

# **SKRIPSI**

**MUHAMMAD AKMAL FADILLAH**

**STUDI PENGGUNAAN LAKTULOZA PADA PASIEN  
SIROSIS HATI DENGAN HEPATIK ENSEFALOPATI DI  
RSUD ISKAK TULUNGAGUNG**



**PROGRAM STUDI FARMASI**

**FAKULTAS ILMU KESEHATAN**

**UNIVERSITAS MUHAMMADIYAH MALANG**

**2024**

Lembar Pengesahan

**STUDI PENGGUNAAN LAKTULOZA PADA PASIEN  
SIROSIS HATI DENGAN ENSEFALOPATI HEPATIK**  
(Penelitian Di Rumah Sakit Umum Daerah Iskak Tulungagung)

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Program Studi Fakultas Ilmu Kesehatan  
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2024

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Adalah hasil karya, dan dalam naskah ini tidak terdapat karya ilmiah yang pernah diajukan oleh orang lain untuk memperoleh gelar akademik di suatu perguruan tinggi, dan tidak terdapat karya atau pendapat yang pernah ditulis atau diterbitkan oleh orang lain, baik sebagian ataupun seluruhnya, kecuali yang secara tertulis dikutip dalam naskah ini dan disebutkan dalam sumber kutipan dan daftar pustaka,
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Malang, 25 April 2024  
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## KATA PENGANTAR

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Malang, 13 Juni 2024

Penulis,



Muhammad Akmal Fadillah

## ABSTRACT

### STUDY OF LACTULOSE IN CIRRHOSIS HEPATIC PATIENTS WITH HEPATIC ENCEPHALOPATHY AT ISKAK TULUNGAGUNG GENERAL HOSPITAL

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Tulungagung<sup>2)</sup>

**Background:** Cirrhosis is a chronic liver injury characterized by serious damage to normal liver tissue that becomes abnormal as a result of increased fibrosis and the formation of regenerative nodules in liver structures that can interfere with the synthetic function of the liver. Hepatic encephalopathy is one of the common neurological complications of cirrhosis which is estimated to occur in 30-70% of patients with liver cirrhosis. Hepatic encephalopathy is defined as brain dysfunction caused by hepatic insufficiency and/or porto-systemic shunt that manifests as a wide spectrum of neurological or psychiatric disorders ranging from subclinical changes to coma. Management of hepatic encephalopathy is primarily focused on reducing blood ammonia concentrations through drug therapy aimed at inhibiting ammonia production. Non-absorbable disaccharides such as lactulose as the first line of therapy cause recovery in 70-90% of HE patients.

**Objective:** This study aims to determine the pattern of using lactulose as a therapy for hepatic encephalopathy in liver cirrhosis patients at the Iskak Tulungagung Hospital for the period January-December 2022.

**Method:** An observational study with a retrospective and descriptive approach with a time limit sampling method in liver cirrhosis patients with hepatic encephalopathy for the period January-December 2022.

**Results and Conclusions:** The Health Medical Record samples that met the inclusion criteria were 60 patients. The pattern of the use of single lactulose therapy was 20 patients (34%), while the combination was 40 patients (66%). The pattern of using single lactulose therapy was the most (3x10cc) as many as 18 patients

(30%). The pattern of using combination lactulose therapy was the combination of lactulose (3x10 cc) po + (BCAA 12.5g) iv as many as 33 patients (55%). The pattern of using lactulose is in accordance with guidelines.

**Keywords:** Lactulose, Hepatic Encephalopathy, Cirrhosis Hepatic





## ABSTRAK

### STUDI PENGGUNAAN LAKTULOZA PADA PASIEN SIROSIS HATI DENGAN ENSEFALOPATI HEPATIK

(Penelitian Di Rumah Sakit Umum Daerah Iskak Tulungagung)

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**Latar Belakang:** Sirosis didefinisikan sebagai cedera hati kronis yang ditandai dengan kerusakan serius pada jaringan hati yang normal menjadi abnormal akibat dari penambahan fibrosis dan terbentuknya nodul regeneratif pada struktur hati yang dapat mengganggu fungsi sintetik hati. Ensefalopati hepatic merupakan salah satu komplikasi neurologis umum dari sirosis yang diperkirakan terjadi pada 30- 70% pasien penderita sirosis hati. Ensefalopati hepatic didefinisikan sebagai disfungsi otak yang disebabkan oleh insufisiensi hati dan/atau pirau porto-sistemik yang bermanifestasi sebagai spektrum yang luas dari kelainan neurologis atau psikiatri mulai dari perubahan subklinis hingga koma. Penatalaksanaan untuk ensefalopati hepatic yang paling utama difokuskan pada pengurangan konsentrasi darah amonia melalui terapi obat yang ditujukan untuk menghambat produksi amonia. Disakarida yang tidak dapat diserap seperti laktulosa sebagai terapi utama menyebabkan pemulihan pada 70-90% pasien HE.

**Tujuan:** Mengetahui pola penggunaan laktulosa sebagai terapi ensefalopati hepatic pada pasien sirosis hati di RSUD Iskak Tulungagung periode Januari-Desember 2022.

**Metode:** Penelitian observasional dengan pendekatan secara retrospektif dan bersifat deskriptif dengan metode *time limit sampling* pada pasien sirosis hati dengan ensefalopati hepatic periode Januari-Desember 2022.

**Hasil dan Kesimpulan:** Sampel RMK yang memenuhi kriteria inklusi sebanyak 60 pasien. Pola penggunaan terapi laktulosa tunggal sebanyak 20 pasien (34%), sedangkan kombinasi sebanyak 40 pasien (66%). Pola penggunaan terapi laktulosa tunggal paling banyak adalah (3x10cc) po sebanyak 18 pasien (30%). Pola

penggunaan terapi laktulosa kombinasi paling banyak adalah kombinasi laktulosa (3x10cc) po + (BCAA 12,5g) iv sebanyak 33 pasien (55%). Pola penggunaan laktulosa sudah sesuai dengan *guideline* yang ada.

**Kata Kunci:** Laktulosa, Ensefalopati Hepatik, Sirosis Hati



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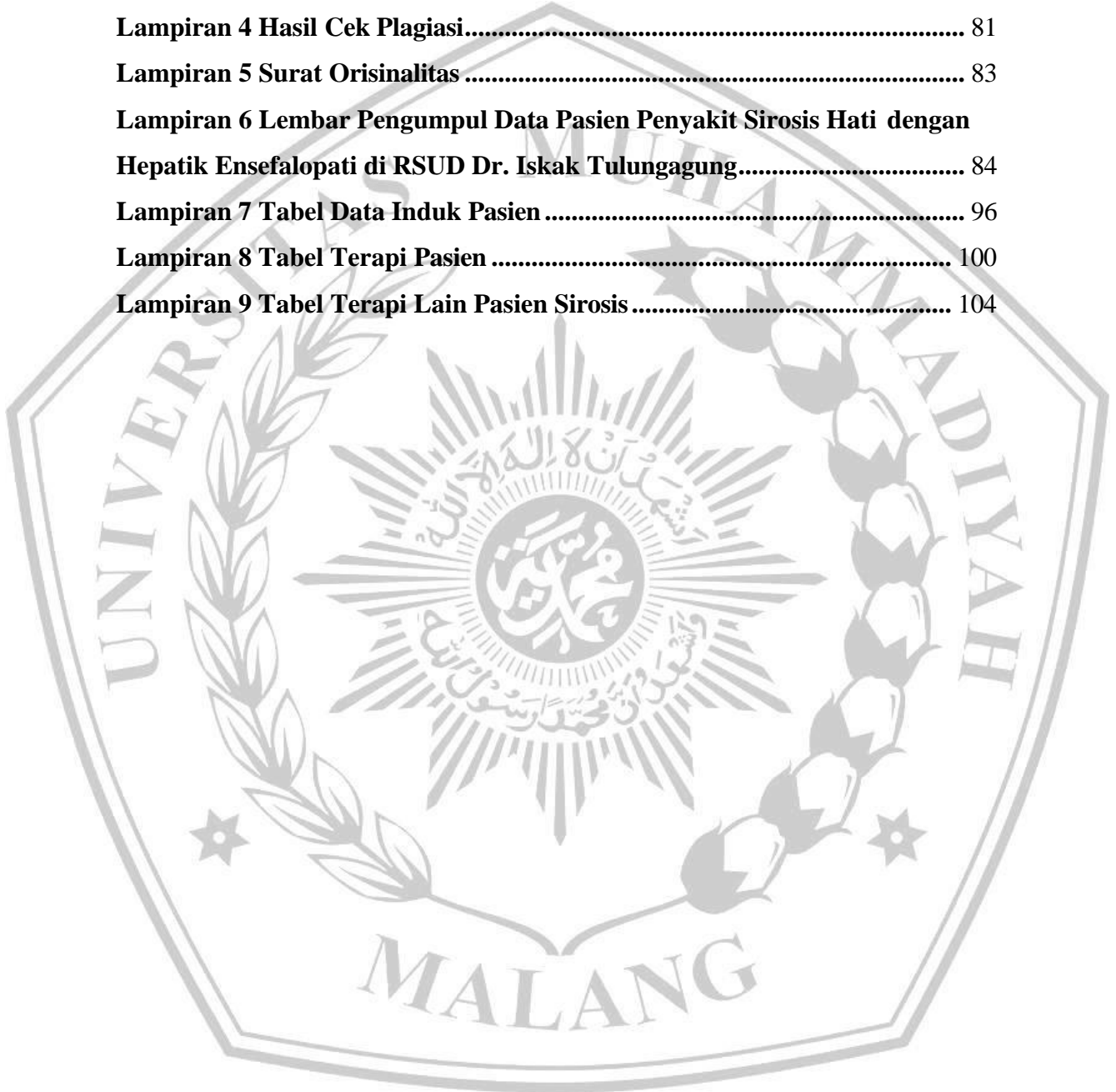
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## DAFTAR SINGKATAN



AASLD	= <i>American Association for the Study of Liver Diseases</i>
AKI	= <i>Acute Kidney Injury</i>
ALD	= <i>Alcoholic Liver Disease</i>
ALP	= <i>Alkaline Phosphatase</i>
ALT	= <i>Alanine Transaminase</i>
AST	= <i>Aspartate Transaminase</i>
BBB	= <i>Blood Brain Barrier</i>
BCAA	= <i>Branched-Chain Amino Acids</i>
CHESS	= <i>Clinical Hepatic Encephalopathy Staging Scale</i>
CLD	= <i>Chronic Liver Disease</i>
EASL	= <i>European Association for the Study of Liver Diseases</i>
ECM	= <i>Extracellular Matrix</i>
EEG	= <i>Electroencephalography</i>
EVL	= <i>Endoscopic Variceal Ligation</i>
fMRI	= <i>Functional Magnetic Resonance Imaging</i>
GABA	= <i>Gamma-Aminobutyric Acid</i>
GBD	= <i>Global Burden of Disease</i>
GGT	= <i>Gamma Glutamyltransferase</i>
HBV	= <i>Hepatitis B Virus</i>
HCV	= <i>Hepatitis C Virus</i>
HE	= <i>Hepatic Encephalopathy</i>
HRS-AKI	= <i>Hepatorenal Syndrome-Acute Kidney Injury</i>
HVPG	= <i>Hepatic Venous Pressure Gradient</i>
JKN	= <i>Jaminan Kesehatan Nasional</i>
KASL	= <i>The Korean Association for the Study of Liver Diseases</i>
RMK	= <i>Rekam Medis Kesehatan</i>
LOLA	= <i>L-ornithine and L-aspartat</i>
LVP	= <i>Large Volume Paracentesis</i>
MHE	= <i>Minimal Hepatic Encephalopathy</i>
NAFLD	= <i>Non-Alcoholic Fatty Liver Disease</i>

NASH	= <i>Non-alcoholic Steatohepatitis</i>
NSBB	= <i>Non-Selective <math>\beta</math> Blockers</i>
OHE	= <i>Overt Hepatic Encephalopathy</i>
PT	= <i>Prothrombin Time</i>
SBP	= <i>Spontaneous Bacterial Peritonitis</i>
SGOT	= <i>Serum Glutamate Oxaloacetate Transferase</i>
SGPT	= <i>Serum Glutamate Piruvat Transferase</i>
USG	= <i>Ultrasonography</i>



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## Lampiran 4 Hasil Cek Plagiasi



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**HASIL DETEKSI PLAGIASI** FORM P2

Berdasarkan hasil tes deteksi plagiasi yang telah dilakukan oleh Biro Tugas Akhir Program Studi Farmasi Fakultas Ilmu Kesehatan Universitas Muhammadiyah Malang, yang telah dilaksanakan pada hari dan tanggal 23 April 2024 pada karya ilmiah mahasiswa di bawah ini :

Nama : Muhammad akmal fadillah  
 NIM : 202010410311105  
 Program Studi : Farmasi  
 Bidang Minat : Farmasi Klinis  
 Judul Naskah : STUDI PENGGUNAAN LAKTULOZA PADA PASIEN SIROSIS HATI DENGAN HEPATIK ENSEFALOPATI DI RSUD ISKAK TULUNGAGUNG

Jenis naskah : skripsi / naskah publikasi / lain-lain  
 Keperluan : mengikuti **ujian seminar hasil skripsi**  
 Hasil dinyatakan : **MEMENUHI / TIDAK MEMENUHI SYARAT\*** dengan rincian sebagai berikut

No	Jenis naskah	Maksimum kesamaan	Hasil deteksi
1	Bab 1 (pendahuluan)	10	6
2	Bab 2 (tinjauan pustaka)	25	21
3	Bab 3 dan 4 (kerangka konsep dan metodologi)	35	23
4	Bab 5 dan 6 (hasil dan pembahasan)	15	5
5	Bab 7 (kesimpulan dan saran)	5	0
6	Naskah publikasi	25	0

Keputusannya : **LOLOS / TIDAK LOLOS** plagiasi

Malang, 23 April 2024  
 Petugas pengecek plagiasi





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 Judul Naskah : STUDI PENGGUNAAN LAKTULOZA PADA PASIEN SIROSIS HATI  
 DENGAN HEPATIK ENSEFALOPATI DI RSUD ISKAK  
 TULUNGAGUNG

No	Jenis naskah	Nilai Max	Hasil deteksi								
			1			2			3		
			Tgl	Paraf	Hasil	Tgl	Paraf	Hasil	Tgl	Paraf	Hasil
1	Bab 1 (pendahuluan)	10	24-05- 2024		6	23-04- 2024		6			
2	Bab 2 (tinjauan pustaka)	25	24-05- 2024		21	23-04- 2024		21			
3	Bab 3 dan 4 (kerangka konsep dan metodologi)	35	24-05- 2024		23	23-04- 2024		23			
4	Bab 5 dan 6 (hasil dan pembahasan)	15	24-05- 2024		5	23-04- 2024		5			
5	Bab 7 (kesimpulan dan saran)	5	24-05- 2024		0	23-04- 2024		0			
6	Naskah publikasi	25	24-05- 2024		6	23-04- 2024		0			

SIYAH