



A COMPARATIVE STUDY TO ASSESS THE EFFICACY BETWEEN METRONIDAZOLE-IV & RIFAXIMIN 550 Mg FOR HEPATIC ENCEPHALOPATHY MANAGEMENT

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Article Received: April 2019

Accepted: May 2019

Published: June 2019

Abstract:

Objective: The objective of this research was to compare the efficacy between metronidazole-IV and rifaximin for the management of hepatic encephalopathy.

Material and Methods: We carried out this comparative at Mayo Hospital, Lahore from August 2017 to March 2018 on a total of 120 hepatic encephalopathy patients without any discrimination of gender. The patients were enrolled in the age bracket of (40 – 60) years. Patients were divided into two groups Group I & II which were respectively managed with Rifaximin 550 mg B.D for Group – I through nasogastric tube and Group – II managed with metronidazole-IV 500 mg at an interval of eight hourly. We assessed the effectiveness of both the drugs after seven days.

Results: Research population consisted of 120 hepatic encephalopathy patients who were enrolled in the age bracket of 40 – 60 years with a mean age of (49.43 ± 6.866) years. Group-wise mean age was reported in Group – A (49.37 ± 6.757) years and in Group – B (49.50 ± 7.029) years. In the total of sixty patients treated with Rifaximin group the treatment efficacy was reported in 14 patients (23.33%) and for Metronidazole group in 45 patients (75%). Efficacy was more significant among Group – A than Group – B (P-Value 0.000).

Conclusion: Metronidazole treated patients showed better outcomes than Rifaximin treated patients. There was a statistically significant correlation was reported in gender and age.

Keywords: Lactulose, Hepatic Encephalopathy (HE), Neomycin, Rifaximin, Metronidazole and Efficacy.

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Please cite this article in press Mehwish Naz Hashmi et al., *A Comparative Study to Assess the Efficacy between Metronidazole-Iv & Rifaximin 550 Mg for Hepatic Encephalopathy Management.*, Indo Am. J. P. Sci, 2019; 06(06).

INTRODUCTION:

Hepatic encephalopathy (HE) explains a wide range of reversible neuropsychiatric disorders which occur in the patients of chronic liver disease and acute liver disease [1 – 2]. Portal-systemic encephalopathy refers to emphasize liver failure in order to detoxify toxins which release from the intestine. Therefore, these toxins bypass the liver and enter the systemic circulation and cause primary or secondary variations in the neurochemistry of the brain and produce HE symptoms. This metabolic abnormality has reversible features which also suggests persistent structural lack of lesions found in the brain [3]. Many factors are involved in the development of HE which include infections, gastrointestinal bleeding, electrolyte imbalance, constipation, hyponatremia, hypoglycemia, hypokalemia and different medicines (opiates, sedative-hypnotics). It is important to highlight such factors for the better management of HE patients [4 – 5]. At present, HE is managed through reducing ammonia accumulation by considering the glutamate neurotoxicity induction alteration and a resultant increased GABA-A receptor system tone in the brain [6]. Various agents are also helpful to solve the issue of ESRD [7].

The antibiotic neomycin is effective in the course of syndromes’ acute exacerbations; whereas, metronidazole is more favoured to manage HE among patients. However, all agents also pose drug-induced side effects and treatment complications [8] Rifaximin is rifamycin’s derivative which acts through bacterial RNA synthesis inhibition; it is virtually not absorbed after oral intake and displays a variety of antimicrobial activity against aerobic gram-positive microorganisms, anaerobic gram-positive microorganisms and gram-negative microorganisms in gastrointestinal tract [9]. Literature provides a number of evidence about the reduced levels of ammonia plasma and improved HE associated symptoms due to rifaximin among liver cirrhosis patients [10]. The profile of Rifaximin is also suitable in terms of side effects and tolerability [11].

Immediate medical care and treatment are required for HE patients as it is a medical emergency. The

objective of this research was to compare the efficacy between metronidazole-IV and rifaximin for the management of hepatic encephalopathy.

MATERIAL AND METHODS:

We carried out this comparative at Mayo Hospital, Lahore from August 2017 to March 2018 on a total of 120 hepatic encephalopathy patients without any discrimination of gender. The patients were enrolled in the age bracket of (40 – 60) years. We did not include patients with brain disease (encephalitis, meningitis, cerebrovascular accident), renal failure, diabetic ketoacidosis and septicemia. Patients gave their informed consent before the commencement of research. Patients were divided into two groups Group I & II which were respectively managed with Rifaxamin 550 mg B.D for Group – I through nasogastric tube and Group – II managed with metronidazole-IV 500 mg at an interval of eight hourly. We assessed the effectiveness of both the drugs after seven days. Different statistical tools such as SPSS, Chi-Square Test, Quantitative and Qualitative assessment approaches were also employed for outcomes statistical analysis (P-Value ≤ 0.05).

RESULTS

The research population consisted of 120 hepatic encephalopathy patients who were enrolled in the age bracket of 40 – 60 years with a mean age of (49.43 ± 6.866) years. Group-wise mean age was reported in Group – A (49.37 ± 6.757) years and in Group – B (49.50 ± 7.029) years. In the total of sixty patients treated with Rifaxamin group the treatment efficacy was reported in 14 patients (23.33%) and for Metronidazole group in 45 patients (75%). Efficacy was more significant among Group – A than Group – B (P-Value 0.000).

Detailed outcomes are reflected in Table – I (Group Wise Efficacy), Table – II (Age Wise Efficacy among Groups), Table – III (Gender Wise Efficacy among Groups) and Table – IV (Efficacy of HE Grade III & IV).

Table – I: Group Wise Efficacy

Efficacy	Yes		No		P-Value
	Number	Percentage	Number	Percentage	
Group – I (Rifaxamin)	14	23.33	46	76.67	0.000
Group – II (Metronidazole)	45	75	15	25	

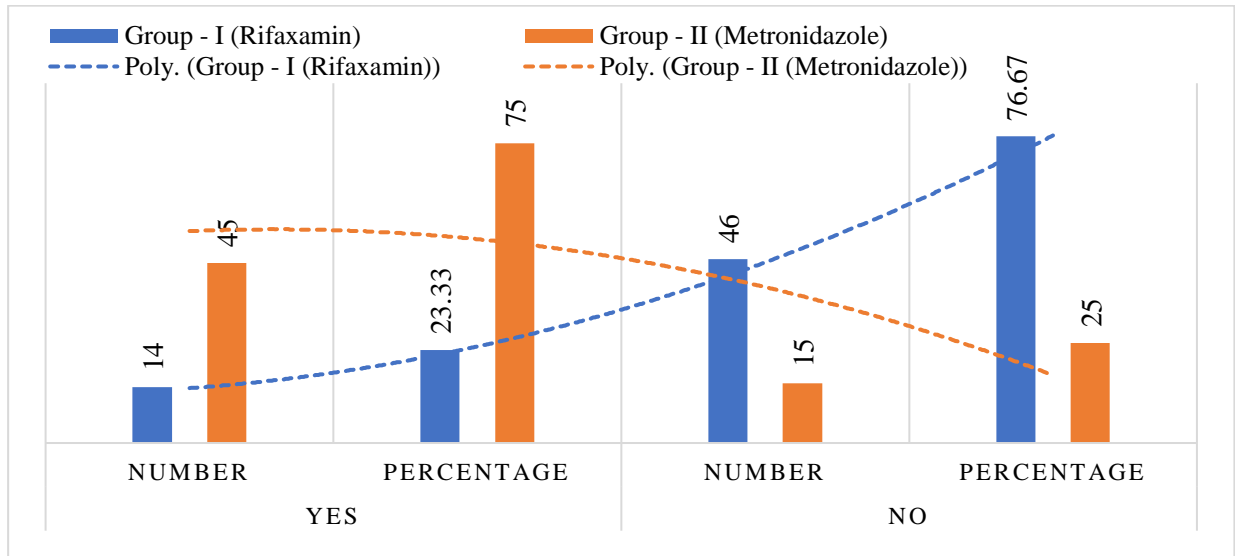


Table – II: Age Wise Efficacy among Groups

Efficacy		Yes		No		P-Value
		Number	Percentage	Number	Percentage	
40 to 50 Years	Group – I	8	26.67	22	73.33	0.000
	Group – II	23	76.67	7	23.33	
51 to 60 Years	Group – I	6	20	24	80	
	Group – II	22	73.33	8	26.67	

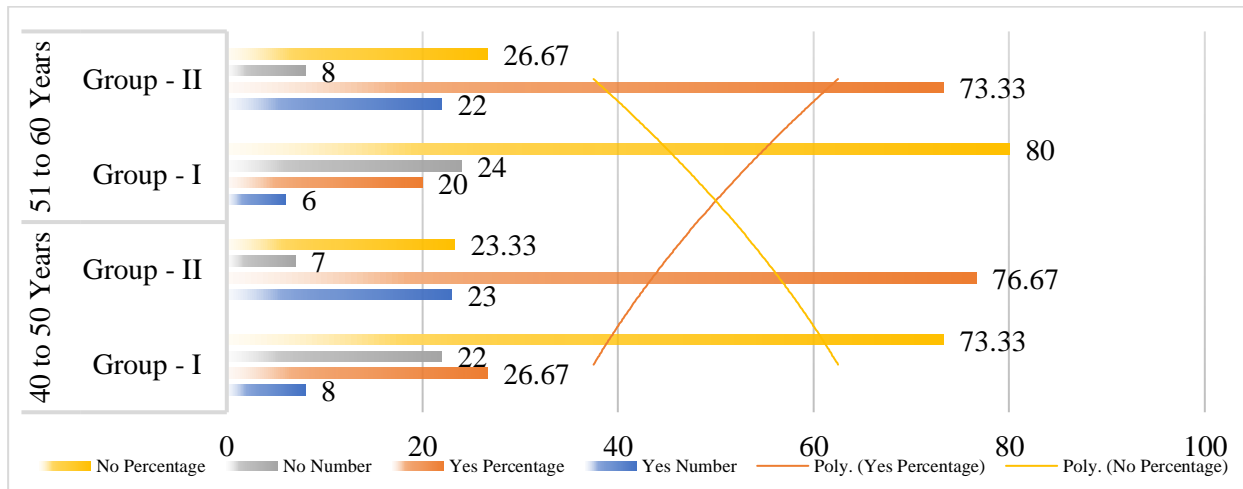


Table – III: Gender Wise Efficacy among Groups

Efficacy		Yes		No		P-Value
		Number	Percentage	Number	Percentage	
Male	Group – I	11	28.21	28	71.79	0.001
	Group – II	21	67.64	10	32.26	
Female	Group – I	3	14.29	18	85.71	0.000
	Group – II	24	82.76	5	17.24	

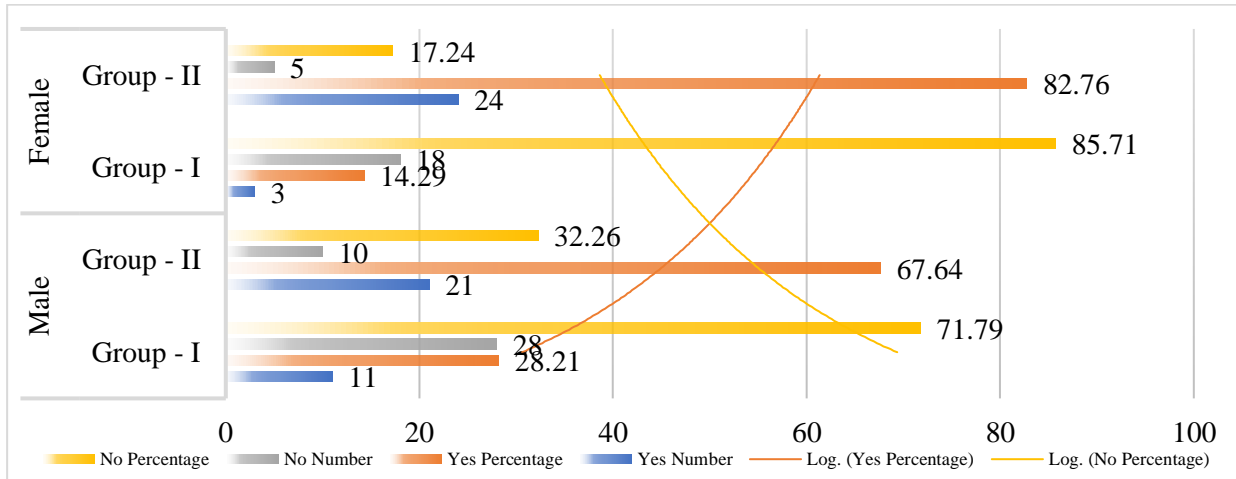
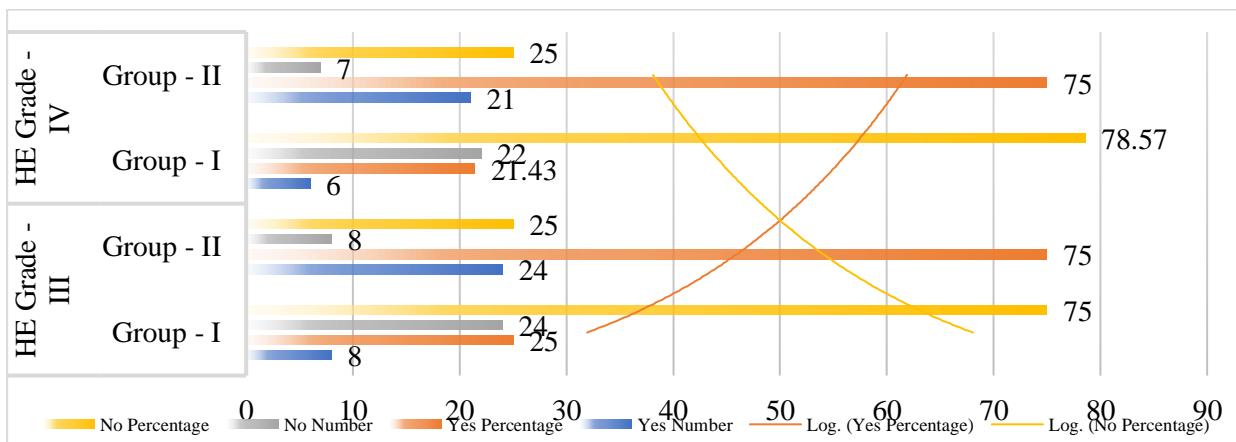


Table – IV: Efficacy of HE Grade III & IV

Efficacy		Yes		No		P-Value
		Number	Percentage	Number	Percentage	
HE Grade – III	Group – I	8	25	24	75	0.000
	Group – II	24	75	8	25	
HE Grade – IV	Group – I	6	21.43	22	78.57	
	Group – II	21	75	7	25	



DISCUSSION

Hepatic encephalopathy (HE) explains a wide range of reversible neuropsychiatric disorders which occur in the patients of chronic liver disease and acute liver disease; its neuropsychiatric symptoms include mild disorder of cognitive function and it may also lead to coma as well [12]. Treatment of HE challenging as it is clinically complex. The pathogenesis of HE depends on various factors but the circulation of ammonia has a key role as gut-derived toxin [13]. Timely and suitable treatment may reverse different clinical features of HE with the correction of associated factors.

The research population consisted of 120 hepatic encephalopathy patients who were enrolled in the age bracket of 40 – 60 years with a mean age of (49.43 ± 6.866) years. Group-wise mean age was reported in Group – A (49.37 ± 6.757) years and in Group – B (49.50 ± 7.029) years. In the total of sixty patients treated with Rifaximin group the treatment efficacy was reported in 14 patients (23.33%) and for Metronidazole group in 45 patients (75%). Efficacy was more significant among Group – A than Group – B (P-Value 0.000). Another author reported 22.1% effectiveness of rifaximin while treating HE patients [14]. Another series found 78% efficacy rate of metronidazole treated HE patients [15]. Both the referred series are similar to our research in terms of outcomes while comparing the efficacy of both the treatment modalities for HE affected patients.

CONCLUSION:

Metronidazole treated patients showed better outcomes than Rifaximin treated patients. There was a statistically significant correlation was reported in gender and age.

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