstan Patients**

Argul Issilbayeva, Assel Meiramova, Almagul R. Kushugulova, Zhanar B. Akhmetova, Damir Biktashev, Baglan B. Abdakhina, Aliya T. Aituganova, Yekaterina Zueva, Karina Karlygash, Professor Bayan Alkenovna (Author)

1352-1358

PDF

### **Metabolic Syndrome as a Factor Affecting on Intima-Media Thickness in Patients with Rheumatoid Arthritis**

Lyudmila Gennadiyevna Turgunova, Anna Andreevna Shalygina, Lyazat Kataevna Ibrayeva, Anar Akylbecovna Turmuhambetova (Author)

411-416

PDF

### **Sexual Dysfunction and its Determinants in Male Patients with Rheumatoid Arthritis**

Hassan O. Ghareeb, Ghada M. Khafagy, Hatem H. Eleishi, Hala A. Hussein, Marwa D. Hasan (Author)

350-355

PDF

## **Hematology**

### **Effects of the FOXO3a rs 4946936 Gene Polymorphism on the FOXO3a Transcription Factor in Chronic Granulocytic Leukemia Patients**

Shinta Oktya Wardhani, Hani Susianti, Pudji Rahayu, Yuyun Prabowowati Yueniwati (Author)

1156-1159

PDF

### **Blast Cells Count Influences Bleeding Incidence in Acute Leukemia: Preliminary Study in South Kalimantan, Indonesia**

Edward Kurnia Setiawan Limijadi, Qintani Cantika Ismail, Dwi Retnoningrum, Wivina Riza Devi, Anugrah Riansari (Author)

900-902

PDF

### **Evaluation of Anemia in the Residents of Tambaklorok Exposed to Plumbum**

### **Infants of Hypothyroid Mothers at Risk of Developing Hypothyroidism: A Cross-sectional Study in Qassim Region of Saudi Arabia**

Mariam S. Alharbi (Author)

1398-1404

PDF

### **Comparison of 3 Medicine Groups Used to Control Glycemic and Glycated Hemoglobin Levels in Newly Diagnosed Type 2 Diabetes Patients**

Ngoc Chau Nguyen, Hoai Thuong Pham, Diep Thao Pham, Thi Minh Hoang, Thi Phuong Lan Dam, Thi Hang Ho, Duy Quy Dang, Nhu Binh Do, Quang Thuan Huynh (Author)

101-106

PDF

### **Impact of Nutritional Intervention on Serum Level of Interferon Gamma and Insulin Resistance in Obese Women: Considerations during the COVID-19 Crisis**

Hend A. Essa, Salwa M. El Shebini , Maha I. M. Moaty , Nihad H. Ahmed , Magda S. Mohamed , Salwa Tawfik Tapozada (Author)

176-183

PDF

## **Rheumatology**

### **Frequency of Fibromyalgia in a Sample of Iraqi Patients in Mosul with Ischemic Heart Disease**

Ali Younis, Mohammad Harith Alsaaty (Author)

1672-1676

PDF

### **Epidemiological Trends of Rheumatoid Arthritis and PADI4, PTPN22, and HLA-DRB9 Genes Distribution in the Kazakhstan Population**

Argul Issilbayeva, Almagul Kushugulova, Assel Meiramova, Samat Kozhakhmetov, Zhanar Akhmetova, Madiyar Nurgazyev, Laura Chulenbayeva, Dmitriy Babenko, Jeannette Kunz, Professor Bayan Alkenovna (Author)

747-757

PDF

Budi Santosa (Author)

831-835

PDF

### **the The Correlation between Pituitary Gonadotrophins, Gonadal Sex Steroid Hormone with Ferritin Level in Pubertal Females with Thalassemia Major at Wassit Province - Iraq 2020**

Ahmed Ansaf , Safaa A. Faraj, Safaa Kazem (Author)

806-810

PDF

### **Ecto-5' nucleotidase (CD73) May Predict Occurrence and Grade of GVHD in Patients Undergoing Allogeneic Hematopoietic Stem Cell Transplantation**

Rasha I. Ibrahim, Maha El- Zimaity, Nevine N. Moustafa, Mohamed Hamdi Attia, Walaa A. Elsalakawy, Rana Z. Abass (Author)

154-160

PDF

### **High STAT5A Expression is Associated with Major Molecular Response Achievement Failure of Chronic Phase Chronic Myeloid Leukemia Patients Receiving Hydroxyurea before Imatinib: A Cross-sectional Study**

Ikhwan Rinaldi, Anastasia Putri, Melva Louisa, Sukamto Koesnoe (Author)

1160-1167

PDF

### **Efficacy and Safety of Convalescent Plasma Transfusion Administered as Adjunctive Treatment to Standard Treatment in Moderate, Severe, and/or Critically Ill Patients with COVID-19 in Dr. M. Djamil General Hospital**

Irza Wahid, Eifel Faheri, Eka Putra Andani, Fauzar Fauzar, Dia Rofinda Zelly, Widyarman Widyarman, Irvan Medison, Emilzon Taslim, Tuti Handayani (Author)

1489-1493

PDF

### **Coagulopathy of Coronavirus Disease 2019: A Case Series**

Jonathan Arifputra, Harlinda Haroen, Linda Wilhelma Ancella Rotty, Pearla Fidei Cindy Lasut, Cecilia Hendratta (Author)

301-307

PDF

### Evaluation of the Thyroid Status and Types of Thyroid Dysfunction in Beta-Thalassemia Major Patients More Than 9 Years of Age in Wassit, Iraq 2020

Ahmed I. I. Ansaf , Safa Faraj, Hussien A. Abdul-Azziz (Author)

1405-1409

PDF

### The Levels of FoxO3a Predict the Failure of Imatinib Mesylate Therapy among Chronic Myeloid Leukemia Patients

Shinta Oktya Wardhani, Hani Susanti, Puji Rahayu, Yuyun Yueniwati, Jonny Fajar (Author)

255-259

PDF

### Hematologic Autoimmune Manifestation Secondary to Coronavirus Disease 19 Infection – A Single-Center Experience

Sanja Trajkova, Simona Stojanovska, Nevenka Ridova, Svetlana Krstevska-Balkanov, Aleksandra Pivkova-Veljanovska, Lidija Cevreska, Marija Popova-Labacevska, Irina Panovska-Stavridis (Author)

940-944

PDF

## Oncology

### Wnt Signaling and Cadherin Expressions in Different Staging of Colorectal Cancer as Biomarkers for Metastasis: Study of SW480, COLO 320DM, and HCT116 Cellines

Luminturahardjo Winarko, Pudji Rahajoe, Djoko Soeatmadji, Karyono Mintaroem (Author)

763-770

PDF

### Analysis of Complications Development Predictors after Radical Prostatectomy

Vladimir Vorobev, Vladimir Beloborodov, Vladimir Luchkevich, Dmitriy Shmakov, Olga Baklanova, Stepan Sidorov, Bator Sharakshinov (Author)

1575-1579

PDF

Winarko Winarko, Pudji Rahayu, Djoko Soeatmadji, Karyono Mintaroem (Author)

651-658

PDF

### Innovative Non-Irradiating and Non-Invasive Per Fraction Control System in Radiotherapy: Surface-Guided Radiation Therapy Experience of Casablanca Cancer Center

Asmaa Naim, Safae Mansouri, Kamal Saidi, Redouane ELBaydaoui, Mohamed Reda Mesradi (Author)

826-830

PDF

### Citrus sinensis (L) Peels Extract Inhibits Metastasis of Breast Cancer Cells by Targeting the Downregulation Matrix Metalloproteinases-9

Meiny Suzery, Bambang Cahyono, Nur Dina Amalina (Author)

464-469

PDF

### The Evaluation of Methylated Septin 9 in Blood Plasma and Tissue Biopsies for the Early Detection for Asymptomatic Colon Cancer

Ahmed Ageeb Kassid, Omar F. Abdul-Rasheed, Nawal Mehdi AlKhalidy (Author)

1462-1469

PDF

### Determination of Significant Pretreatment Factors that Predict Survival in Indonesian Subjects with Breast Cancer

Citra Aryanti, Putu Anda Tusta Adiputra, Tjokorda GB Mahadewa, Sri Maliawan, I. N. W. Steven Christian, Ida Bagus Made Suryawisesa (Author)

1458-1461

PDF

### Serum Vitamin Levels among Iraqi Cancer Patients Receiving Chemotherapy

Mohammed Salim Abdulrahman, Hedef D. El-Yassin, Nada. A. S. Al-Alwan (Author)

231-234

PDF

### The Comparison of 25-Hydroxyvitamin D3 between Patients With and Without Cervical Cancer

Dodi Suardi, Feny Renita, Andi Kurniadi, Akhmad Yogi Pramartira, Raden Tina Dewi Judistiani, Yudi Mulyana Hidayat, Budi Setiabudiawan (Author)

564-568

PDF

### High Expression of Parathyroid Hormone-related Protein and Tumor Necrosis Factor- $\alpha$ in Cancer Cells as Risk Factors for Hypercalcemia in Bone Metastases Lytic Lesions

Made Wahyu Dharmapradita, I Ketut Suyasa, Made Bramantya Karna, I Wayan Juli Sumadi, Kadek Gede Bakta Giri, Cokorda Krishna Dalem Pelayun, Claudia Santosa (Author)

290-296

PDF

### Can Estrogen Receptor, Progesterone Receptor, and Proliferative Index be Considered as Isolated Prognostic Factors of Overall Survival in Early Luminal Breast Cancer?

Marija Karakolevska-Ilova, Milka Zdravkovska, Djengis Jasar, Gordana Petrushevska, Elena Simeonovska-Joveva (Author)

1313-1322

PDF

### Age as an Independent Factor in the Permanent Chemotherapy-Induced Amenorrhea Incidence in Breast Cancer Patients at Dr. Moewardi Hospital, Surakarta, Indonesia

Mudib Mudib, Kristanto Yuli Yarso, Henky Agung Nugroho (Author)

816-820

PDF

### Quality of Life and Sexual Functioning of Women after Breast Cancer Surgery

Stana Pačarić, Želimir Orkić, Andrea Milostić-Srb, Tajana Turk, Nikolina Farčić, Štefica Mikšić, Silvia Adamčević, Ivan Erić, Zvijezdana Gvozdanović, Nika Srb (Author)

1066-1074

PDF

### Differences in the Expression of $\beta$ -Catenin Nucleus/Cytoplasm Ratio e-Cadherin and n-Cadherin and Correlation of $\beta$ -Catenin Cytoplasm and Cadherin in Model of Duke D Stage Colorectal Cancer Cell Line

### Analysis Survival of Breast Cancer with Brain Metastases Treated with Different Fraction Whole Brain Radiotherapy Concomitant with Capecitabine

Rudiyo Yeoh, Iskandar Japardi, Aznan Lelo, R. Susworo, Jacob Pandelaki, Adang Bachtiar, Suzy Indharty, Hendriyo Yeoh, Juli Jamnasi, William Omar, Sudibio Sudibio (Author)

569-572

PDF

### Moist Exposed Burn Ointment Effectiveness for Capecitabine Associated Grade II and III Hand Foot Syndrome on Stage III Colonic

Budhi Ida Bagus, Nunik Agustriani, Rieva Ermawan, Suwardi Suwardi, Amru Sungkar, Ikhdin R. Saadhi (Author)

971-974

PDF

### Antiproliferative Activity of Selected Triterpene Acids from Rosemary on Metastatic Melanoma Cell Line WM-266-4

Suzana Isaković-Vidović, Barbara Dariš, Željko Knez, Kristina Vidović, Dejan Oprić, Polonca Ferik (Author)

515-521

PDF

### De novo Stage IV Luminal Breast Cancer: Yes or No for Local Treatment? Serial Cases and Review

Marija Karakolevska-Ilova, Elena Simeonovska Joveva, Aleksandar Serafimov (Author)

1-5

PDF

### Quality of Life of Bulgarian Breast Cancer Female Patients

Galina Yaneva, Tsonka Dimitrova, Dobri Ivanov, Gergana Ingilizova, Sergei Slavov (Author)

925-930

PDF

### Clinical Characteristic of Thoracic Malignancy Patients with Coronavirus Disease 2019 Related to Mitigation Strategy in Dharmais National Cancer Center Hospital, Indonesia

Arif Hanafi, Noorwati Soetandyo, Achmad Mulawarman Jayusman, Leovinna Widjaja, Fifi Dwijayanti, Priscillia Imelda (Author)

692-697

PDF

### Relationship between CD 163 Tumor-Associated Macrophages and Colorectal-Cancer Stem Cell Markers

Imelda Rey, Agung Putra, Dharma Lindarto, Fauzi Yusuf (Author)  
1381-1386

PDF

### The Reactive Carbonyl Derivatives of Proteins, Methylglyoxal, and Malondialdehyde in Blood of Women with Breast Cancer

Sabina Zhumakayeva, Larissa Muravlyova, Valentina Sirota, Vilen Molotov-Luchansky, Ryszhan Bakirova, Nailya Kabildina, Xeniya Mkhitarian, Ainura Zhumakayeva (Author)  
509-514

PDF

### Open Versus Percutaneous Approach of Renal Tumor Biopsy at Cipto Mangunkusumo Hospital: A Single-center Experience

Luki Ertandri, Agus Rizal A.H. Hamid, Meilania Saraswati, Chaidir A. Mochtar, Rainy Umbas (Author)  
547-551

PDF

### Analysis Predictors of the Outcome of Adjuvant of Hormone Therapy on Estrogen Receptor-positive Breast Cancer in Indonesia

Hardisman Dasman, Wirisma Arif Harahap, Daan Khambri (Author)  
847-851

PDF

### The Effect of Chemotherapy on Estradiol Levels in Patients with HER 2-Overexpression Breast Cancer in Dr Moewardi General Hospital, Surakarta, Indonesia

Imam Hafidh Zaini, Widyanti Soewoto, Ida Bagus Budhi (Author)  
1570-1574

PDF

### Synergistic Cytotoxic Effect of Honey Bee Venom and Cisplatin on Tongue Squamous Cell Carcinoma Cell Line

PDF

### Neoadjuvant Chemotherapy Effect on Predictive Value of Sentinel Lymph Node Biopsy using Single Method Methylene Blue in Breast Cancer Patients at Low-resource Country

Muhammad David Perdana Putra, Kristanto Yuli Yarso, Brian Wasita (Author)  
191-195

PDF

## Dermatology

### Coenzyme Q10 Supplementation as an Adjuvant Therapy Potentially Increase Serum Superoxide Dismutase Levels in Acne Vulgaris Patients

Carissa Adriana, Asih Budiastuti, Kabulrachman Kabulrachman, Retno Indar Widayati, Pughu Riyanto, Muslimin Muslimin (Author)  
444-450

PDF

### Retrospective Analysis of 170 Patients Followed up with Herpes Zoster and Postherpetic Neuralgia in Nothern Cyprus

Dua Cebeci, Seide Karasel (Author)  
583-587

PDF

### Risk Factors of Type 1 Leprosy Reaction in Leprosy Patients attending Leprosy Division of Dermatology and Venereology Outpatient Clinic of Dr Soetomo General Hospital in 2017–2019: A Retrospective Study

Brigita Rosdiana, Linda Astarti, Astindari Astindari, Cita Rosita Sigit Prakoeswa, Iskandar Zulkarnain, Damayanti Damayanti, Budi Utomo , M. Yulianto Listiawan (Author)  
1359-1363

PDF

### Dermatological Manifestation in Coronavirus Disease 2019 Patients in Iraq

Anfal L. Al-Harbawi, Qasim S. Al Chalabi, Hala N. Alsalmán, Mohammad S. Saeed (Author)  
1085-1091

PDF

Sabreen Amar, Amr Helmy Mustafa El-Bolok, Sherif Farouk El-Gayar, Maii Ibrahim Sholkamy (Author)  
1739-1744

PDF

### Efficacy, Safety and Cost Effectiveness of Metronomic Low Dose Versus Intermittent High Dose Capecitabine in Metastatic Breast Cancer

Hala Elsebaie, Wael Samir Makar Yassa, Shaimaa Lasheen, Noha IbrahimIbrahim (Author)  
1048-1053

PDF

### Outcome Analysis and Prognostic Factors in Patients of Glioblastoma Multiforme: An Indonesian Single Institution Experience

Sudibio Sudibio, Jellyca Anton, Handoko Handoko, Tiara Bunga Mayang Permata, Henry Kodrat, Endang Nuryadi, Henry Riyanto Sofyan, Rahmad Mulyadi, Renindra Ananda Aman, Soehartati Gondhowiardjo (Author)  
1410-1416

PDF

### A Hybrid Convolutional Neural Network-Support Vector Machine for X-ray Computed Tomography Images on CancerA Hybrid Convolutional Neural Network-Support Vector Machine for X-ray Computed Tomography Images on Cancer

Jane Aurelia, Zuherman Rustam (Author)  
1283-1289

PDF

### Correlation between Grading Histopathology and Sentinel Lymph Node Metastasis in Early Breast Cancer in University of Sumatera Utara Hospital

Dedy Hermansyah, Gracia Pricilia, Arjumardi Azrah, Yolanda Rahayu, Desiree A. Paramita, Edwin S. Siregar (Author)  
679-682

PDF

### Evaluating the Natrium Iodide Symporter Expressions in Thyroid Tumors

Aisyah Elliyanti, Rony Rustam, Tofrizal Tofrizal, Yenita Yenita, Yayi D. Billianti Susanto (Author)  
18-23

### Effect of Purple Passion Fruit Extract Cream (*Passiflora edulis Sims var. Edulis*) 6% against *Striae Distensae*

Chyntia Giska Aryunisari, Imam Budi Putra, Nelva K. Jusuf (Author)  
720-725

PDF

### Vitamin D Deficiency among Females with Acne Vulgaris in Relation to Sun Exposure: A Cross-sectional Study

Ghada Abdelrahman Elfadil, Nosiba Ahmed Mohammed, Abdelgadir Elmugadam, Marwan Ismail, Abd Elgadir Alamin Altoum, Ahmed L. Osman (Author)  
1301-1304

PDF

### Vitamin D Receptor Gene Polymorphisms FokI rs2228570, ApaI rs797523, and TaqI rs731236 in Multibacillary Leprosy Patients

Ramona Dumasari Lubis, Irma D. Roesyanto-Mahadi, Yahwardiah Siregar, Putri Chairani Eyanoe (Author)  
112-115

PDF

### The Comparison between Free Thyroxine and Thyroid-Stimulating Hormone Levels on Melasma Severity: A Cross-Sectional Study

Comparing FT4 and TSH on Melasma Severity

Yusnita Rahman, Roro Inge Ade Krisanti, Wismandari Wisnu, Irma Bernadette S. Sitohang (Author)  
426-431

PDF

### Correlation of Melanin Content with Collagen Density in Keloid Patients

Herman Y. L. Wihastyoko, David S. Perdanakusuma, Setyawati Soeharto, Edi Widjajanto, Kusworini Handono, Bambang Pardjianto (Author)  
265-271

PDF

### Evaluation of Modified Melasma Area and Severity Index in Hyperthyroid Patients Receiving Anti-thyroid Drugs

Irma Bernadette S. Sitohang, Benny Nelson, Melani Marissa, Wresti Indriatmi, Wismandari Wisnu (Author)  
344-349

PDF

### The Effectiveness of Autologous Serum and Single-dose Oral Doxycycline in the Treatment of Acne Vulgaris: A Pilot Clinical Trial

Muhammad Nasrum Massi, Muhlis Yunus, Anis Irawan Anwar, Khairuddin Djawad, Siswanto Wahab, Rahmawati Minhajat, Uleng Bahrun, Ilhamjaya Patellongi, Gemini Alam, Ni Nyoman Sri Budayanti (Author)  
1602-1606

PDF

### The Effectiveness of Lumbricus rubellus Extract Toward Interleukin-10 and Immunoglobulin E and Atopic Dermatitis Scoring Index (SCORAD)

Farida Tabri, Pipim Septiana Bayasari, Rosani Sri Camelia Nurdin, Anis Irawan Anwar, Anni Adriani, Farida Ilyas (Author)  
1428-1434

PDF

### Development of Propolis (Apis trigona)-loaded Nanoemulgel for Improved Skin Penetration of Caffeic Acid: The Effect of Variation of Oleic Acid Concentration

Afdil Viqar Viqhi, Marianti A. Manggau, Sartini Sartini, Elly Wahyudin, Latifah Rahman, Risfah Yulianti, Andi Dian Permana, Satria Aztasauri Awal (Author)  
1264-1278

PDF

### Evaluation of Pre-operative Dermoscopy in Early Diagnosis of Non-melanocytic Skin Cancer

Reihane Bislimi Berisha, Djordje Dzokic, Shkendije Dobruna (Author)  
1660-1663

PDF

### Identification of Sarcoptes scabiei by Clinical Examination and Follow-up Examination in Medan City, Indonesia

Afrida Aryani Nasution, Imam Budi Putra, Mutiara Indah Sari (Author)  
1633-1636

PDF

## Infective Diseases

PDF

### Synthetic Food Coloring as an Alternative to Worm Egg Staining Ascaris lumbricoides

Steven Soenjono, Budi Setiawan, Rahmah Siti Wulandari, Suyana Suyana, Marta Atik Martiningsih (Author)  
1541-1543

PDF

### Epidemiology Survey of Measles in Kazakhstan

Aygerim Zhuzzhasarova, Dinagul Baesheva, Bayan Turdalina, Aliya Seidullaeva, Alena Altynbekova, Madiyar Nurgaziev, Bakhytzhhan Abdullaev, Almagul Kushugulova (Author)  
704-710

PDF

### The Use of Eosinophil Count in Predicting the Need of Coronavirus Disease 2019 Patient for Treatment in Intensive Care Unit

Ngakan Ketut Wira Suastika, Ketut Suega (Author)  
631-635

PDF

### The Effect of Lemongrass Leaves and Stalks Extracts using Methanol as The Eco-friendly Larvicides on Fourth Instar Aedes aegypti Larvae

Tjut Mariam, Ade Oktiviyari, Ahmad Yamin Harahap (Author)  
937-939

PDF

### Health Belief Associated with Adherence to Health Protocol in Preventing Coronavirus Diseases on Patients' Family

Riza Fikriana, Frastiqa Fahrany, Syahril Ali Rusli (Author)  
1011-1015

PDF

### Readiness of Medical Teams Caring for COVID-19 in the Intensive Care Units: A National Web-Based Survey in Indonesia

Mochamat Helmi, Djayanti Sari, Andreasta Meliala, Laksono Trisnantoro (Author)  
1785-1790

### Clinical Signs and Laboratory Parameters as Predictors of Mortality among Hospitalized Human Immunodeficiency Virus-Infected Adult Patients at Tertiary Hospital in Surabaya

Rentha Monica Simamora, Muhammad Vitanata Arfijanto, Musofa Rusli, Budi Utomo, Cennikon Pakpahan, Mr. Garry Prasetyo Adi (Author)  
497-502

PDF

### Profile of COVID-19 Patients in Dr. Moewardi Hospital Surakarta Indonesia

Cahyono Hadi, Cipta Pramana (Author)  
1621-1624

PDF

### The Behavior of Using Masks during the Coronavirus Disease 19 Pandemic in Malang Regency, Indonesia: Application of Theory of Planned Behavior and Social Support

Riza Fikriana, Al Afik, Mila Maula Marinda (Author)  
1006-1010

PDF

### Identification of Leptospira Serovar in Leptospirosis Suspect Serum in Manggala Subdistrict, Makassar City

Syamsuar Manyullei, Hasnawati Amqam, Sri Indi Rahmadanti (Author)  
407-410

PDF

### The Optimal Cutoff Value of D-dimer Levels to Predict in Hospital Mortality in Severe Cases of Coronavirus Disease 2019

Ngakan Ketut Wira Suastika, Ketut Suega (Author)  
1561-1564

PDF

### The Role of Sex, Ethnicity, Age, and Nutritional Status in the Seropositivity of the Measles Vaccine

H. R. Teni Nurlatifah, Wisnu Barlianto, I Wayan Arsana Wiyasa, H. M. S. Chandra Kusuma, Tita Luthfia Sari, Novilia Sjafril Bachtiar (Author)  
1219-1223

PDF

### Composite Bacterial Infection Index and Serum Amyloid A Protein in Pulmonary Tuberculosis Patients and their Household Contacts in Makassar

Irda Handayani, Muhammad Nasrum Massi, Yanti Leman, Rosdiana Natzir, Ilhamjaya Patellongi, Subair Subair, Najdah Hidayah, Ayu Andini Wulandari, Handayani Halik (Author)  
557-562

PDF

### Impacts of Pharmacy Intervention on Appropriateness of Antibiotics Use in Pneumonia Patients

Azizah Nasution, Khairunnisa Khairunnisa, Syed Azhar Syed Sulaiman (Author)  
786-792

PDF

### Platelet Index in Patients with Confirmed Coronavirus Disease 2019 Cases

Haerani Harun, Christin Rony Nayoan, Iphi White, Nur Syamsi, Andi Alfia Mutmainnah Tanra, Sarifuddin Sarifuddin (Author)  
1705-1709

PDF

### The Attitude and Behavior Related to Social Distancing as Prevention Transmission of Coronavirus Disease 19 among Adolescents Living in Coastal Area of Indonesia

Eko Mulyadi, Abd Wahid, Arif Rahman Hakim (Author)  
659-662

PDF

### Diagnostic and Prognostic Value of Plasma Gelsolin in Multiorgan Failure in Patients with Sepsis

Ahmed El-Maghraby, Hossam Mowafy, Emad Omer, Hazem El-Akabawy, Iris Nessim (Author)  
29-35

PDF

## Gynecology and Obstetrics

### **The Role of Early Initiation of Breastfeeding in the Duration of the Third Stage of Delivery and the Amount of Blood Loss in the Fourth Stage in Spontaneous Vaginal Delivery**

Sarma Lumbanraja, Wardy Susanto Marpaung, Teuku Mohammad Ichsan, Ichwanul Adenin, Roy Yustin Simanjuntak (Author)

742-746

PDF

### **Adaptation of the Edinburgh Postnatal Depression Scale in the Indonesian Version: Self-reported Anxiety and Depression Symptoms in Pregnant Women** **Adaptation of the Edinburgh Postnatal Depression Scale in the Indonesian Version: Self-reported Anxiety and Depression Symptoms in Pregnant Women**

Dewi Nirmala Sari, Hervita Diatri, Kemal Siregar, Hadi Pratomo (Author)

1654-1659

PDF

### **Is It Necessary to Perform a Routine Antibiotic Prophylaxis before an Elective Surgery of Cesarean Section?**

Sergei Belyaev, Larysa Nazarenko, Liliya Dubrova, Olena Fedota (Author)

836-840

PDF

### **The New Detection Method of Ovarian Follicle Development Using Digitized Wide Area Measurement**

Noviyanti Noviyanti, Yuyun Yueniwati, Bambang Rahardjo, Karyono Mintaroem, Erick Khristian (Author)

475-479

PDF

### **Micronutrient Content and Total Lactic Acid Bacteria of Dadiah Pudding as Food Supplementation for Pregnant Women**

Zuhrah Taufiq, Dian Novita Chandra, Helmizar Helmizar, Nur Indrawaty Lipoeto, Badriul Hegar (Author)

1149-1155

PDF

### **Comparison of Maternal and Neonatal Outcomes in Teenage and Reproductive Age Pregnancy at Tertiary Hospital in West Java, Indonesia**

### **Body Mass Index and Other Factors Related to Mastalgia: A Cross Sectional Study**

Rehab Sabry, Tamer M. Kolib, Marwa Ahmed, Heba G. Elnahas (Author)

1586-1590

PDF

### **A Comparison between The Incidence of Paresthesia in Median and Paramedian Approaches of Intrathecal Anesthesia in Parturients Undergoing Cesarean Sections: A Randomized Controlled Trial**

Reham Mahrous, Mahmoud Alalfy, Hatem Hassan, Omar Nagy, Omnia Mandour, Amra Yehia, Amr K. Abdel Hakeem (Author)

793-796

PDF

### **Antenatal Obstetric Hospitalization: Risk Factors and Pregnancy Outcomes in the University of Calabar University Teaching Hospital, Calabar – A Retrospective Review**

Ubong Bassey Akpan, Chidinma Enweremadu, Emmanuel Monjok, Thomas Agan (Author)

235-239

PDF

### **Determination of Urine Protein Levels and Analysis of Differences in Vascular Endothelial Growth Factor Levels between Early Onset and Late Onset Preeclampsia**

Engga Lift Irwanto, Eryati Darwin, Donel S, Djong Hon Tjong Tjong (Author)

552-556

PDF

### **Sperm Quality and Deoxyribonucleic Acid Fragmentation after 5 and 10 min Centrifugation with Swim-Up Processing Technique: A Prospective Cohort Study**

Binarwan Halim, Jesselyn Angellee, Hilma Putri Lubis, Bob Bachsinar (Author)

626-630

PDF

### **A Comparison between Intrathecal Nalbuphine and Fentanyl for Intraoperative Pain Management during Uterine Exteriorization in Cesarean Section: A Randomized Controlled Trial**

Sherif Abdullah Mohamed, Ahmed Elsonbaty, Mohamed Elsonbaty (Author)

533-540

Windi Nurdiawan, Ahmad Raihan Hidayat Koto, Zulvayanti Zulvayanti, Nur Atik, Hadi Susiarno, Dini

Hidayat, Dini Pusianawati, Fadhilah Zulfa (Author)

1080-1084

PDF

### **Impact of Anemia in Pregnant Women on the Neonatal Conditions**

Raisa Aringazina, Gulnara Kurmanalina, Yerlan Bazargaliyev, Victoria Kononets, Bakhtiyar Kurmanalin, Anes Bekkuzhin (Author)

1185-1188

PDF

### **Malpresentation of the Fetus in Singleton Pregnancies after In Vitro Fertilization**

Sergei Svetoslavov Slavov (Author)

573-576

PDF

### **Antioxidant Activity of Purslane (Portulaca oleracea L.) Leaf Extract on the Levels of Ovarian Oxidative Stress and Reproductive Hormone in Rattus norvegicus Exposed to Cigarette Smoke**

Astika Gita Ningrum, Endyka Erye Frety, Ivon Diah, Zidni Hasbuna Shabran, Rida Eka Setiani, Erni Rosita Dewi (Author)

1535-1540

PDF

### **Cell-free DNA in Human Follicular Fluid as Biomarker for Intracytoplasmic Sperm Injection Procedure Outcome**

Maanee Azzam, Adeela Hamood, Hind Abdulkadim (Author)

1745-1750

PDF

### **Evaluation of Uterine Cavity Abnormality using Saline Infusion Sonohysterography Before In Vitro Fertilization**

Ichwanul Adenin, Hilma Putri Lubis, Binarwan Halim (Author)

917-920

PDF

PDF

### **Results of Using the Robson Classification in Kazakhstan**

Assel Askarovna Altayeva, Saule Shaykenovna Issenova, Egle Machtejeviene, Gani Zhandiyarovich Bodykov, Balzira Nagashibaevna Bishekova (Author)

663-669

PDF

### **Oral Anaerobic Microflora and Pregnancy Complication**

Irena Andonova, Vasil Iliev (Author)

1681-1685

PDF

### **The Sexual Function of Primiparous Women after Normal Delivery and Cesarean Section According to the Female Sexual Function Index**

Eighty Mardiyani Kurniawati, Sandy Irwanto, Nalini Muhdi (Author)

1237-1240

PDF

### **Anxiety Levels and Behavioral Changes among Pregnant Women Amidst the Coronavirus Disease-19 Pandemic at Fauziah Mother and Child Hospital Tulungagung, East Java**

Sutrisno Sutrisno, Ayu Rizky Widowati, Nina Rini Suprobo (Author)

1441-1445

PDF

### **Clinical Profiles, Demographic Features, and Maternal Outcomes among Coronavirus Disease Positive Pregnant Women: A Cross-sectional Study**

Zaheera Saadia, Robina Farrukh, Sumaira Kanwal, Quratulain Shahzad (Author)

486-491

PDF

### **Comparative Analysis of Beet Juice and Red Guava Juice against Erythrocyte and Hematocrit Levels in Post-partum Women**

Cut Nurhasanah, Andri Idiana, Putri Santi, Yushida Yushida (Author)

821-825



PDF

### Analysis of Delivery in Singleton Pregnancies Achieved by In Vitro Fertilization

Sergei Slavov, Gergana Ingilizova, Galina Yaneva (Author)  
885-889

PDF

### The Assessment of Intrapartum Transperineal Ultrasonographic Parameters for their Effectiveness in Evaluation of Progress of Labor and Prediction of Mode of Delivery in Egyptian Women

Gamal Abdelsameea Ibrahim, Ahmed Soliman Nasr, Fatma Atta, Mohamed Reda, Hend Abdelghany, Nihal M. El-Demiry, Mohamed Shalaby (Author)  
1037-1043

PDF

### Omega-3 Fatty Acids plus Vitamin E Cosupplementation versus Vitamin E in Fibrocystic Breast Patient with Mastalgia: A Randomized Controlled Trial

Marwa Mostafa Ahmed, Eman Ahmed Rushdy, Dalia Ahmed Aboul Azm , Rehab Mohamed Sabry, Heba Galal El Nahas (Author)  
116-121

PDF

### Effectiveness of Pre-operative Rectal Misoprostol in Reducing Blood Loss during Cesarean Section for Placenta Previa and Manual Removal of Retained Placenta: A Parallel Placebo-Controlled Study

Ubong Akpan, Udeme Asibong, Kazeem Arogundade, Chinyere Akpanika, Mabel Ekot, Saturday Etuk (Author)  
161-166

PDF

## Pediatrics

### Phenomenology Study of Stunting Nutrition for Babies in the Work Area of Pante Kuyun Health Center, Aceh Jaya District

Amiruddin Amiruddin, Bustami Bustami, Anasril Anasril, Tri Mulyono Herlambang, Muhammad Husaini, Sri Gustini (Author)

Tina Christina Lumban Tobing, Teddy Ontoseno, Sri Rahayuningsih, Ratna Akbari Ganie, Yahwardiah Siregar (Author)  
1795-1798

PDF

### The Relationship between Vitamin D Levels and Clinical Outcomes of Neonatal Sepsis in Haji Adam Malik Hospital Medan, Indonesia

Kamsiah Kamsiah, Beby Syofiani Hasibuan, Karina Sugih Arto (Author)  
698-703

PDF

### Association of Comorbid with Developmental Quotient in Down Syndrome Children

I Gusti Ayu Trisna Windiani, Ni Made Dewi Aryati, I Gusti Agung Ngurah Sugitha Adnyana, Ni Luh Sukma Pratiwi Murti, Soetjningsih Soetjningsih (Author)  
1484-1488

PDF

### Knowledge, Attitude, and Behavior of Parents toward School Reopening Amidst Coronavirus Disease 2019 Pandemic in Indonesia

Andry Juliansen, Gilbert Sterling Octavius, Alexa Ovilia Tan, Chelsea Serena Br. Pardede, Cindy Clarissa Thandy, Clauvinna Adhityana Lie Fisca, Jeremiah Hikhiah Wijaya (Author)  
1190-1197

PDF

### Local Snacks and Virtual Nutrition Counseling Services Increasing Growth of Stunting Children

Nadimin Nadimin, Kartini B. Theresia Dewi, Abdul Salam, Adriyani Adam (Author)  
331-336

PDF

### The Risk Factors of Bacterial Meningitis in Late-Onset Neonatal Sepsis

Ni Made Reditya Noviyani, I Made Kardana, Dewi Sutriani Mahalini, Ida Bagus Gede Suparyatha, Ketut Ariawati, Gusti Ayu Putu Nilawati, Made Sukmawati (Author)  
1224-1228

PDF

462-467

PDF

### The Differences in Transaminase Enzyme Levels among Children with Acute Diarrhea due to Rotavirus and Non-rotavirus

Samitha Wijaya, I Putu Gede Karyana, Eka Gunawijaya, Ida Bagus Subanada, I Gusti Agung Ngurah Sugitha Adnyana, Komang Ayu Witarini (Author)  
1075-1079

PDF

### Vitamin D Deficiency in Children with Chronic Renal Disease

S. B. Dyussenova , M. Y. Gordiyenko , G. B. Serikova, S. A. Turlybekova, A. A. Issayeva, N. A. Yerimbetova, V. O. Goroshko (Author)  
1751-1757

PDF

### Necrotizing Enterocolitis in Preterm Infants Born to Mother with COVID-19

Dina Angelika, Risa Etika, Angelica Diana Vita, Setya Mithra, I Dewa Gede Ugrasena (Author)  
1499-1504

PDF

### The Differences of Left Lateral and Head Elevation Position toward Heart Rate of Newborns with Asphyxia in the Perinatology Room RSUD Dr. Soediran Mangun Sumarso Wonogiri

Noerma Shovie Rizqiea, Septy Nur Aini, Ratih Dwilestari Puji Utami, Ratnawati Ratnawati, Khairunisa Wardani (Author)  
492-496

PDF

### Determinant Factors of Stunting in Under-Five Children

Yusni Podungge, Endah Yulianingsih, Hasnawatty S. Porouw, Elsa Saraswati, Magdalena Martha Tompunuh, Juli Gladis Claudia, Rabia Zakaria, Rahma Labatjo (Author)  
1717-1726

PDF

### Relationship between Environmental Factors and Rheumatic Heart Disease

### Prevalence of Sleep Disorders in Adolescents and its Relation with Screen Time during the COVID-19 Pandemic Era

I Gusti Ayu Trisna Windiani, Ni Made Reditya Noviyani, I. Gusti Agung Ngurah Sugitha Adnyana, Ni Luh Sukma Pratiwi Murti, Soetjningsih Soetjningsih (Author)  
297-300

PDF

### Pro-and Anti-vaccination among Mothers in Deciding Children's Immunization: A Qualitative Study

Aisyah Nur Izzati, Retno Indarwati, Makhfudli Makhfudli, Budi Utomo, Eka Mishbahatul M. Has, Yuni Sufyanti Arief, Hidayat Arifin (Author)  
385-391

PDF

### Lactose versus Lactose Free Regimen in Children with Acute Diarrhea

Sinan Abdulrazzaq, Faten Alaa Jaafar , Zahoor Abdulmohsin Mohammed (Author)  
1279-1282

PDF

### Serum Biomarkers of Environmental Enteric Dysfunction and Growth Perspective in Egyptian Children

Maged A. El Wakeel, Ghada M. El-Kassas, Shaimaa A. Hashem, Hasanin M. Hasanin, Walaa H. Ali, Alshaimaa A. Elkhatib, Hiba Sibaii, Nevein N. Fadl (Author)  
1625-1632

PDF

### Factors Related to School Readiness in Children: A Cross-Sectional Analytic Study of Elementary School Children in Manado

Lydia Wangke, Gregory Joey, Nurhayati Masloman, Hesti Lestari (Author)  
1387-1393

PDF

### Effect of Exercise-Induced Lipolysis on Serum Vitamin D Level in Obese Children: A Clinical Controlled Trial

Lamiaa K. Elsayyad, Alaa Shafie, Mazen Almehmadi, Amal F. Gharib, Ahmad El Askary, Tarek Alsayad, Alsufiany Muhsen, Hatem Allam (Author)

1596-1601

PDF

### Message Therapy Can Prevent the Risk of Autism Spectrum Disorders in Children

Andy Martahan Andreas, Ratna Djuwita, Helda Helda, Rini Sekartni, Sri Hartati R. Suradjiono, Thjin Wiguna, Angela B. M. Tulaar, Yusuf Kristianto, Hendrik Hendrik (Author)

1556-1560

PDF

### Preoperative Microbiological Screening in Pediatric Assessment of Skeletal Dysplasias Cases Before Planned Orthopedic Surgery

Milka Dikova, Svetla Todorova Nikolova, Alexandre Loukanov (Author)

281-285

PDF

### Determinants of Stunting Prevention among Mothers with Children Aged 6–24 Months

Esti Yunitasari, Retnayu Pradanie, Hidayat Arifin, Dita Fajrianti, Bih-O Lee (Author)

378-384

PDF

### Fecal Markers of Environmental Enteric Dysfunction and their Relation to Faltering Growth in a Sample of Egyptian Children

Maged A. El Wakeel, Ghada M. El-Kassas, Gihan Fouad Ahmed, Walaa H. Ali, Eman Mohamed Elsheikh, Salwa Refat El-Zayat, Nevein N. Fadl, Iman H. Kamel, Thanaa M. Rabah (Author)

1117-1122

PDF

### Importance of the Pneumococcus in Community-acquired Pneumonia in Tender-age Infants on the Background of Vaccination

Aliya A. Zhanpeissova, B. T. Tukbekova, S. B. Akhmetova, B. Dyussenov Sandugash, K. Zh. Alimshaikhina, G. A. Sarmankulova (Author)

1525-1528

PDF

260-264

PDF

### Assessment of a Nutrition Education Program designed to Enhance Mothers' Attitudes on Infants and Young Children feeding in Sudan

Ekhlas A. I. Mohammed, Zainab Taha, Agba A. A. Gadah-Eldam, Mariam M. El hidai (Author)

620-625

PDF

### The Association Between Nutritional Status and Risk of Developmental Disorder in Children in Denpasar Bali Indonesia

I Gusti Ayu Trisna Windiani, Ni Kadek Wiwik Agustini, I. Gusti Agung Ngurah Sugitha Adnyana, Soetjijingsih Soetjijingsih, Ni Luh Sukma Pratiwi Murti (Author)

687-691

PDF

### Study of Neuropeptide Substance P as A Marker of Pain in Newborn Infant

Safaa ELMeneza, Iman ElBagoury, Enas Tawfik, Amel Tolba (Author)

1615-1620

PDF

### A Pattern of Glomerular Diseases in Egyptian Children: A Single-center Experience

Hoda Atef Abdelsattar Ibrahim, Aya Amin, Ahmed Zeid , Samar Sabry , Hesham Safouh (Author)

1305-1312

PDF

### Effectivity of Eesomeprazole Compared with Lansoprazole in the Treatment of Pediatric with Gastritis

Fini Kollins, Supriatmo Supriatmo, Rina Saragih, Ilhamd Ilhamd (Author)

1424-1427

PDF

### Mean Platelet Ratio, Neutrophil to Lymphocyte Ratio, and the Risk of Febrile Seizures in Children Aged 6–59 Months

Albert Kurniawan, Maria Steffany Lainama, Wienta Diarsvitri (Author)

### Association between Bisphenol A Urine Level with Low-Grade Albuminuria in Egyptian Children and Adolescents

Nermine Mahfouz, Ebtissam Salah, Ayman Armaneous, Mai M. Youssef, Mones Mahmoud Abu Shady, Sara Sallam, Mona Anwar, Safaa Morsy, Jihan Hussein (Author)

1092-1097

PDF

### Cystatin and Glomerular Filtration Rate in Obese Versus Non-obese Adolescents

Azza Abd El-Shaheed, Nermine N. Mahfouz, Reham F. Fahmy, Mona A. Elabd, Hiba Sibaii, Salwa Refat El-Zayat, Mahitab I. El-Kassaby, Hagar H. Mourad (Author)

1453-1457

PDF

### Effect of Lactobacillus plantarum DAD-13 and Fructo-oligosaccharides on Short-Chain Fatty Acid Profile and Nutritional Status in Indonesian Stunting Children

Delima Gunawan, Mohammad Juffrie, Siti Helmyati, Endang S. Rahayu (Author)

1790-1796

PDF

### Impact of Papaya (Carica papaya L.) on Breast Milk Production Enhancement of Nursing Mothers at Teling Atas Public Health Center, Wanea Subdistrict, Manado City

Ellen Pesak, Fredrika N Losu, Robin Dompas, Freike Lumy, Gusti Ayu Tirtawati, Dian Pratiwi, Kusmiyati Kusmiyati, Fiani A Djojobo, Atik Purwandari, Bongakaraeng Bongakaraeng, Nonce Nova Legi, Rivolta Walalangji, Esther N Tamunu, Jon Welliam Tangka (Author)

240-243

PDF

### Iron Status in Preschool Children with Normal Hemoglobin, Egypt

Osama El-Asheer, Mary S. Naeem , Fardos H. Abd El Aal , Madleen A. A. Abdou, Khalil Abdel Khalek Mohamed (Author)

1342-1346

PDF

### Relationship between Serum 25(OH)D Levels and Blood Pressure in Children with Nephrotic Syndrome

Rosmayanti Syafriani Siregar, Oke Rina Ramayani (Author); Winson Chitra, Rafita Ramayati

276-280

PDF

### The Relationship between Hair Zinc Levels and Drug-resistant Epilepsy in Children at Sanglah Hospital

I Gusti Ngurah Made Suwarba, Dewi Sutriani Mahalini, I Gusti Ngurah Agung Jayadhi Widyakusuma (Author)

996-1000

PDF

### Comparing Levels of Urinary Phthalate Metabolites in Egyptian Children with Autism Spectrum Disorders and Healthy Control Children: Referring to Sources of Phthalate Exposure

Manal A. Shehata, Ebtissam M. Salah El-Din, Mai M. Youssef, Mones M. Abushady, Inas R. El-Alameey, Engy A. Ashaat, Amr S. Gouda, Walaa S. Nazim (Author)

1640-1646

PDF

### A Determinant Analysis of Stunting Prevalence on Under 5-Year-Old Children to Establish Stunting Management Policy

Diah Mutiarasari, Miranti Miranti, Yuli Fitriana, David Pakaya, Puspita Sari, Bohari Bohari, Muhammad Sabir, Rosa Dwi Wahyuni, Ryzqa Ryzqa, Veni Hadju (Author)

79-84

PDF

### Deferasirox Effect on Serum Ferritin in Iraq Patients with Hemoglobinopathies: A Single Center Experience

Khalaf Hussein Hasan, Aspazija Sofijanova, Luma Hassan, Nasir Al-Allawi (Author)

144-148

PDF

### Zinc Status in Beta-Thalassemia Major

Khalaf Hussein Hasan, Hasan Abdulla Aswad, Aspazija Sofijanova (Author)

149-153

PDF

## Surgery

### **Surgical Management of Parkinson's Disease: The Role of Lesioning Procedures in Developing Countries in the Modern Era**

Sameh Abdelbari, Hanan Abdallah Amer, Bassem Mohamed Ayoub, Ramy Kamel (Author)  
1241-1262

PDF

### **The Role of Chewing Gum on Post-operative Bowel Recovery after Gynecological Laparoscopic Surgery: A Short Report and Updated Review**

Nicko Pisceki Kusika, Imelda E. B. Hutagaol, Muhammad Yusuf, Suyanto Suyanto, Shinta Puja Tilusari (Author)  
1123-1127

PDF

### **Quantification of Alcohol Dehydrogenase Concentration for Traumatic Brain Injury in Alcohol-intoxicated Patients as a Predictor of Severity and Prognosis**

Muhammad Z. Arifin, David Atmaja, Ahmad Faried (Author)  
212-216

PDF

### **Clinical and Radiological Predictors of Ventriculoperitoneal Shunt Insertion in Myelomeningocele Patients**

Ahmed M. F. El Ghoul, Ahmed Hamdy Ashry, Mohamed Hamdy El-Sissy , Ibrahim Mohamed Ibrahim Lotfy (Author)  
522-532

PDF

### **Clinical Experience with PEGylated Hyaluronic Acid Fillers: A 3-year Retrospective Study**

Raffaele Rauso, Giovanni Francesco Nicoletti, Pierfrancesco Bove, Giuseppe M. Rauso, Romolo Fragola, Giorgio Lo Giudice, Nicola Zerbinati (Author)  
1168-1173

PDF

### **Relationship between 25(OH)D and Colorectal Cancer Prevalence at Dr. Moewardi Hospital Surakarta-Indonesia: A Cross-Sectional Study**

PDF

### **Correlation of Wells Score, Caprine Score, and Padua Score with Risk of Hypercoagulation Condition Based on D-dimer in Intra-articular, Periarticular, and Degenerative Fracture Patients of Inferior Extremity**

Thomas Erwin Christian Junus Huwae, Ahmad Heifan, Muhammad Alwy Sugianto (Author)  
1580-1585

PDF

### **Prognostic Indices of Surgical Outcome in Cervical Spondylotic Myelopathy: A Clinical Prospective Study**

Ahmed A. Marei, Mohamed Reda Rady, Hazem Mostafa Kamal, William C. Welch, Mohamed A. Hafez (Author)  
438-443

PDF

### **Monitoring and Prevention the Risk of Diabetic Foot Ulcer Infection during Coronavirus Disease-19 Pandemic: A Narrative Review and Perspective Algorithm**

Mariya Dmitriyeva, Saken K. Kozhakhmetov, Dulat K. Turebayev, Saltanat N. Urazova, Talgat M. Omarov, Nurbek S. Igissinov, Medet T. Toleubayev (Author)  
577-582

PDF

### **The Role of Instrumentation in the Healing Process of Spinal Tuberculosis: An Experimental Study**

Tjuk Risantoso, Mohammad Hidayat, Hidayat Suyuti, Aulani Niam (Author)  
457-463

PDF

### **Incidence of Iatrogenic Lumbar Spinal Instability after Laminectomy, Discectomy or Facetectomy**

Ahmed A. Hafez, Ahmed Hamdy Ashry, Ahmed Elsayed, Amr El Tayeb, Mohamed Badran Abdel Salam ElShenawy (Author)  
588-592

PDF

Tegoeh Winandar, Agus Raharjo, Hari Wujoso, B. Rina A. Sidharta, Budhi Ida Bagus (Author)  
1591-1595

PDF

### **Graptophyllum pictum Extract in the Treatment of Experimental Hemorrhoids: Effects on Vascular Leakage and Matrix Metalloproteinase-9 Levels**

Bernadus Parish Budiono, Sigit Adi Presetyo, Ignatius Riwanto, Sulistyarningsih Sulistyarningsih, Eriawan Agung Nugroho (Author)  
1785-1789

PDF

### **Brachial Plexus Injury Surgical Service in Time of Coronavirus Disease 2019 Pandemic Experience from a Single Tertiary Orthopaedic Hospital in Indonesia**

Seti Aji Hadinoto, Tito Sumarwoto, Mohammad Erstda Trapsilantya (Author)  
758-762

PDF

### **Risk Factors and Incidence of Deep Venous Thrombosis in Non-severe Coronavirus Disease-19 Patients**

Srdjan Babic, Aleksandar Babic, Milica Stojcic, Milena Gencic, Slobodan Tanaskovic, Dragana Radoicic, Predrag Gajin, Igor Atanasijevic, Nenad Ilijevski (Author)  
1446-1452

PDF

### **Arthroscopic Shaver Design Parameters Controlled Laboratory Testing**

Nader Hafez, Mostafa R. A. Atia, Amr A. Elfeky, Mohamed El-Anwar (Author)  
326-330

PDF

### **A Prospective Randomized Study of the Safety and Efficacy of Transforaminal Lumbar Interbody Fusion Versus Posterior Lumbar Interbody Fusion in the Treatment of Lumbar Spondylolisthesis: A Cost utility from a Lower-middle-income Country Perspective and Review of Literature**

Nasser El-Ghandour, Mohamed Sawan, Atul Goel, Ahmed Assem Abdelkhalek, Ahmad M. Abdelmotleb, Taher Ali, Mohamed S. Abdel Aziz, Mohamed A. R. Soliman (Author)  
636-645

### **Loose Thick Seton Suture Stimulates Rapid Healing and Lower Recurrence Rate in the Treatment of High Type Fistula in Ano**

Samer Makki Mohamed Al-Hakkak, Alaa Abood Najim Al-Wadees, Saad Ab-Razq Mijbas, Ashraf Sami MuhammadMuhammad (Author)  
1180-1184

PDF

### **Comparison of the Unilateral and the Bilateral Pedicle Screw Fixation without Using an Interbody Cage: Randomized Clinical Trial**

Alexey Lychagin, Vadim Cherepanov, Marina Lipina, Ivan Vyazankin (Author)  
398-402

PDF

### **Dynamics of Quality of Life Indicators in Patients with Chronic Synovitis of the Knee Joint after Arthroscopic Laser Double-mode Synovectomy**

Alexey Lychagin, Yang Yanbin, Sergey Ivannikov, Stefka Radenska-Lopovok, Roza Yavlieva, Vladimir Surin, Yuliya Goncharuk, Ivan Vyazankin, Marina Lipina (Author)  
1054-1060

PDF

### **Application of the surgical Apgar score (SAS) to predict postoperative complication(s) in the patients with traumatic brain injury: Study of single center in Indonesia**

Muhammad Z. Arifin, Andi N. Sendjaja, Ahmad Faried (Author)  
225-229

PDF

### **Role of Neutrophil-to-Lymphocyte Ratio as a Predictor of Systemic Inflammatory Response Syndrome in Blunt Abdominal Trauma Following Emergency Laparotomy in Sanglah General Hospital, Denpasar**

I Made Dwi Purnamantara, I Ketut Wiargitha, Tjok Gede Bagus Mahadewa (Author)  
1105-1110

PDF

### **Postoperative Recovery Quality after General Anesthesia in Patients Undergoing Emergency Surgery**

I Gusti Agung Gede Utara Hartawan, Made Violin Weda Yani, Tjokorda Gde Agung Senapati, I Made Gede Widnyana, Christopher Ryalino, Cynthia Dewi Sinaraja, Adinda Putra Pradhana (Author)  
715-719

PDF

### Correlation of Tumor Necrosis Factor- $\alpha$ Expression with Pain Level in Degenerative Lumbar Canal Stenosis Patients

Ery Kus Dwianingsih, Yudha Mathan Sakti, Rahadyan Magetsari, David Yosua Parulian Hutahaean, Galih Prasetya Sakadewa, Paramita Dyah Lasmana, Nicolaas C. Budhiparama, Ery Kus Dwianingsih (Author)  
1135-1139

PDF

### The Effect of Topical Corticosteroid Time of Application on Fibroblast and Type III Collagen Expression in *Oryctolagus cuniculus* with Deep Dermal Burn Wound (As an Indicator for the Best Time to Start Topical Corticosteroid Application in Preventing Hypertrophic Scar)

Loelita Lumintang, I Made Suka Adnyana, Agus Roy Hamid, Hendra Sanjaya, Nyoman Golden, Putu Astawa, Made Darmajaya, I Wayan Juli Sumadi (Author)  
964-970

PDF

### Perineal Rectosigmoidal Resection for Complete Rectal Prolapse

Hussein Alkatrani, Mamoon Mahmood Basrah (Author)  
1727-1729

PDF

### The Epidemiology of Knee Arthroscopy during Coronavirus Disease 2019 Pandemic

Asep Santoso, Iwan Budiwan Anwar, Tangkas SMHS Sibarani, Pamudji Utomo, Zarkasyi Arimukti, Ibnu Yudistiro, Muhammad Abdul Hamid (Author)  
683-686

PDF

### Short and Intermediate Outcome of Endovascular Aortic Aneurysmal Repair, A multicenteric Study

Mohamed Hosny Sayed, Mohammed Ali Hassan, Ahmed Samir Hosny, Hisham Rashid, Mohamed Hosni El Dessoki (Author)  
1494-1498

Ashraf Zaghloul, Ahmed Abdelbary, Amr Fergany, Hatem Aboukasssem, Waleed Mohamed Fadlalla (Author)  
367-372

PDF

### Delayed Treatment of Acute Subdural Hematomas: Retrospective Outcome Analysis of 215 Patients

Kanat Akhmetov, Serik Akshulakov, Yerzhan Adilbekov, Altynshash Jaxybayeva, Mariya Dmitriyeva, Medet Toleubayev (Author)  
779-785

PDF

### Platelet Concentrate In Lumbar Interbody Cage Fusion: A New Era of Modality Of Fusion

Mohamed Mohi EL din, Ahmed Salah Hassan, Tarek Ahmed Tareef, Mohammad Baraka, Mohamed Gabr, Ahmed H. Omar (Author)  
356-362

PDF

### Assessment of Serum Ionized Calcium in the Perioperative Period in Patients Undergoing Total Thyroidectomy

Muqdad Fuad, Ahmed Modher (Author)  
1203-1206

PDF

### Orthopedic Department of Education Center and Service Provide During Coronavirus Disease-2019 Pandemic: An Experience from Single-Center Hospital

Bagus Jati Nugroho, Bintang Soetjahjo, Udi Heru Nefihancoro, Rieva Ermawan, Rhyan Darma Saputra, Galih Santoso Putra, Fathih Kaldani, Muhammad David Perdana Putra, Zaltri Rhani Lebang, Dea Alberta Setiawati (Author)  
250-254

PDF

### Higher Rate of Patellofemoral Problems After Anterior Cruciate Ligament Reconstruction using Hamstring Autograft

Krisna Yuarno Phatama, Romy Darmawansa, I Gusti Ngurah Arga Aldrian Oktafandi, Felix Cendikiawan, Alva Pribadi, Lasa Dhakka Siahaan, Sholahuddin Rhatomy, Edi Mustamsir (Author)

PDF

### Three-dimensional printing applications in the neurosurgery: A pilot study

Moneer Faraj, Bassam Arkawazi, Zaid Al-Attar (Author)  
403-406

PDF

### A Comparative Study of Pediatric Fracture Shaft Femur Fixating by Plate and Screws Using Lateral Approach Between Subvastus Lateralis and Transvastus Lateralis Outcome

Haider O. Hayat Ali Al-Faily, Saif Nabeel Abd Alwahab, Mohammed Sh. Al-Edanni, Sadeq A. Al-Mukhtar, Ghadeer H. Majeed (Author)  
1791-1794

PDF

### Evaluation of Extreme Hip Joint Movement after Total Hip Arthroplasty: A Retrospective Study

Iwan Budiwan Anwar, Emile van der Heide, J. Jamari, Eko Saputra, Asep Santoso, Denny Adriansyah, Zarkasyi Arimukti (Author)  
1296-1300

PDF

### Epidemiology and Characteristics of Burn Patients in Dr. Soedarso General Hospital during 2017 – 2020: Retrospective Study

Doni Setiawan, Winsen Haryono (Author)  
711-714

PDF

### Penetrating Scrotal Injuries: A War Time Experience in a Civilian Setup

Ammar Fadil Abid, Naimet Naoum (Author)  
1198-1202

PDF

### Robotic Radical Prostatectomy at the Egyptian National Cancer Institute: Overcoming the Challenges in the Initial Case Series

811-815

PDF

### Short-term Follow-up of Early Reconstructive Surgery Management in Neglected Supracondylar Humeral Fractures

Tito Sumarwoto, Seti Aji Hadinoto, Herlambang Pranandaru, Hanif Andhika, Cholahuddin Phatomy, Pamudji Utomo (Author)  
24-28

PDF

### Experiences of Renal Stone Fragmentation with the Use of the Ultrasound-guided Mini-percutaneous Nephrolithotpsy in 650 Patients

Duong Van Trung, Trinh Hoang Hoan, Nguyen Van Hoang (Author); Tran Hong Quan  
36-41

PDF

### Comparative Study between Neopterin and Alvarado Score in the Diagnosis of Acute Appendicitis and Its Severity

Zuhair B. Kamal, Raghad E. Naji, Hiba A. Ali (Author)  
42-47

PDF

### Autoplasty by Displaced Aponeurotic Flap: Results of a New Method of Inguinal Hernias Surgical Treatment

Saule Tulegenovna Sapiyeva, Nurkassi Tulepbergenovich Abatov, Makash Tynsytykpaevich Aliyakparov, Yoshihiro Noso, Ruslan Muratovich Badyrov, Elena Sergeevna Badyrova (Author)  
48-54

PDF

### Management of Infected Charcot Neuroarthropathy due to Diabetes Mellitus with Half Pins External Fixator and Pinning: A Case Series

Maria Florencia Deslivia, Claudia Santosa, Putu Teguh Aryanugraha, Sherly Desnita Savio, Ketut Kris Adi Marta, I Wayan Subawa, Putu Astawa (Author)  
60-63

PDF

### Single Level Lumbar Disk Herniation: Conventional Discectomy versus Interbody Fusion with Bilateral Pedicular Fixation

Ahmed K. Abdelaziz, Ehab Abdel Haleem, Ahmed M. Ali, Omar El Falaky, Helmy Abdel Haleem (Author)  
122-129

PDF

## Ophtalmology

### Sensitivity and Specificity of Sheard and Percival's Criteria for the Diagnosis of Young People with Near-heterophoria

Saif Hassan Alrasheed , Amel Mohamed Yousif , Majid A. Moafa , Abd Elaziz Mohamed Elmadina, Mohammad Alobaid (Author)  
1128-1134

PDF

### Ocular Trauma Trends in Indonesia: Poor Initial Uncorrected Visual Acuity Associated with Mechanism of Injury

Sauli Ari Widjaja, Yoshimune Hiratsuka, Koichi Ono, Ima Yustiarini, Nurwasis Nurwasis, Akira Murakami (Author)  
903-908

PDF

### Estimation of the Level of Glycosylated Hemoglobin as a Predictor Factor to Bevacizumab Injection in Diabetic Macular Edema in a Sample of Iraqi Patients

Hasanain Hasan Attar, Farooq Mohammed Abbas, Haider Layikh (Author)  
1480-1483

PDF

### The The Effect of Colors and Positional Noise on Reading Performance with Non-words-Part 2

Abdullah Alsalhi, Nadia Northway, Glyn Walsh, Abd Elaziz Mohamed Elmadina (Author)  
244-249

PDF

PDF

### Expression of Cytokeratin 6 and 16 in Middle Ear Cholesteatoma

Jacky Munilson, Yan Edward, Lorensia Fitra Dwita, Hirowati Ali (Author)  
1323-1328

PDF

### Expressions of Nuclear Factor-kappa B and Peroxisome Proliferator-activated Receptor-Gamma Proportional with Clinical Staging of Nasopharyngeal Carcinoma

Farhat Farhat, Elvita Rahmi, Jessy Chrestella, Osvaldo Williamson, Raudah Putri Syari (Author)  
1347-1351

PDF

## Radiology and Radiotherapy

### Intraoral Radiographic Processing Skills among Dentists in Saudi Arabia

Hisham Abbas, Abdullah Isaam Arabi , Badia Baroudi, Shaima'a Makhdom , Mazen Ahmed Alwadani, Elaf Sami Al Akhdar , Ahmad Majed Alshareef (Author)  
1027-1030

PDF

### Electron Beam Measurements Employing Electron Montecarlo Algorithm on TrueBeam STx® and Clinac iX® Linear Accelerators

Kamal Saïdi, Othmane Kaanouch, Hanae El Gouach, Mohamed Reda Mesradi, Mounir Mkimel, Redouane El Baydaoui (Author)  
1730-1738

PDF

### Descriptive Analysis of Chest Computed Tomography Scan in Coronavirus Disease 2019 Pneumonia: Correlation with Reverse Transcription-polymerase Chain Reaction and Clinical Features

Rusli Muljadi, Mira Yuniarti, Ricardo Tan, Teodorus Alfons Pratama, Ignatius Bima Prasetya, Allen Widyanto, Gilbert Sterling Octavius (Author)  
865-871

PDF

### Cyclic Adenosine Monophosphate, Inositol 1,4,5-trisphosphate, Calcium, and Phosphorylated Myosin Light Chain Regulation Through M2 and M3 Muscarinic Receptors of Scleral Fibroblast Cells in Rat Myopia Model

Nanda Wahyu Anandita, Nurdiana Nurdiana, Endang Sri Wahyuni, Hidayat Sujuti (Author)  
890-899

PDF

### Visual Function of Drivers and its Relation to the Occurrence of Road Traffic Accidents in Saudi Arabia

Sulaiman Aldakhil, Godwin Ovenser- Ogbomo, Majid Moafa, Waleed Alghamdi, Muhammed Alluwimi, Suliman Alghnam (Author)  
1016-1020

PDF

### Evaluation of Visual Function Requirements for Public Jobs in Saudi Arabia

Majid A. Moafa, Waleed Alghamdi, Mohammed Alluwimi, Sulaiman Aldakhil, Ismail Abuallut, Mansour Alghamdi, Saif Alrasheed (Author)  
608-613

PDF

### Association between Artificial Reproductive Technology and Retinopathy of Prematurity

Kiril Slaveykov, Kalina Trifonova, Hristo Mumszhiev (Author)  
6-11

PDF

### The Effect of Color and Positional Noise on Reading Performance in Human Vision

Abdullah Alsalhi, Nadia Northway (Author); Glyn Walsh; Abd Elaziz Mohamed Elmadina (Author)  
130-135

PDF

## Ear, Nose and Throat

### Nutritional Status of Patients with Nasopharyngeal Carcinoma

Yussy Afriani Dewi, Arief Fakhriзал, Shinta Fitri Boesoerie, Ayu Hardianti Saputri (Author)  
1435-1439

### The Value of Ultrasound Elastography in Diffuse Thyroid Disease among a Sample of Iraqi Population

Hiba Mohammed Abdulwahid, Lubna Ali Hussein, Areege Mustafa Kamal (Author)  
1647-1653

PDF

### Reevaluation of the Correlations between Ultrasound Features of Thyroid Nodules and Grades of Bethesda Classification

Ermal Tako, Blerina Cela, Majlinda Ikonomi (Author)  
734-741

PDF

### Radiation-induced Mucositis in Patients with Oropharyngeal Cancer Treated with Moderate Acceleration of Intensity-modulated Radiation Therapy and Simultaneous Integrated Boost Concomitant with Weekly Cisplatin

Lenche Kostadinova, Gjusen Selim (Author); Petar Chakalaroski, Snezana Smickoska, Marina Stoleska, Danilo Nonkuloski  
1-5

PDF

## Anesthesiology

### The Efficacy of O-Mac®, Patent Video Laryngoscope, and Conventional Laryngoscope for Intubation in the Operating Room

Jorza Sepmiko, Tjok Gde Agung Senapathi, Made Wiryana, I. Putu Kurniyanta, I. Made Gede Widnyana, Ida Bagus Krisna Jaya Sutawan (Author)  
646-650

PDF

### Profile of Sepsis Patients Treated in Intensive Care Unit of Sanglah Hospital Denpasar

Merry Merry, I Gusti Agung Gede Utara Hartawan, I Wayan Aryabiantara, Dewa Ayu Mas Shintya Dewi (Author)  
1701-1704

PDF

## Intensive Care

### Use of Lung Ultrasound for Assessment of Lung Recruitment Maneuvers in Patients with ARDS

Waheed A. Radwan, Mohamed M. Khaled, Ayman G. Salman, Mohmed A. Fakher, Shady Khatab (Author)  
952-963

PDF

### Lung Ultrasound versus Pulmonary Auscultation in Detecting Pulmonary Congestion in the Critically Ill

Abdou Ibrahim, Hesham Mohamed Elbeny, Randa Soliman, Soliman Belal (Author)  
1544-1548

PDF

### Comparison of Neutrophil Gelatinase-associated Lipocalin and Renal Resistive Index as Acute Kidney Injury Predictor in Critically Ill Patients at ICU H. Adam Malik Hospital Medan

Muhammad Aldi Rivai Ginting, Achsanuddin Hanafie, Bastian Lubis (Author)  
1637-1639

PDF

### What Is Preparedness and Capacity of Intensive Care Service in Indonesia to Response to COVID-19? A Mixed-method Study

Mochamat Helmi, Djayanti Sari, Andreasta Meliala, Laksono Trisnantoro (Author)  
1686-1694

PDF

### Effect of Glucose-Insulin-Potassium Infusion on Hemodynamics in Patients with Septic Shock

Hassan Effat, Ramy Khaled, Ahmed Battah, Mohamed Shehata, Waleed Farouk (Author)  
1517-1524

PDF

### Predictive Score Model of Clinical Outcomes Sepsis in Intensive Care Unit Tertiary Referral Hospital of Eastern Indonesia

Metta Octora, Ni Made Mertaniasih, Bambang Pujo Semedi, Eko Budi Koendhori (Author)  
1710-1716

626-631

PDF

### A Preliminary Scoring Model to Predict In-hospital Mortality Risk for Geriatric Patients with Delirium

Nyoman Astika, Dwijo Anargha Sindhughosa, R.A. Tuty Kuswardhani, Ida Bagus Amertha Putra Manuaba (Author)  
872-877

PDF

### Salat Dhuha Improves Haemodynamic: A Randomized Controlled Study

Elman Boy, Aznan Lelo, Amira Permatasari Tarigan, Yetty Machrina, Yusni Yusni, Juliandi Harahap, Rosita Juwita Sembiring, Santi Syafril, Gusbakti Ruspil, Cindy Azzahra Freeman (Author)  
1695-1700

PDF

### The Prevalence of Functional Disability and Associated Factors among Older People Attending Primary Health-care Centers in Riyadh City

Abdullah Alhalafi, Maysoon Al-Amoud, Reema Aldahman, Eman Abd-Ellatif, Doaa Omar (Author)  
975-982

PDF

### Plasma Levels of Interleukin-6 and the Cluster of Differentiation 4/Cluster of Differentiation 8 Ratio in Frailty among Community-dwelling Older People

Sri Sunarti, Nurria Indriyaningrum, Caesarius Wahono, Djoko Soeatmadji, Achmad Rudijanto, Retty Ratnawati, Setyawati Soeharto Karyono, Maryunani Maryunani (Author)  
1333-1341

PDF

### High Circulating Sclerostin Level as Osteoporosis Risk Factor in Male Geriatric Population at Sanglah Hospital Bali

Sandra Suryarini, RA. Tuty Kuswardhani, I. Gusti Lanang Ngurah Agung Artha Wiguna (Author)  
1032-1036

PDF

PDF

### Ultrasound-Guided Preload Indices during Different Weaning Protocols of Mechanically Ventilated Patients and its Impact on Weaning Induced Cardiac Dysfunction

Dina Zeid, Walid Ahmed, Randa Soliman, Abdou Alazab, Ahmed Samir Elsawy (Author)  
1370-1380

PDF

### Attenuation of the Airway and Cardiovascular Responses to Extubation in Chronic Smokers by Prior Treatment with Dexmedetomidine, Fentanyl, and their Combination

Naglaa A. Ahmed, Ashraf M. Yehia, Ahmed H. Mohamed, Asmaa Abdulwahhab (Author)  
1290-1295

PDF

## Rehabilitation

### Therapeutic Education and Physiotherapy in Low Back Pain Management

Stilyana Romanova, Kristin Grigороva, Antoaneta Dimitrova (Author)  
1778-1784

PDF

### The Use of Bioacoustic Stimulation of the Respiratory System in Complex Medical Rehabilitation at a Health Resort Facility for Patients who have had COVID-associated Pneumonia

Mikhail Bragin, Evgeny Goloborodko, Gennady Erofeev, Sergey Razinkin, Alexey Vladimirovich Sukhinin, Anna Kish, Irina Mikhlik, Ksenia Vladimirovna Zolotareva (Author)  
1607-1614

PDF

## Geriatrics

### The Effect of Walking Exercise and Consumption of Steeping Chamomile Flowers (*Matricaria recutita*) on Depression in the Elderly in Langsa City

T. Iskandar Faisal, Nuswatul Khaira, Nora Veri, Magfirah Magfirah, Dewita Dewita, Alchalidi Alchalidi, Yuni Sari (Author)

### Association of Appendicular Skeletal Muscle Mass and Central Obesity Parameters with Lipid Profiles in Older Women

Lazuardhi Dwipa, Syarief Hidayat, Senov Eka Permadi, Evan Susandi, Alif Bagus Rakhimullah, Yuni Susanti Pratiwi (Author)  
921-924

PDF

### Study of the Incidence of Some Chronic Diseases Among patients with Long-term Physical Disabilities

Sevdalina Alekova Todorova (Author)  
1140-1148

PDF

### Potential of Omega-3 Supplementation on Muscle Mass, Muscle Strength, and Physical Performance in Elderly Community

Nur Riviati, Taufik Indrajaya, Erial Bahar, Dobi Saputra Burni (Author)  
55-59

PDF

# Editorial Team

## Journal Manager

Eli Djulejic, MD. Open Access Macedonian Journal of Medical Sciences, Belgrade, Serbia

[elispiroska@yahoo.com](mailto:elispiroska@yahoo.com)

ORCID iD: <https://orcid.org/0000-0002-1736-9029>

Web of Science ResearcherID: [AAC-3225-2020](https://orcid.org/0000-0002-1736-9029)

Scopus Author ID: [33767574400](https://orcid.org/0000-0002-1736-9029)

## Editor-in-Chief

[Mirko Zhivko Spiroski](mailto:mspiroski@yahoo.com), MD, PhD. Scientific Foundation SPIROSKI, Rajko Zhinzifov No 48, 1000 Skopje, Republic of Macedonia

[mspiroski@yahoo.com](mailto:mspiroski@yahoo.com)

ORCID iD: <https://orcid.org/0000-0001-5559-7981>

Web of Science ResearcherID: [F-7606-2012](https://orcid.org/0000-0001-5559-7981)

Scopus Author ID: [6602348069](https://orcid.org/0000-0001-5559-7981)

## Section Editors (Deputy Editors-in-Chief)

Stoleski Sasho, MD, PhD. Institute for Occupational Health of Republic of Macedonia - Skopje, WHO Collaborating Center, GA2LEN Collaborating Center, II

Makedonska brigada 43, 1000 Skopje, Republic of Macedonia

[sstoleski@yahoo.com](mailto:sstoleski@yahoo.com)

ORCID iD: <https://orcid.org/0000-0003-1278-903X>

Web of Science ResearcherID: [B-2304-2015](https://orcid.org/0000-0003-1278-903X)

Scopus Author ID: [9943962300](https://orcid.org/0000-0003-1278-903X)

Slavica Hristomanova-Mitkovska, MD, MSc. Institute of Human Genetics, University Medical Center Göttingen, Heinrich-Düker-Weg 12, 37079 Göttingen, Germany

[cacka\\_h@yahoo.com](mailto:cacka_h@yahoo.com)

ORCID iD: <https://orcid.org/0000-0002-7770-5055>

Web of Science ResearcherID: [G-8801-2012](https://orcid.org/0000-0002-7770-5055)

Scopus Author ID: [33767823700](https://orcid.org/0000-0002-7770-5055)

Igor Spiroski, MD. University Clinic of Cardiology, Faculty of Medicine, Ss Cyril and Methodius University of Skopje, Skopje, Republic of Macedonia

[ispiroski@gmail.com](mailto:ispiroski@gmail.com)

ORCID iD: <https://orcid.org/0000-0002-3448-0685>

Web of Science ResearcherID: [AAA-5652-2020](https://orcid.org/0000-0002-3448-0685)

Scopus Author ID: [23971606200](https://orcid.org/0000-0002-3448-0685)

Ksenija Bogoeva-Kostovska, MD, PhD. PHO Prof Bogoev, Skopje, Republic of Macedonia

[ksenijabogoeva@gmail.com](mailto:ksenijabogoeva@gmail.com)

Sinisha Stojanovski, MD, PhD. Medical Faculty, Saints Cyril and Methodius University in Skopje,

Skopje, Republic of Macedonia

[sinisa.stojanoski@hotmail.com](mailto:sinisa.stojanoski@hotmail.com)

ORCID iD: <https://orcid.org/0000-0002-4967-2102>

Web of Science ResearcherID: [AFL-9514-2022](https://orcid.org/0000-0002-4967-2102)

Scopus Author ID: [6504203064](https://orcid.org/0000-0002-4967-2102)

Filip Koneski, Doctor of Dental Medicine, MSc. University Clinic for Maxillofacial Surgery in Skopje, Ss. Cyril and Methodius University in Skopje, Faculty of Dental Medicine, Skopje, Republic of Macedonia

[dr.koneski@gmail.com](mailto:dr.koneski@gmail.com)

ORCID iD: <https://orcid.org/0000-0003-2412-7594>

Web of Science ResearcherID: [J-9194-2019](https://orcid.org/0000-0003-2412-7594)

Scopus Author ID: [57073856400](https://orcid.org/0000-0003-2412-7594)

Aleksandar Iliev, Doctor of Dental Medicine, PhD. Department of Maxillofacial Surgery, Faculty of Dentistry, The Saints Cyril and Methodius University of Skopje, Skopje, Republic of Macedonia

[aleksandar.iliev@gmail.com](mailto:aleksandar.iliev@gmail.com)

ORCID iD: <https://orcid.org/0000-0001-5348-9143>

Web of Science ResearcherID: [ACV-7553-2022](https://orcid.org/0000-0001-5348-9143)

Scopus Author ID: [57021392000](https://orcid.org/0000-0001-5348-9143)

### **Layout Editor and Electronic Publishing**

Ivo Spiroski, Eng, MSc. Scientific Foundation SPIROSKI, Rajko Zhinzifov No 48, 1000 Skopje, Republic of Macedonia

[ivospiroski@gmail.com](mailto:ivospiroski@gmail.com)

ORCID iD: <https://orcid.org/0000-0003-4518-2138>

Web of Science ResearcherID: [F-2799-2014](https://orcid.org/0000-0003-4518-2138)

### **Production Editor**

### **Copyeditor**

Sinjore, India

### **Evidence Based Medicine**

Prof. Dr. Katarina Stavric, Children Hospital Skopje, Macedonia, Vodnjanska 17, University "Ss Cyril and Methodius", Skopje, Republic of Macedonia

### **Editorial Board**

DDS, MS, PhD, Associate Professor Nikola Angelov, Director of the Pre-Doctoral Periodontics Clinic, Loma Linda University School of Dentistry, Department of Periodontics. Loma Linda, CA, 92350, United States

Assist. Prof. Dr. Ramush Bejiqi, University Clinical Centre of Kosovo, Paediatric Clinic, Albania

Prof. Semra Āevaljuga, Department of Epidemiology and Biostatistics, Faculty of Medicine, Sarajevo, Bosnia and Herzegovina

MD Pei-Yi Chu, Diagnostic and research pathologist, Department of Surgical Pathology, Changhua Christian Hospital, Taiwan. Address: 135 Nan-Shiao Street, Changhua 500-06,, Taiwan, Province of China

MD, PhD Ivo Donkov, Staff Urologist, Lincoln County Hospital, United Kingdom



MD, PhD Andrew J. Dwork, Departments of Pathology and Cell Biology and Psychiatry, College of Physicians and Surgeons of Columbia University; Division of Molecular Imaging and Neuropathology, New York State Psychiatric Institute, Unit 62, 722 West 168th Street, New York, NY 10032, United States

Adriana Galan, Department of Health Programmes and Health Promotion, Institute of Public Health, Bucharest, Romania

Prof. Tania Santos Giani, Estacio de Sa University, in Health Sciences, Brazil

PhD Iva Ivanovska, Harvard Medical School, Department of Genetics, 77 Avenue Louis Pasteur, NRB room 239, Boston, MA 02115, United States

MD, PhD Jerzy Jablonski, Associate Professor, Division of General Surgery St. Jadwiga of Silesia Hospital, Trzebnica; Head, Subdepartment of Hand Surgery and Replantation St Jadwiga of Silesia Hospital, Trzebnica; Professor, Department of Public Health, State Higher Professional Medical School, Opole, Poland. 55-100 Trzebnica, ul. Prusicka 53, Poland

MD Mehrdad Jalalian Hosseini, Khorasan-e Razavi Blood Center, Mashhad, Iran, Islamic Republic of

PhD Radka Kaneva, Department of Medical Chemistry and Biochemistry, Medical University - Sofia, Bulgaria

Prof. Dr. Kostandina Leonida Korneti-Pekevaska, Ss Cyril and Methodius University of Skopje, Faculty of Medicine, Skopje, Republic of Macedonia

MD, PhD Branko Malenica, Department of Immunology, Clinical Hospital Center Zagreb, Zagreb University School of Medicine, Zagreb, Croatia

Prof. Dr. Elida Mitevaska, Institute of Histology and Embriology, Faculty of Medicine, Ss Cyril and Methodius University of Skopje, Skopje, Republic of Macedonia

MD, PhD Marija Mostarica-StojkoviÄ, Institute of Microbiology and Immunology, University of Belgrade School of Medicine, Belgrade, Serbia

PhD Vesna Nikolova-Krstevski, Harvard Institutes of Medicine, HIM-201, 4 Blackfan Circle, Boston, MA, 02134, United States

Prof. Dr. Nikola Panovski, Institute of Microbiology and Parasitology, Faculty of Medicine, Skopje, Republic of Macedonia

MD, BIDMC Iva Petkovska, Beth Israel Deaconess Medical CenterRadiology W CC - 3 330 Brookline Ave. Boston, MA 02215, United States

Prof. Dr. Gordana Petrusevska, Institute of Pathology, Medical Faculty, University of "Ss. Cyril and Methodius" Skopje, Republic of Macedonia

Prof. Enver Roshi, Dean of Faculty of Public Health, Medical University of Tirane, Chief of Epidemiological Observatory, National Institute of Public Health. Address: Rruga e Dibres, Str. 371, Tirana, Albania

MD, PhD Gorazd B. Rosoklija, Professor at Columbia University and member of the Macedonian Academy of Sciences and Arts, United States

Prof. Dr. Aleksandar Sikole, University Clinic for Nephrology, Faculty of Medicine, Ss Cyril and Methodius University of Skopje, Skopje, Republic of Macedonia

MD, FESC Gianfranco Sinagra, Department of Cardiology, "Ospedali Riuniti" and University of Trieste, Ospedale Cattinara " Strada di Fiume, 447, 34149 " Trieste, Italy

MD, PhD Rumen Stefanov, Information Centre for Rare Diseases and Orphan Drugs (ICRDOD), Bulgaria; Department of Social Medicine, Medical University of Plovdiv, Bulgaria

Prof. Dr. Vesna Velikj Stefanovska, Department of Epidemiology and Biostatistics with Medical Informatics, Medical Faculty, UKIM, Skopje, Republic of Macedonia

MD, MBA Milenko Tanasijevic, Director, Clinical Laboratories Division and Clinical Program Development, Pathology Department, Brigham and Women's Hospital, Dana Farber Cancer Institute, Associate Professor of Pathology, Harvard Medical School, United States

MD, FRCPC Kiril Trpkov, Associate Professor, University of Calgary, Department of Pathology and Laboratory Medicine, Calgary Laboratory Services. 7007 14 st, Calgary SW, Canada

MD, PhD Igor Tulevski, Department of Cardiology, Academic Medical Center, Amsterdam, 1100 DD, T 020 707 2930; F 020 707 2931, Netherlands

## **Past Members of Editorial Team**

Prof. Dr Doncho Donev, Institute of Social Medicine, Medical Faculty, Ss Cyril and Methodius University of Skopje, Skopje, Republic of Macedonia

Prof. Dr Olivera Stojceva Taneva, University Clinic of Nephrology, Republic of Macedonia

Prof. Dr Petar Miloshevski, from 2008-2014, Institute of Preclinical and Clinical Pharmacology with Toxicology, Faculty of Medicine, Skopje, Republic of Macedonia

Prof. Dr Sonja Topuzovska, Institute of Medical and Experimental Biochemistry, Faculty of Medicine, Skopje, Republic of Macedonia

Prof. Dr. Aleksandar Dimovski, Institute of Pharmaceutical Chemistry, Faculty of Pharmacy, University "Ss Kiril and Metodij", Skopje, Republic of Macedonia

PhD Mirko Trajkovski, ETH Zurich, Wolfgang-Pauli-Str. 16/HPT D57, 8093 Zurich-CH, Switzerland

PhD Zoran Zdravkovski, Institute of Chemistry, Faculty of Natural Sciences and Mathematics, Ss Cyril and Methodius University of Skopje, Skopje, Republic of Macedonia



# Clinical Signs and Laboratory Parameters as Predictors of Mortality among Hospitalized Human Immunodeficiency Virus-Infected Adult Patients at Tertiary Hospital in Surabaya

Rentha Monica Simamora<sup>1,2</sup>, Muhammad Vitanata Arfijanto<sup>1\*</sup>, Musofa Rusli<sup>1</sup>, Budi Utomo<sup>3</sup>, Cennikon Pakpahan<sup>4</sup>, Garry Prasetyo Adi<sup>1</sup>

<sup>1</sup>Department of Internal Medicine, Faculty of Medicine, Airlangga University, Soetomo General Teaching Hospital, Surabaya, Indonesia; <sup>2</sup>Department of Internal Medicine, Dr. Kanudjoso Djatiwibowo General Hospital, Balikpapan, Indonesia; <sup>3</sup>Department of Public Health and Preventive Medicine, Faculty of Medicine, Airlangga University, Surabaya, Indonesia; <sup>4</sup>Department of Biomedical Sciences, Andrology Study Program, Faculty of Medicine, Airlangga University, Surabaya, Indonesia

## Abstract

**BACKGROUND:** The morbidity and mortality rates due to human immunodeficiency virus (HIV) infection are still high despite various and advanced efforts in the management given for HIV/AIDS patients.

**AIM:** This study proposed that clinical signs and laboratory parameters could be expected to predict the patient's mortality.

**METHODS:** This retrospective study was done by collecting 408 medical records of adult HIV/AIDS inpatients at a tertiary hospital in Surabaya from January 1, 2017, to December 31, 2019. Bivariate analysis using Chi-square test was carried out on nine variables, which were Glasgow Coma Scale (GCS) <15, hypotension, PaO<sub>2</sub>/FiO<sub>2</sub> <400 mmHg, elevated liver enzymes, hemoglobin levels <10 mg/dl, platelet count <150,000/mm<sup>3</sup>, eGFR <60 ml/min/1.73 m<sup>2</sup>, albumin levels <3.5 mg/dl, and body mass index (BMI) <18.5 kg/m<sup>2</sup>. Variables which met the criteria would be included in the multivariate analysis using logistic regression.

**RESULTS:** Based on bivariate analysis, mortality was found to be significantly associated with GCS <15, hypotension, PaO<sub>2</sub>/FiO<sub>2</sub>, elevated liver enzymes, platelet count <100,000 mm<sup>3</sup>, eGFR <60 ml/1.73kg/m<sup>2</sup>, albumin levels <3.5 mg/dl, and BMI <18.5 kg/m<sup>2</sup>. However, based on multivariate analysis, there were five variables which were found to be able to independently predict the patients' mortality, those were GCS <15 (OR 11.625), hypotension (OR 6.062), PaO<sub>2</sub>/FiO<sub>2</sub> < 400 mmHg (OR 7.794), eGFR <60 ml/min/1.73 m<sup>2</sup> (OR 2.646), and albumin levels <3.5 mg/dl (OR 4.091).

**CONCLUSION:** GCS <15, hypotension, PaO<sub>2</sub>/FiO<sub>2</sub> <400 mmHg, eGFR <60 ml/1.73g/m<sup>2</sup>, and albumin levels <3.5 mg/dl were found as the independent risk factors which could predict the hospitalized HIV/AIDS patients' mortality.

**Edited by:** Ksenija Bogoeva-Kostovska  
**Citation:** Simamora RM, Arfijanto MV, Rusli M, Utomo B, Pakpahan C, Adi GP. Clinical Signs and Laboratory Parameters as Predictors of Mortality Among Hospitalized Human Immunodeficiency Virus-Infected Adult Patients at Tertiary Hospital in Surabaya. Open Access Maced J Med Sci. 2021 Jun 25; 9(B):497-502.  
<https://doi.org/10.3889/oamjms.2021.6223>

**Keywords:** Predictors; Morbidity; Mortality; Human Immunodeficiency Virus/AIDS; Clinical sign; Laboratory parameters

\***Correspondence:** Muhammad Vitanata Arfijanto, Department of Internal Medicine, Faculty of Medicine, Soetomo General Teaching Hospital, Airlangga University, Surabaya, Indonesia.  
E-mail: muhammad-v-a@fk.unair.ac.id

**Received:** 18-May-2021

**Revised:** 10-Jun-2021

**Accepted:** 15-Jun-2021

**Copyright:** © 2021 Rentha Monica Simamora, Muhammad Vitanata Arfijanto, Musofa Rusli, Budi Utomo, Cennikon Pakpahan, Garry Prasetyo Adi

**Funding:** This research did not receive any financial support

**Competing Interest:** The authors have declared that no competing interest exists

**Open Access:** This is an open-access article distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (CC BY-NC 4.0)

## Introduction

Human immunodeficiency virus (HIV) is a retrovirus that attacks human immune cells, especially CD4 T cells, resulting the decreasing of the number of CD4 T cells which then can cause the weakening of body's immune system [1]. HIV can directly damage body's tissues and organs through an inflammatory process that causes organ dysfunction and leads to mortality. Heretofore, HIV/AIDS has been becoming a global health problem with a high mortality rate and increasing number of sufferers every year [2], [3].

There have been various studies conducted to deepen the understanding of the characteristics and predictor factors of HIV-infected adult people's mortality. Some mortality predictors reported were

platelets, glomerular filtration rate, liver function, serum albumin, CD4 values, and body mass index (BMI) [4], [5], [6]. The previous retrospective and prospective studies showed a variety of data relating to the characteristics of the research subject, socioeconomic conditions, and the length of the study conducted [7], [8], [9], [10].

Studies discussing about predictors of mortality among HIV/AIDS patients in Indonesia are still limited, whereas knowing the characteristics and factors that influence mortality is very important to improve medical interventions for HIV/AIDS patients. Therefore, this study was aimed to determine the characteristics and factors that could predict the HIV/AIDS patients' mortality using simple parameters through clinical signs and laboratory examinations that have been routinely carried out since the beginning of the patient hospitalization.

## Methods

### Study design and population

This research was conducted at a tertiary referral hospital in Surabaya, the capital of the province of East Java which has the highest number of HIV/AIDS sufferers in Indonesia. This study was a retrospective study done by collecting the medical record data which was obtained using systematic sampling from January 1, 2017, to December 31, 2019. The inclusion criteria included medical record of men and women inpatients aged  $\geq 18$  years who have been diagnosed with HIV/AIDS. The HIV/AIDS diagnosis was obtained from the ICD coding listed on the medical resume. Some data which were excluded in this study were including medical records of HIV/AIDS patients who discharged at their own request, patients who had traumatic brain injury, patients who had organ dysfunction before being diagnosed with HIV/AIDS, patients who had hematological disorders before being diagnosed with HIV/AIDS, patients diagnosed with cancer that was not related to HIV/AIDS, the pregnant patients, the missing data, the incomplete data, as well as the corrupt data.

### Data collection

The data were collected using a data recording form which contained the characteristics and variables of the research. Characteristics of the research's subjects were in the form of demographic and clinical data. The demographic data included the patient's age, gender, place of residence, marital status, education level, HIV risk factors, and length of the hospital stay. Moreover, the clinical data included HIV clinical stage according to the WHO, ART therapy status, Glasgow Coma Scale (GCS),  $\text{PaO}_2/\text{FiO}_2$  ratio, blood pressure, SGOT level, SGPT level, creatinine level, glomerular filtration rate, hemoglobin level, platelet count, serum albumin level, and BMI.

The independent variables in this study were GCS  $< 15$ , hypotension,  $\text{PaO}_2/\text{FiO}_2 < 400$  mmHg, elevated liver enzymes, hemoglobin levels  $< 10$  mg/dl, platelet counts  $< 150.000/\text{mm}^3$ , eGFR  $< 60$  ml/min/1.73  $\text{m}^2$ , albumin levels  $< 3.5$  mg/dl, and BMI  $< 18.5$   $\text{kg}/\text{m}^2$ . Hypotension was defined as systolic blood pressure  $< 100$  mmHg or diastolic blood pressure  $< 60$  mmHg. Elevated liver enzymes were defined as SGOT levels with values above 50  $\mu\text{L}$  or SGPT levels with values above 70  $\mu\text{L}$  [11]. This study used the CKD-EPI formula for the glomerular filtration rate. Many studies suggested that the CKD-EPI formula was more preferable than MDRD and CG for calculating the glomerular filtration rate in the HIV patient population. The CKD-EPI formula did not require any information regarding body weight, unlike CG which used to bias the results of glomerular filtration rate [10], [12], [13].

## Results

In this study, most of the HIV/AIDS patients hospitalized were male with a total of 274 people (67.2%). Furthermore, the female patients were 134 people or 32.8% of total data gained. In terms of age, it was found that the age ranged from 19 years old for the youngest to 70 years old for the eldest. Moreover, data of the patients' marital status were recorded as followed: 204 patients (50%) were married, 158 patients (38.7%) were single, and 46 patients (11.3%) were widowers or widows. In addition, most of the patients, which were 87.5% of total data or 357 patients to be exact, had high school education background.

The average length of HIV/AIDS patient's the hospital stay in this study was 4 days, with 1 day for the shortest treatment duration and 54 days for the longest one. In terms of transmission risk factors, there were 81 patients (19.8%) heterosexual risk, which was the highest risk factor in this study according to the data which has been collected. Most of the patients, specifically 390 patients (95.6%) were domiciled in Surabaya, while only 18 patients (4.4%) were domiciled outside Surabaya. Based on further data from 408 patients who underwent the treatment, it was known that the mortality rate was 31.1% (127/408).

The clinical characteristics used in this study included ART therapy status, the WHO clinical stage, GCS,  $\text{PaO}_2/\text{FiO}_2$  ratio, systolic and diastolic blood pressure, eGFR, SGOT, SGPT, hemoglobin, platelets, albumin, and BMI. These clinical characteristics are shown in Table 1.

From the medical record data collected, it was known that 207 patients (50.7%) were on ART therapy, 173 patients (42.4%) had never received ART treatment, and 28 patients (6.9%) stopped taking ART treatment. Most of the subjects in this study, as many as 299 patients (73.3%), were at Stage 4 based on the WHO clinical stage. A total of 322 patients (78.9%) had a GCS of 15. The data of  $\text{PaO}_2/\text{FiO}_2$  ratio showed the ratio value of  $\geq 400$  in 286 patients (70.1%) and  $< 400$  in 122 patients (29.9%). As many as 322 patients (78.9%) had systolic blood pressure of  $\geq 100$  mmHg. Moreover, most of the patients had diastolic blood pressure of  $\geq 60$  mmHg, while 46 patients (11.3%) had diastolic blood pressure below 60 mmHg.

Based on the obtained data, there were 312 patients (76.5%) who had eGFR  $\geq 60$  ml/min/1.73  $\text{m}^2$ . The AST data showed that 199 patients (48.8%) had AST  $\leq 50$   $\mu\text{L}$ , which was almost the same as those with AST  $> 50$   $\mu\text{L}$ , specifically 209 patients (51.2%). The SGPT data reported that most patients had SGPT values  $\leq 70$   $\mu\text{L}$ , specifically 332 patients (81.4%). As for the hemoglobin data, there was no significant difference between the ones who had Hb  $\geq 10$  mg/dl and the ones

Table 1: Clinical characteristics

Characteristics	n	%	Result
ART therapy status			
Naive	173	42.4	
Receiving ART	207	50.7	
Loss to follow-up	28	6.9	
WHO clinical stage			
Stage 1	0	0	
Stage 2	0	0	
Stage 3	109	26.7	
Stage 4	299	73.3	
GCS			
GCS =15	322	78.9	
GCS <15	86	21.1	
PaO <sub>2</sub> /FiO <sub>2</sub>			
PaO <sub>2</sub> /FiO <sub>2</sub> ≥400	286	70.1	
PaO <sub>2</sub> /FiO <sub>2</sub> <400	122	29.9	
Systolic blood pressure			
≥100 mmHg	322	78.9	
<100 mmHg	86	21.1	
Diastolic blood pressure			
≥60 mmHg	362	88.7	
<60 mmHg	46	11.3	
eGFR			
eGFR ≥60 ml/min/1.73 m <sup>2</sup>	312	76.5	
eGFR <60 ml/min/1.73 m <sup>2</sup>	96	23.5	
SGOT			
SGOT ≤50 μ/L	199	48.8	
SGOT >50 μ/L	209	51.2	
SGPT			
SGPT ≤70 μ/L	332	81.4	
SGPT >70 μ/L	76	18.6	
Hemoglobin			
Hb ≥10 mg/dl	206	50.5	
Hb <10 mg/dl	202	49.5	
Platelet count			
≥150,000/mm <sup>3</sup>	323	79.2	
<150,000/mm <sup>3</sup>	85	20.6	
Albumin levels			
≥3.5 mg/dl	154	37.7	
<3.5 mg/dl	254	62.3	
BMI			
BMI ≥18.5 kg/m <sup>2</sup>	205	50.2	
BMI <18.5 kg/m <sup>2</sup>	203	49.8	

GCS: Glasgow Coma Scale, BMI: Body mass index.

who had Hb <10 mg/dl. There were at least 206 patients (50.5%) who had Hb ≥10 mg/dl and 202 patients (49.5%) who had Hb <10 mg/dl. In addition, most of the patients, specifically 323 patients (79.2%) had ≥150,000 platelet count. Moreover, there were 254 patients (62.3%) who had an albumin value <3.5 mg/dl and 205 patients (50.2%) had a BMI ≤18.5 kg/m<sup>2</sup>.

The bivariate analysis in this study used Chi-square analysis in which if  $p < 0.05$ , the variable would be feasible to be included in the multivariate analysis. From the results of the bivariate analysis, there were eight variables that had a significant correlation with the HIV/AIDS patients' mortality, namely, GCS <15 ( $p = 0.000$ ), the ratio of PaO<sub>2</sub>/FiO<sub>2</sub> ( $p = 0.000$ ), hypotension ( $p = 0.000$ ), eGFR < 60 ml/min/1.73 m<sup>2</sup> ( $p = 0.000$ ), platelet count <150,000 mm<sup>3</sup> ( $p = 0.012$ ), albumin level <3.5 mg/dl ( $p = 0.000$ ), and BMI ≤18.5 kg/m<sup>2</sup> ( $p = 0.000$ ). These eight variables would be included in the multivariate analysis to see which variable was dominant in influencing the hospitalized HIV/AIDS patients' mortality.

Multivariate analysis in this study used logistic regression analysis. The multivariate analysis which showed significant independent variables on the HIV/AIDS patients' mortality in this study was including GCS <15 (OR 11.625), PaO<sub>2</sub>/FiO<sub>2</sub> <400 mmHg (OR 7.794), hypotension (OR 6.062), eGFR <60 ml/min/1.73 m<sup>2</sup> (OR 2.646), and albumin levels <3.5 mg/dl (OR 4.091). These bivariate analysis and multivariate analysis are shown in Table 2.

Table 2: Analysis univariate and multivariate

Variable	Univariate		Multivariate	
	OR (95% CI)	p-value	OR (95% CI)	p-value
GCS <15	11.960 (6.851–20.878)	0.000	11.625 (5.410–24.981)	0.000
PaO <sub>2</sub> /FiO <sub>2</sub> <400 mmHg	11.705 (7.114–19.259)	0.000	7.794 (4.063–14.950)	0.000
Hypotension	12.738 (7.259–22.240)	0.000	6.062 (2.980–12.329)	0.000
eGFR <60 ml/min/1.73 m <sup>2</sup>	3.317 (2.061–5.340)	0.000	2.646 (1.314–5.328)	0.008
Elevated transaminase enzyme	3.216 (2.051–5.043)	0.000	1.824 (0.946–3.516)	0.104
Hemoglobin <10 mg/dl	1.452 (0.952–2.213)	0.082		
Platelet count <150,000/mm <sup>3</sup>	1.873 (1.143–3.069)	0.012		
Albumin levels <3.5 mg/dl	5.680 (3.274–9.852)	0.000	4.091 (1.846–9.070)	0.001
BMI <18.5 kg/m <sup>2</sup>	2.940 (1.891–4.571)	0.000	1.738 (0.919–3.264)	0.078

GCS: Glasgow Coma Scale, BMI: Body mass index.

## Discussion

Neurological disorders associated with HIV/AIDS include central nervous system infections, neoplasms, vascular complications, peripheral neuropathy, and myopathy. Various studies which have been conducted in developing countries showed that most neurological disorders occurred due to the opportunistic infections [14]. The most frequently used parameter for measuring the impaired central nervous system function is the GCS, which is a neurological scale that aims to assess a person's consciousness. Parameters of organ function disorders, such as APACHE II and SOFA score, classify the central nervous system dysfunction if the GCS is <15 [15].

In this study, GCS <15 was a very significant variable on the hospitalized HIV/AIDS patients' mortality (OR 1.625; CI 95% 5.410–24.981;  $p = 0.000$ ). The results of this study supported previous study's result in which the patients with GCS <15 had death risk of 7.84 times higher (95% CI 2.03–30.27) [16], [17]. The rate resulted from the previous study was lower than the research we conducted. This could be caused by the differences of the study subjects' characteristics.

Respiratory system disorders are complications which are often found in HIV/AIDS patients and cause morbidity as well as mortality. The mechanism of HIV in causing respiratory system disorders, which in this case is lung damage, is related to systemic and lungs inflammation. Other factors which also play a role in causing lung damage are direct HIV infection to the lungs, smoking, and the effect of ARVs on lung toxicity [18]. PaO<sub>2</sub>/FiO<sub>2</sub> ratio is an indicator of respiratory disorders, which in this study referred to the limit according to the SOFA score. In this study, PaO<sub>2</sub>/FiO<sub>2</sub> ratio had a significant correlation with the mortality of HIV/AIDS patients with an OR 7.794 (95% CI 4.063–14.950). A study using the PaO<sub>2</sub>/FiO<sub>2</sub> ratio was also conducted by Chiliza *et al.* in which the subjects were HIV patients with PCP infection. In this study, the PaO<sub>2</sub>/FiO<sub>2</sub> ratio was considered as a significant predictor of mortality (HR 3.8; 95% CI 1.68.9;  $p = 0.0030$ ) [19]. Likewise, the similar result was also found in a study conducted by Wu *et al.*, in which PaO<sub>2</sub> <70 as one of the mortality predictors had an HR of 7.328 (95% CI 3.621–14.830) on HIV/AIDS patients' mortality [20].

Cardiovascular dysfunction in HIV/AIDS patients can be caused by direct viral mechanisms, opportunistic infections, and the use of ART [21]. The mechanism of the HIV virus in causing myocardial damage remains unclear. However, it is suspected that there are changes in the function of Th lymphocytes which then cause severe inflammation of the myocardium [22]. Opportunistic infections caused by *Toxoplasma gondii*, *Mycobacterium tuberculosis*, and *Cryptococcus neoformans* are common in AIDS myocarditis [23]. Treatment with ARVs, especially for the NRTI group, causes a lot of cardiomyopathy through mitochondrial damage which eventually causes myocardial dilatation and dysfunction. Moreover, hypotension is a condition that occurs due to impaired cardiovascular function. This condition indicates the decreasing of cardiac output which can lead to impaired tissue perfusion [24]. This study found that hypotension correlated significantly with the mortality of HIV/AIDS patients by which an OR of 6.062 (95% CI OR 2.980–12.329). These results supported previous research conducted by Bloomfield *et al.* which resulted IR value of 5.2 (CI 95% 4.8–5.7) [25].

HIV-infected patients have a higher risk of developing kidney disease, terminal renal failure, and death due to kidney disease. A study carried out on 306 HIV/AIDS patients in China found that the prevalence of kidney problems experienced by hospitalized HIV/AIDS patients reached 5.56% [26]. Disruption of kidney function in HIV/AIDS-infected patients can be caused by acute kidney failure, HIV-associated nephropathy, and the presence of comorbid chronic kidney disease [27]. Multivariate analysis done in this study showed that impaired renal function had a significant correlation to HIV/AIDS patients' mortality with an OR 2.646 (95% CI 1.314–5.328). This study supported the research conducted in Jakarta [6] as well as the research conducted by Wyatt *et al.* However, there was a slight difference between the result of this study and a study conducted by Wyatt *et al.* Categorized into acute renal failure and chronic kidney disease, Wyatt *et al.* study stated that acute renal failure (OR=5.84; 95% CI 5.11-6.65) possessed higher mortality risk compared to chronic kidney disease (OR=1.97%; 95% CI 1.59-2.45) [28].

Reduced glomerular filtration rate is associated with the increasing of cardiovascular events causing mortality in general population. In populations with decreased glomerular filtration, there was an increase in apolipoprotein B and a decrease in apolipoprotein A1, which is a risk factor for coronary heart disease. It was also found that there was an increase in fibrinogen and homocysteine, as well as C-reactive protein which is associated with atherosclerosis. The atherosclerosis itself can increase the risk of cardiovascular disease in the decreased glomerular filtration population [29]. The decreasing of erythropoietin hormone can cause anemia which then results in increasing the endothelial activation and left ventricular hypertrophy. This condition can increase the cardiovascular risk which leads to morbidity and mortality [30]. Disorders of electrolytes or

acid base and fluid retention in impaired kidney function can also increase the mortality risk [6].

Several studies have also tried to find a correlation between low albumin levels and mortality in HIV/AIDS patients. Some have found that hypoalbuminemia could be an independent predictor of HIV/AIDS patients' mortality. Low albumin levels (<3.5 g/dl) are associated with the progression of HIV patients to AIDS [8], [28]. In subjects with CD4 <200 who had albumin levels <3.5 g/dl, the mortality rate was 8 times higher than those with albumin levels > 3.5 g/dl [8]. Research on the correlation between serum albumin and mortality in HIV/AIDS patients has also been conducted and showed that patients with albumin levels <3.5 g/dl at the beginning of ART therapy had mortality rate 4.53 times higher than the subjects who had albumin levels >3.5 g/dl (95% CI) [31]. In our study, albumin levels <3.5 mg/dl had a significant correlation with the HIV/AIDS patients' mortality (OR 4.091, 95% CI OR 1.846–9.070). Furthermore, receiver operating characteristic (ROC) curve analysis was also performed for the hypoalbuminemia variable. Based on the analysis of the ROC curve, it was found that the area under the curve was 0.751 with  $p = 0.027$ . The best cutoff point for albumin level to predict mortality outcome was in the value of 3.02 with sensitivity of 71.7% and specificity of 70.5% (Figure 1).

There were also some variable which showed insignificant result in multivariate analysis, those were platelet count, elevated liver enzymes, and BMI. Platelet count <150,000  $\text{mm}^3$  in HIV/AIDS patients causes mortality, generally due to the occurrence

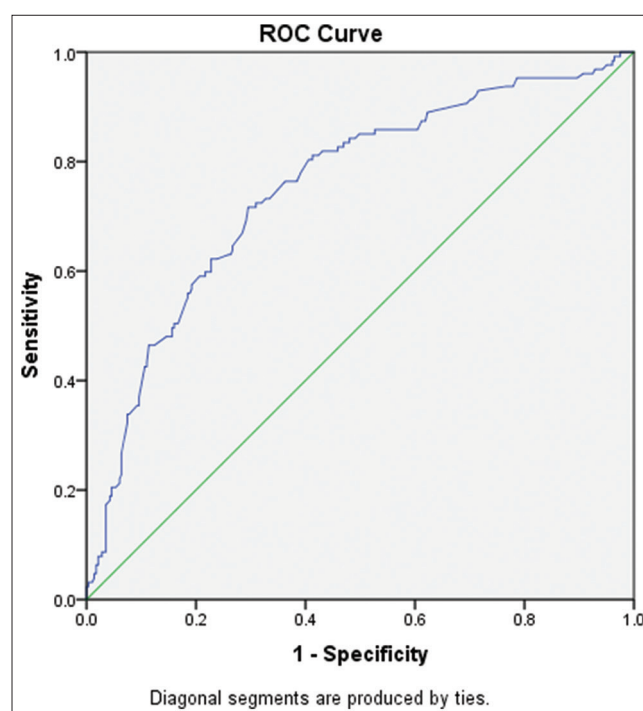


Figure 1: Receiver operating characteristic curve hypoalbuminemia to predict mortality. The best cutoff point value for albumin level for predicting the mortality outcome was 3.02 with sensitivity of 71.7% and specificity of 70.5%

of impaired central nervous system function which caused by intracranial bleeding characterized by the GCS. Elevated liver enzymes can be associated with mortality generally through the occurrence of acute liver failure causing encephalopathy which eventually leads to impaired central nervous system function which is also characterized by GCS. BMI <18.5 kg/m<sup>2</sup> can cause mortality due to susceptibility toward hypoalbuminemia-associated infection, in which hypoalbuminemia itself showed a significant correlation with HIV/AIDS hospitalized patients' mortality in multivariate analysis.

## Conclusion

The mortality percentage of hospitalized HIV/AIDS patients in this study was recorded at the value of 31.1%. Multivariate analysis which showed GCS <15, hypotension, PaO<sub>2</sub>/FiO<sub>2</sub> <400 mmHg, eGFR <60 ml/1.73 kg/m<sup>2</sup>, and albumin levels <3.5 mg/dl was found as an independent risk factors for predicting the hospitalized HIV/AIDS patients' mortality. Early intervention on these significant variables is expected to be able to improve the mortality rate of hospitalized HIV/AIDS patients.

## Acknowledgments

The author thanks to Inthen Firdausi Wardhani for providing language corrections to this article.

## References

- Djoerban Z, Djauzi S. HIV/AIDS di Indonesia in Buku Ajar Ilmu Penyakit Dalam. 6<sup>th</sup> ed., Vol. 1. Jakarta: Balai Penerbit FKUI; 2015.
- Japiassu AM, Amancio RT, Mesquita EC, Medeiros DM, Bernal HB, Nunes EP, et al. Sepsis is a major determinant of outcome in critically ill HIV/AIDS patients. *Crit Care*. 2010;14(4):R152. <https://doi.org/10.1186/cc9221> PMID:20698966
- Redig AJ, Berliner N. Pathogenesis and clinical implications of HIV-related anemia in 2013. *Hematol Am Soc Hematol Educ Program*. 2013;2013(1):377-81. <https://doi.org/10.1182/asheducation-2013.1.377> PMID:24319207
- Saleri N, Capone S, Pietra V, Iaco G, Del Punta V, Rizzi M, et al. Outcome and predictive factors of mortality in hospitalized HIV-patients in burkina faso. *Infection*. 2009;37(2):142-7. <https://doi.org/10.1007/s15010-008-7406-7> PMID:19169635
- Rubaihayo J, Tumwesigye NM, Konde-lule J, Makumbi F, Nakku EJ, Wamani H, et al. Trends and predictors of mortality among HIV positive patients in the era of highly active antiretroviral therapy in Uganda. *Infect Dis Rep*. 2015;7(3):66-73. <https://doi.org/10.4081/idr.2015.5967> PMID:26500739
- Puspitasari E, Yuniastuti E, Rengganis I, Rumende CM. Prediktor mortalitas pasien HIV/AIDS rawat inap. *J Pen Dalam Indones*. 2016;3(1):22-8. <https://doi.org/10.7454/jpdi.v3i1.29>
- Deshwal R, Arora S. Serum alanine aminotransferase elevations in HIV positive patients on antiretroviral therapy in India. *J Assoc Phys India*. 2019;67(3):67-70. PMID:31304710
- Feldman JG, Burns DN, Stephen J, Bacchetti P, Cohen M, Anastos K, et al. Serum albumin as a predictor of survival in HIV-infected women in the women's interagency HIV study. *AIDS*. 2000;14(7):863-70. <https://doi.org/10.1097/00002030-200005050-00013> PMID:10839595
- Hu W, Jiang H, Chen W, He S, Deng B, Wang W. Malnutrition in hospitalized people living with HIV/AIDS : Evidence from a cross-sectional study from Chengdu, China. *Asia Pac J Clin Nutr*. 2011;20(4):544-50. PMID:22094839
- Ibrahim F, Hamzah L, Jones R. Baseline kidney function as predictor of mortality and kidney disease progression in HIV-positive patients. *Am J Kidney Dis*. 2012;60(4):539-47. <https://doi.org/10.1053/j.ajkd.2012.03.006> PMID:22521282
- Dusingize JC, Hoover DR, Shi Q, Mutimura E, Rudakemwa E, Ndacyayisenga V, et al. Association of abnormal liver function parameters with HIV serostatus and CD4 count in antiretroviral-naïve rwandan women. *AIDS Res Hum Retroviruses*. 2015;31(7):723-30. <https://doi.org/10.1089/aid.2014.0170> PMID:25924728
- Owiredu WK, Quaye L, Amidu N, Addai-Mensah O. Renal insufficiency in Ghanaian HIV infected patients: Need for dose adjustment. *Afr Health Sci*. 2013;13(1):101-11. <https://doi.org/10.4314/ahs.v13i1.14> PMID:23658575
- Mocroft A, Ryom L, Reiss P, Furrer H, Monforte AD, Gatell J, et al. A comparison of estimated glomerular filtration rates using Cockcroft-Gault and the chronic kidney disease epidemiology collaboration estimating equations in HIV infection. *HIV Med*. 2014;15(3):144-52. <https://doi.org/10.1111/hiv.12095> PMID:24118916
- Mamidi A, DeSimone JA, Pomerantz RJ. Central nervous system infections in individual with HIV-1 infection. *J Neurovirol*. 2002;8(3):158-67. <https://doi.org/10.1080/13550280290049723> PMID:12053271
- Grmec S, Gasparovic V. Comparison of APACHE II, MEES and Glasgow coma scale in patients with nontraumatic coma for prediction of mortality. *Crit Care*. 2000;5(1):19-23. <https://doi.org/10.1186/cc973> PMID:11178221
- Lee Y, Wang J, Sun H, Chen Y. Comparisons of clinical features and mortality of cryptococcal meningitis between patients with and without human immunodeficiency virus infection. *J Microbiol Immunol Infect* 2011;44(5):338-45. <https://doi.org/10.1016/j.jmii.2010.08.011> PMID:21524972
- Pecego AC, Amancio RT, Ribeiro C, Mesquita EC, Medeiros DM, Cerbino J, et al. Six-month survival of critically ill patients with HIV-related disease and tuberculosis: A retrospective study. *BMC Infect Dis*. 2016;6:270. <https://doi.org/10.1186/s12879-016-1644-6>

18. Cribbs SK, Crothers K, Morris A. Pathogenesis of HIV-related lung disease: Immunity, infection, and inflammation. *Physiol Rev.* 2020;100(2):603-32. <https://doi.org/10.1152/physrev.00039.2018>  
PMid:31600121
19. Chiliza N, Du Toit M, Wasserman S. Outcomes of HIV-associated pneumocystis pneumonia at a South African referral hospital. *PLoS One.* 2018;13(8):e0201733. <https://doi.org/10.1371/journal.pone.0201733>  
PMid:30071089
20. Wu L, Zhang S, Wang Y, Hao Y, Wang F, Gao G, *et al.* A model to predict in-hospital mortality in HIV/AIDS patients with pneumocystis pneumonia in China: The clinical practice in real world. *Biomed Res Int* 2019;2019:6057028. <https://doi.org/10.1155/2019/6057028>  
PMid:30906778
21. Ho JE, Hsue PY. Cardiovascular manifestations of HIV infection. *Heart.* 2009;95(14):1193-202. <https://doi.org/10.1136/hrt.2008.161463>  
PMid:19564432
22. Moroni M, Antinori S. HIV and direct damage of organs: Disease spectrum before and during the highly active antiretroviral therapy era. *AIDS.* 2003;17(1):S51-64. <https://doi.org/10.1097/00002030-200304001-00008>  
PMid:12870531
23. Ntusi NA. HIV and myocarditis. *Curr Opin HIV AIDS.* 2017;12(6):561-5. <https://doi.org/10.1097/coh.0000000000000416>  
PMid:28832366
24. Cheitlin MD. In: Basow DS, editor. *Cardiac Involvement in HIV-infected Patients.* 2<sup>nd</sup> ed. Waltham, MA: UptoDate; 2010.
25. Bloomfield GS, Hogan JW, Keter A, Holland TL, Sang E, Kimaiyo S, *et al.* Blood pressure level impacts risk of death among HIV seropositive adults in Kenya: A retrospective analysis of electronic health records. *BMC Infect Dis.* 2014;14:284. <https://doi.org/10.1186/1471-2334-14-284>  
PMid:24886474
26. Sun C, Wen Y, Liu S, Cui W, Zhou Y, Deng, B, *et al.* Prevalence of ginjal impairment among HIV positive patients hospitalized in the first hospital of China medical university. *Int J Clin Exp Med.* 2018;11(8):8622-862.
27. Wyatt CM. Kidney disease and HIV infection. *Top Antivir Med.* 2017;25(1):13-6.  
PMid:28402929
28. Wyatt CM, Klotman PE, Bronfman S, D'Agati VD. HIV-associated nephropathy: Clinical presentation, pathology, and epidemiology in the era of antiretroviral therapy. *Semin Nephrol.* 2008;28(6):513-22. <https://doi.org/10.1016/j.semnephrol.2008.08.005>  
PMid:19013322
29. Munthner P, Hamm L, Kusek JW, Chen J, Whelton PK, He J. The prevalence of nontraditional risk factors for coronary heart disease in patients with chronic kidney disease. *Ann Intern Med.* 2004;140(1):9-17. <https://doi.org/10.7326/0003-4819-140-1-200401060-00006>  
PMid:14706967
30. George E, Lucas GM, Nadkarni GN, Fine DM, Moore R, Atta MG. Kidney function and the risk of cardiovascular events in HIV-1 infected patients. *AIDS.* 2010;24(3):387-94. <https://doi.org/10.1097/qad.0b013e3283359253>  
PMid:20019575
31. Sudfeld CR, Isanaka S, Aboud S, Mugusi FM, Wang M, Chalamilla GE, *et al.* Association of serum albumin concentration with mortality, morbidity, CD4 T-cell reconstitution among tanzanians initiatin antiretroviral therapy. *J Infect Dis.* 2013;207(9):1370-8.  
PMid:23319741