

A study of identification of poor prognostic factors in metabolic encephalopathy

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Abstract

Introduction: Metabolic encephalopathy is a transient cerebral dysfunction which may cause temporary or permanent damage to the brain due to lack of glucose, oxygen or other metabolic agent. Most of the cases occur when the liver cannot function normally to remove toxins from the bloodstream during an acute illness, but it can also be caused by other systemic diseases especially renal disease and endocrine disease. **Aims and Objectives:** Study of Identification of Poor Prognostic Factors in Metabolic Encephalopathy. **Methodology:** This is a cross sectional study including 100 patients with metabolic encephalopathy satisfying inclusion criteria. Cases admitted in the Medical Intensive care unit (MICU) of Aarupadai Veedu Medical college hospital and diagnosed as metabolic encephalopathy from June 2013 to May 2015 were included in the present study. Chi –square test was used by statistical significance. **Result:** The variables identified as poor prognostic factors were Age >60; OR 3.1 (2.85-6.56). Female; OR 1.5(1.45-8.6). H/O Chronic Liver Disease; OR 2.5(2.32-5.6). Ascites; OR 2.87 (2.2-4.5). Jaundice; OR 2.92 (2.25-5.45) and Dys-electremia OR 3.1(2.95-6.67). ESR \geq 34 OR 1.2(1.1-4.32). Cirrhosis on USG OR 3.2 (2.85-5.62). AST: ALT \geq 2.1 OR 3.5(2.82-6.62). Total Bilirubin \geq 4 OR 2.75(2.12-6.65). In outcome of the patients Improved 65% and Recovered completely in 15%, Discharge against Medical Advise 7%; Death occurred in 13% the most common factors associated like Age >60 Female, Chronic Liver Disease, Ascites, Jaundice, Dys-electremia, ESR \geq 34, Cirrhosis on USG AST: ALT \geq 2, Total Bilirubin \geq 4. **Conclusion:** The poor prognostic factors identified in our study were Age >60 Female, Chronic Liver Disease, Ascites, Jaundice, Dys-electrolemia, ESR \geq 34, Cirrhosis on USG AST: ALT \geq 2, Total Bilirubin \geq 4 these poor prognostic factors were mostly associated with death.

Keywords: Metabolic Encephalopathy, Chronic Liver Disease, Ascites, Jaundice, Dys-electremia, ESR.

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INTRODUCTION

Metabolic encephalopathies are characterized by a period of progressive somnolence or delirium after which the patients gradually sinks into stupor and finally to coma². The development of metabolic encephalopathy may be the first manifestation of a critical systemic illness and may be caused by various reasons^{1,2,3,4,5}. One of the

most important causes of metabolic encephalopathy seems to be sepsis (i.e. septic encephalopathy)^{5,6,7,8}. Metabolic encephalopathy is transient cerebral dysfunction which may cause temporary or permanent damage to the brain due to lack of glucose, oxygen or other metabolic agent. Most of the cases occur when the liver cannot function normally to remove toxins from the bloodstream during an acute illness, but it can also be caused by other systemic diseases especially renal disease and endocrine disease. Drugs and toxins are immediate differential diagnosis where we get history of abuse or overdoses. Metabolic encephalopathies are characterized by a period of progressive somnolence or delirium after which the patients gradually sinks into stupor and finally into coma. Common causes of metabolic encephalopathy according to pathophysiology are loss of substrate for cerebral metabolism, hypoxia, hypoglycemia, global ischemia, hyponatremia or hypernatremia,

hyperglycemia/hyperosmolar, hypercalcemia, hypermagnesemia, Status epilepticus, post seizure state, hypothyroidism, hypocortisolism. toxins, hypercarbia, liver failure, renal failure. The development of metabolic encephalopathy may be the first manifestation of a critical systemic illness and may be caused by various reasons^{9,10,11,12,13} One of the most important causes of metabolic encephalopathy seems to be sepsis (i.e. septic encephalopathy)^{13,14,15,16}

AIMS AND OBJECTIVES

To study of Identification of Poor Prognostic Factors in Metabolic Encephalopathy

MATERIAL AND METHODS

This is a cross sectional study including 100 patients with metabolic encephalopathy satisfying inclusion criteria. Cases admitted in the Medical Intensive care unit (MICU) of Aarupadai Veedu Medical college hospital and diagnosed as metabolic encephalopathy from June 2013 to May 2015 were included in the present study. Patients above 18 years of age, who developed metabolic encephalopathy during the study period included into study while Age below 18 years, Known case of pituitary surgery and head injury, Non metabolic causes of encephalopathy were excluded from the study. Odds ratio was used with 95% Confidence Interval was used statistical significance.

RESULT

Table 1: Poor Prognostic Factors of encephalopathy Patients

Variables	Odds Ratio (95% CI)
Clinical	
Age >60	3.1 (2.85-6.56)
Female	1.5(1.45-8.6)
H/O Chronic Liver Disease	2.5(2.32-5.6)
Ascites	2.87(2.2-4.5)
Jaundice	2.92(2.25-5.45)
Investigations	
Dys-electremia	3.1(2.95-6.67)
ESR ≥ 34	1.2(1.1-4.32)
Cirrhosis on USG	3.2(2.85-5.62)
AST : ALT ≥ 2.1	3.5(2.82-6.62)
Total Bilirubin ≥4	2.75(2.12-6.65)

The variables identified as poor prognostic factors were Age >60; OR 3.1 (2.85-6.56). Female; OR 1.5(1.45-8.6). H/O Chronic Liver Disease; OR 2.5 (2.32-5.6). Ascites; OR 2.87(2.2-4.5). Jaundice; OR 2.92 (2.25-5.45) and Dys-electremia OR 3.1(2.95-6.67). ESR ≥ 34 OR 1.2(1.1-4.32). Cirrhosis on USG OR 3.2 (2.85-5.62). AST: ALT ≥ 2.1 OR 3.5(2.82-6.62). Total Bilirubin ≥4 OR 2.75(2.12-6.65).

Table 2: Distribution of the Patients as per the Outcome

Outcome	No	Percentage (%)
Improved	65	65
Recovered	15	15
Discharge against Medical Advice	7	7
Death	13	13
Total	100	100

In outcome of the patients Improved 65% and Recovered completely in 15%, Discharge against Medical Advice 7%; Death occurred in 13% the most common factors associated like Age >60 Female, Chronic Liver Disease, Ascites, Jaundice, Dyselectrolemia, ESR ≥ 34, Cirrhosis on USG AST : ALT ≥ 2, Total Bilirubin ≥4.

DISCUSSION

Metabolic encephalopathy is common among patients in critical care units⁷⁷. The encephalopathies are divided into various types based on the cause of the encephalopathy. It is a general term describing the disease that affects the structure or function of our brain. In a recent study done by Surtees R *et al* they found that metabolic encephalopathy is one of the leading cause of encephalopathies¹⁷. Almost one third of the patients under critical care are diagnosed to have metabolic encephalopathy¹⁷. The clinical features of the metabolic encephalopathy to differentiate between different etiologies is generally not of much help because whatever be the etiology the clinical presentation will almost be the same¹⁸. The clinical picture of metabolic encephalopathies has no aetiological specificity¹⁹. It combines disturbances in conscious level dominated by disorientation in time and space and disturbances in motor activity, in particular, tremor and asterixis. For each of the aetiologies studied, the following are considered: the circumstances of onset, the clinical and laboratory picture, the pathophysiology and the treatment. From a diagnostic standpoint, particular emphasis should be placed upon the circumstances of onset, which alone give any indication^{18,19}. In our study we have found The variables identified as poor prognostic factors were Age >60; OR 3.1 (2.85-6.56). Female; OR 1.5(1.45-8.6). H/O Chronic Liver Disease; OR 2.5(2.32-5.6). Ascites; OR 2.87(2.2-4.5). Jaundice; OR 2.92 (2.25-5.45) and Dys-electremia OR 3.1(2.95-6.67). ESR ≥ 34 OR 1.2(1.1-4.32). Cirrhosis on USG OR 3.2 (2.85-5.62). AST: ALT ≥ 2.1 OR 3.5(2.82-6.62). Total Bilirubin ≥4 OR 2.75(2.12-6.65). In outcome of the patients Improved 65% and Recovered completely in 15%, Discharge against Medical Advice 7%; Death occurred in 13% the most common factors associated like Age >60 Female, Chronic Liver Disease, Ascites, Jaundice, Dys-electremi, ESR ≥ 34, Cirrhosis on USG AST : ALT ≥ 2, Total Bilirubin ≥4.

These findings are in confirmation with Om K. Pathak (2016) *et al*²⁰.

CONCLUSION

The poor prognostic factors identified in our study were Age >60 Female, Chronic Liver Disease, Ascites, Jaundice, Dys-electremi, ESR \geq 34, Cirrhosis on USG AST : ALT \geq 2, Total Bilirubin \geq 4 these poor prognostic factors were mostly associated with death.

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