

Hyperbaric Oxygen Therapy Improved the Histopathological Features of Gastric Mucosa in Aspirin- induced Wistar Rats

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Gastrointestinal and Liver Disease :
From Precision Medicine to Clinical Practice

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Daftar Isi

Daftar Isi	iii
Kata Pengantar	xi
Sambutan Ketua Panitia	xiii
Daftar Pembicara	xv
Daftar Moderator	xix

WORKSHOP

Chromoendoscopy & Image-Enhanced Endoscopy (IEE)	
<i>Christopher Khor</i>	3
Colonoscopy Polypectomy: From Evidence to Practise	
<i>Hery Djagat Purnomo</i>	5
Endoscopic Hemostasis in Acute Non-variceal Upper GI Bleeding	
<i>M. Begawan Bestari</i>	7

SIMPOSIUM

Mistakes in Management of Decompensated Liver Cirrhosis	
<i>Irsan Hasan</i>	3
Precision Medicine in Gastro Intestinal and Liver Diseases	
<i>Sultana MH Faradz</i>	13
Reversibility of Hepatic Fibrosis and Cirrhosis: From Concept to Treatment	
<i>David Handojo Muljono</i>	17
NAFLD Update: From New Definition of MAFLD to Potential Treatment	
<i>Hery Djagat Purnomo</i>	21

Role of Surgery in HCC Management: New Insight	
<i>Erik Prabowo</i>	25
Targeting on Innate and Adaptive Immune Response in Treatment of Chronic HBV Infection	
<i>I Dewa Nyoman Wibawa</i>	27
Real Life Cases in the Treatment of Chronic Hepatitis B using Pegylated Interferon	
<i>Hery Djagat Purnomo</i>	37
Telemedicine: Medical, Legal dan Ethical Perspective	
<i>Kris Pranarka</i>	39
Management of Refractory GERD	
<i>F. Soemanto Padmomartono</i>	51
Update in Management of IBS-C and Chronic Idiopathic Constipation	
<i>Ari Fahrial Syam</i>	63
Pendekatan Diagnosis dan Manajemen Hematokezia, dari Layanan Primer Sampai Tersier	
<i>Didik Indiarso</i>	65
Colorectal Cancer Screening Who, When and How to Test	
<i>Jacobus Albertus</i>	75
Kualitas Kolonoskopi untuk Meningkatkan Adenoma Detection Rate	
<i>T Yuli Pramana</i>	77
Haruskah Semua Pasien Hepatitis B di Obati?	
<i>Poernomo Boedi Setiawan</i>	81
Non Variceal Upper Gastrointestinal Bleeding in International Consensus: Whats's New?	
<i>Agung Prasetyo</i>	85
Non Surgical Treatment Options for Hemorrhoid	
<i>Suyatmi Awizar</i>	89
Step Up vs Step Down Management of IBD: How to Start Biologic Agents	
<i>Puo-Hsien LE</i>	103

ABSTRAK POSTER

43 Years Old Woman with Secondary Budd-Chiari Syndrome caused by Hilar Cholangiocarcinoma and Hepatitis C <i>Toni Ade, Hirlan, Prasetyo Agung, Dewi Meira</i>	3
Atypical Chronic Myeloid Leukemia and Severe Iron Deficiency Anemia in Hepatitis B Related Decompensated Liver Cirrhosis: A Case Report <i>Putra Khoirun</i>	5
Importance of Skeletal Mass Evaluation on Hepatocellular Carcinoma Patients Treated with Sorafenib: A Literature Review <i>K. A. Raharja, E. Kurnawan, A.D. Wirawan</i>	7
Rapunzel Syndrome <i>Stephanie Widodo Subagio, Delia Anastasia, Mario Steffanus, Sugiharto Purnomo, Riki Tenggara</i>	9
Severe Hepatic Dysfunction in Patient with Graves Disease: A Diagnostic and Therapeutic Challenge <i>Dwi Nugroho Prastowo</i>	11
Symptomatic Autosomal Dominant Polycystic Liver Disease: Case Report with Updated Diagnostic and Management Approach <i>Randy Adiwinata, Natalin Allorerung, Jonathan Arifputra, Pearla Lasut, Bradley Jimmy Waleleng, Fandy Gosai, Luciana Rotty, Jeanne Winarta, Andrew Waleleng, Michael Tendean</i>	13
A Man With Peritonitis Tuberculosis, Pulmonary Tuberculosis and Hematoschezia Suggestive Colitis Tuberculosis - a Case Report <i>Diki Pranatal Ramba Sibannang, Novita Panggau, Alistan Rante Sapu Patandianan, Wiendo Syahputra Yahya</i>	15
The Relationship of Alcohol Consumption with the Occurrence of Erosive Gastritis in Endoscopic Patients <i>Hary R. Supit, B. J. Waleleng, Luciana Rotty, Fandy Gosai, Jeane Winarta, Andrew Waleleng</i>	17

Amoebic Liver Abscess after Perforated Appendicitis Laparotomy: A Case Report	
<i>Arlis K, Fauzan A</i>	19
The Role of Oral Zinc Supplementation in Adults with Acute Diarrhea: An Evidence-Based Case Report	
<i>Betty Rachma.....</i>	22
Colorectal Cancer Profile at Prof Dr. R. D. Kandou Hospital and Siloam Hospital Manado from 2018 to 2019	
<i>Tanasal N, Waleleng BJ, Tendean N, Gosal F, Rotty L, Winarta J, Waleleng A.....</i>	24
Asymptomatic Non-Alcoholic Fatty Liver Disease (NAFLD) in Young Woman 29 Years Old	
<i>Sri Pramesthi Wisnu Bowo Negoro, Agus Fitriyanto Achmad</i>	26
Characteristic Of Hepatitis C Infection In Regular Hemodialysis Patients: Efficacy of Direct Acting Antiviral Treatment (Elbasvir/ Grazoprevir)	
<i>Ni Wayan Wina Dharmesti, IDN Wibawa, IGA Suryadarma, I Ketut Mariadi, Gde Somayana</i>	28
Hyperbaric Oxygen Therapy Improved the Histopathological Features of Gastric Mucosa in Aspirin-induced Wistar Rats	
<i>M. Fathi Ilmawan, Hafidz, Dennis, Soetjipto, M. Guritno Suryokusumo</i>	30
Proton Pump Inhibitor as Gastrointestinal Bleeding Management in Percutaneous Coronary Intervention Case: A Systematic Review and Meta-Analysis	
<i>Andica Diamanta, Asevano Christobed</i>	32
Acute Liver Failure on 23 Years Old Man and Acute Kidney Injury Due to Hepatitis C Virus	
<i>Muhammad Riefky Putra Agusti, Irma Hasan.....</i>	34
A 28 Years Old Woman P2A0 Post Caesarean Section ec Fetal Distress, Gastric Varices ec Non Cirrhotic Portal Hypertension ec Splenic Vein Stenosis	
<i>Muhammad Ariful Basyar, Didik Indiarso</i>	35

Case Report : 30 Year Old Male present with Idiopathic Non Cirrhotic Portal Hypertension	
<i>Candra Christian Soekamto</i>	37
Challenges in Diagnosis and Treatment of Peritonitis Related Tuberculous Appendicitis with Additional Burdens Faced Amid COVID-19 Pandemic: A Case Report	
<i>Jahya AN, Dharmahayu NPM, Sutrisna WW</i>	39
Case Report:Recurrent Non-Variceal Upper Gastrointestinal Bleeding	
<i>Risa Ardiani, Didit Raditya</i>	41
Administration of Tranexamic Acid and Vitamin K in Recurrent Upper Gastrointestinal Bleeding Case: Does it Reduce Rebleeding and the Need for Blood Transfusion?	
<i>Fauzi Satria</i>	43
Evidence of Microalbuminuria and Estimated Glomerular Filtration Rate Decline as Chronic Kidney Disease Risks in Non-alcoholic Fatty Liver Disease Patients: Systematic Review and Meta-Analysis of Cohort Studies	
<i>Boby Pratama Putra, Felix Nugraha Putra</i>	45
Amoeba Liver Abscess with Lung Empiema : A Case Report	
<i>Jona August, Budiman Sujatmika Sulaiman</i>	47
The Seroprevalence of Hepatitis C Positive in Donors of Indonesian Red Cross Blood Bank Semarang, Central Java	
<i>Galih Prakasa Adhyatma, Ajrina Luthfita, Arcita Hanjani, Andyta Nalaresi, Garda Widhi Nurraga, Anna Kartika Yuli Astuti, Hery Djagat Purnomo, Muchlis Achsan Udji Sofro</i>	48
Clinical Characteristics and <i>Helicobacter pylori</i> Infection in Chronic Kidney Disease Patients with Gastrointestinal Event (Clinical Study in Kariadi General Hospital Semarang)	
<i>Dinda Saraswati Ratnaningsih, Dwi Lestari Partiningrum, Hery Djagat Purnomo</i>	50
Geographic Distribution and Clinical Characteristics of Hepatocellular Carcinoma Patients Etiology of Hepatitis B Viruses in Dr. Kariadi Hospital Semarang	
<i>Muhammad Nadim R.P</i>	52

Case Report of Decompensated Liver Cirrhosis with Alcohol Risk Factor: Diagnostic and Therapeutic Challenge in Primary Hospital <i>Muhammad Iqbal</i>	54
Liver Involvement and Severity in Patients with COVID-19 <i>Angela Franzeska Natalia, Bioladwiko, Yanti Muliawati, Hery Djagat Purnomo</i>	56
The Role of Aspirin in the Prevention of Hepatitis B Virus-related Hepatocellular Carcinoma Development and Recurrence: A Systematic Review <i>Lucky Natya Putri, Pungky Permata Putri, Pingkan Permata Putri</i>	58
Anticoagulant Therapy for Cirrhosis-related Portal Vein Thrombosis: A Meta-Analysis <i>Adinda Rahadini, Victoria Simanihuruk, Dewinta Enggar Pramesthi, Nindhita Putrie Prabaswari, Gema Barlian Effendi, Budi Widodo</i>	60
Expanding the Potential Benefits of Vitamin E in NAFLD Patients: A Meta-Analysis of Randomized Controlled Trials <i>Adinda Rahadini, Nindhita Putrie Prabaswari, Gema Barlian Effendi, Budi Widodo</i>	62
Probiotic to Treat Irritable Bowel Syndrome Associated with Constipation: An Evidence-based Case Report <i>Dewi Larasati, Samuel Theodorus Sutanto</i>	64
Duration of Hemodialysis and Hepatitis C Seroprevalence in Chronic Kidney Disease Patients Underwent Hemodialysis <i>Langgeng Perdhana, Shofa Chasani, Raksi Pranindira</i>	66
Proton-pump Inhibitors Use as the Risk of Clostridium difficile Infection: A Systematic Review and Meta-analysis <i>Gema Barlian Effendi, Nindhita Putrie Prabaswari, Victoria Simanihuruk, Adinda Rahadini, Dewinta Enggar Pramesthi, Budi Widodo</i>	68
Prevalence and Risk Factors as Sociated with Hepatitis DrugInduced (HDI) in TB-HIV Coinfection Patients in Perifer Regional Hospitals <i>Stephanie Hellen Hartoyo, Herry Sofyan Winata, Kamilus K.D. Karangora</i>	70

Plain Photographs of Thorax Covid-19 Patients with Gastrointestinal Manifestations

in the Peripheral Region

Herry Sofyan Winata, Stephanie Hellen Hartoyo, Kamilus K.D. Karangora 72

The Efficacy of Obeticholic Acid for Improving Liver Histology in Patients with Non-Alcoholic Steatohepatitis (NASH): A Systematic Review

Garry Aditya Pranata, Michael Dwinata 74

Unusual Clinical Presentation of Covid-19 with Severe Chest Pain From Gerd: A Case Report

Novita Ikbar Khairunnisa, Hery Djagat Purnomo, Onggo Wiliyanto, Rofat Askoro 76



Abstrak Poster

Hyperbaric Oxygen Therapy Improved the Histopathological Features of Gastric Mucosa in Aspirin-induced Wistar Rats

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Background

Gastritis, inflammation or erosion of the lining of the stomach, may cause someone to seek medical help. One of the most frequent causes of gastritis is the consumption of non-steroidal anti-inflammatory drugs (NSAIDs), such as aspirin. Aspirin exerts its anti-inflammatory effects through inhibition of cyclooxygenase enzymes (COX), resulting in reduced blood flow and increased reactive oxygen species (ROS). Hyperbaric oxygen therapy (HBOT) could promote tissue survival by modifying ischemia and ROS activity. The aim of this study was to determine the effects of HBOT on the histopathological features of gastric mucosa in aspirin-induced Wistar rats.

Methods

This study was an experimental study with a randomized posttest only control group design using on three groups of Wistar rats, and each group consisted of seven rats. P1 was the negative control group without aspirin induction, P2 was the positive control group with aspirin induction. P3 was the treatment group with aspirin induction and HBOT (at chamber) of 2.4 ATA with 98% O₂ in three sessions, 30 minutes / session, and air break for five minutes between each session for the period of 10 days. Aspirin was administered at 20mg/kg body weight. Histopathological slide of

gastric mucosa was done with HE staining and the feature of gastric epithelium was analyzed based on *Barthel Manja* modification. The comparison of features in the three groups were analyzed using Kruskal-Wallis and Mann-Whitney U tests.

Results

Groups P1 and P2 were terminated on the 10th day, while group P3 was terminated on the 20th day. Normal histological feature was seen in P1. P2 showed acute gastritis features, such as infiltration of PMN inflammatory cells in the mucosa to serous layers, submucosa edema, and capillary dilatation. P3 showed decreased PMN inflammatory cells in mucosa and submucosa, compared to P2. The Kruskal Wallis test showed a significant value of $p = 0.003$, and Mann-Whitney U test with $p = 0.042$

Conclusion

The administration of HBOT improved the histopathological feature of gastric mucosa in aspirin-induced Wistar rats.

Keywords : Gastric mucosa (sub mucosa) erosion, aspirin, hyperbaric oxygen therapy.



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