

Hemolytic uremic syndrome complications and treatment.

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المخلص

هذه الدراسة أجريت على (55) حالة طفل مصاب بالمتلازمة اليوريمية الانحلالية خلال فترة ثماني سنوات من (1991-1998) في مستشفى المنصور التعليمي للأطفال. وجد أن مضاعفات الجهاز الهضمي أكثر شيوعاً (32.7 %) بينما كانت مضاعفات الجهاز العصبي وارتفاع ضغط الدم تشكلاً (20%) و (14.5%) من الحالات على التوالي. توفي ثمانية عشر مريضاً (33%) أثناء الفترة الحادة للمرض. وجد إن عامل مثل مضاعفات الجهاز العصبي له علاقة إحصائية مهمة بزيادة نسبة الوفيات. وكانت نتائج هذه الدراسة متشابهة مع نتائج دراسة Taper- D et al⁽¹¹⁾ ما عدا في نسبة الوفيات حيث كان (8%) والتي تعتبر قليلة مقارنة بهذه الدراسة.

Abstract

This study carried out on 55 recorded cases child of hemolytic uremic syndrome admitted during a period of eight years (1991-1998) to Al-Mansour pediatric teaching hospital in Baghdad. It is found that gastrointestinal tract complications was the commonest (32.7%) followed by central nervous system complications (20%) while hypertension was present only in (14.5%) of patients thirty three percent of patients died. Central nervous system complications were statistically significant risk factor for death. these result comes with the result of taper – D et al⁽¹¹⁾ study except that the number of death was only (8%) which is low figure in comparison with this study.

Introduction

Hemolytic uremic syndrome (HUS) comprises a heterogeneous group of disorders in which a triad of features (micro-angiopathic hemolytic anemia, thrombocytopenia, and acute renal failure) occurs together. A.G.M. campell⁽¹⁾. HUS is most frequent cause of acute renal failure in child hood, it becomes an important pediatric and public health problem. Martin D-et al⁽⁶⁾. HUS can be classified in to two categories the typical (post diarrheal) usually of bloody diarrhea and atypical (non diarrheal). The commonest etiological agent being the verocytotoxin producing E-coli strain O-157:H7. The main target is the gut and kidney but nearly every organ system can be involved. The most common extra renal involvement is damage to the central nervous system gordjani-Net al⁽⁵⁾ some studies shows that prolonged use of inappropriate antibiotics increase the risk of progression from colitis into HUS. Richard L-Siegler⁽⁸⁾.

The acute mortality of HUS is around 5% and 5% left with end stage renal failure or chronic brain damage and 30-50% suffer mild chronic kidney damage (hypertension, proteinuria) . Most serious non renal sequelae is stroke which occur in 3-5% of cases siegler –Ret aL ⁽¹⁰⁾. Children may be left with chronic non renal sequelae as colitis can causes bowel infarction in (2%) or stricture in (3%).

Pancreatic involvement may result in insulin dependant diabetes mellitus (8%) that can be permanent⁽⁸⁾.

With aggressive management of acute renal failure more than 90% of patients survive the acute phase . Bergstein J.M.⁽²⁾ Many children with HUS can be successfully managed with supportive therapy , and by careful attention to fluid and electrolyte balance, nutritional support, treatment of severe anemia and control of hypertension and seizure. A more moderate approach is to initiate dialysis prophylactically for blood urea nitrogen concentration of more than 150mg /dl or should be done sooner for unuria or oliguria persisting for more than 24 hours , surgical exploration for toxic megacolon , colonic perforation and obstruction or colonic stricture. Taper- D et al ⁽¹¹⁾

Aim of the study

This study was aimed to compare the complications and treatment of hemolytic uremic syndrome cases in the center in which the study was conducted with other studies in the world.

Patients and Methods

In this retrospective study medical records of fifty – five patients admitted to Al- mansour pediatric teaching hospital in Baghdad from the first of January 1991 till the 31st of December 1998 (eight years period) were reviewed and all cases met the definition of hemolytic uremic syndrome (HUS) I.e. (micro- angiopathic hemolytic anemia ,acute renal failure and thrombocytopenia).

The following data for each patient were obtained:

The progress of the disease in the hospital by follow up of blood pressure , development of gastro intestinal tract (GIT) , central nervous system (CNS) and other complications. For each patient the need and frequency of blood transfusion and dialysis was reported . Statistical analysis were done by using the usual statistical Methods in order to analyze and assess my result include frequency , percentage , line chart , Z-test , P-value .

Results

Complications and the out come of patients with HUS:-

Table(1) and figure (1) shows that (GIT) complications were the most frequent complications 18 cases (32.7%) followed by (CNS) complications 11 cases (20%) , hypertension 8 cases (14.5%) and gross hematuria only in 5 cases (9%) . 18 patients (33%) were died during the acute phase of the illness.

Treatment of patients with with HUS:-

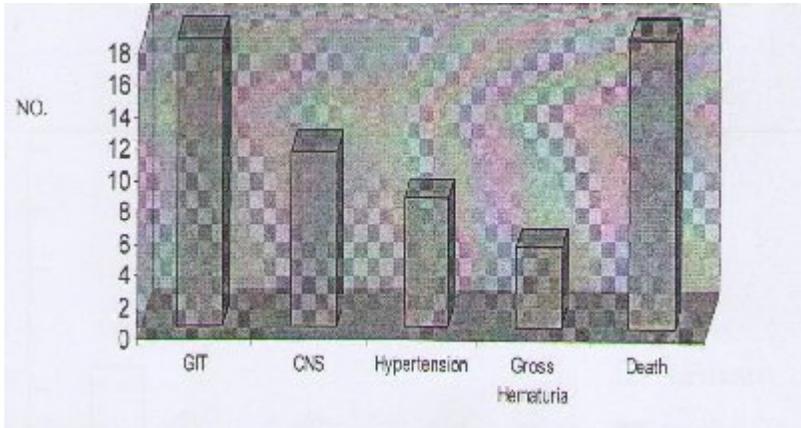
Table (2) During the course of hospitalization 43 patient (78%) had received blood transfusion , twelve (21.8%) of them received two and six (10.9%) received three.35 patients (64%) were subjected to peritoneal dialysis, five (9%) of them required two and one (1.8%) required three.

Risk factors for death in patients with HUS :-

Table (3) and figure (2) After statistical analysis in my study, it was conducted that there is significance association between the presence of CNS complications and the increasing risk of death in HUS cases . Eight patients (72.7%) was died because of CNS complications which was significant according to P.value which was < 0.05.

Table -1: Complications and the outcome of patients with HUS

COMPLICATIONS	NO.	%
GIT	18	32.7
1-Hematemesis&Malena	13	23.6
2-Rectal prolepses	5	9.1
CNS	11	20
1-Convulsion	7	12.7
2-Coma	3	5.5
3-Hemiplegia	1	1.8
Hypertension	8	14.5
Gross hematuria	5	9
Death	18	33



Figure(1) Complications and outcome patients with HUS

GIT = Gastro intestinal system.

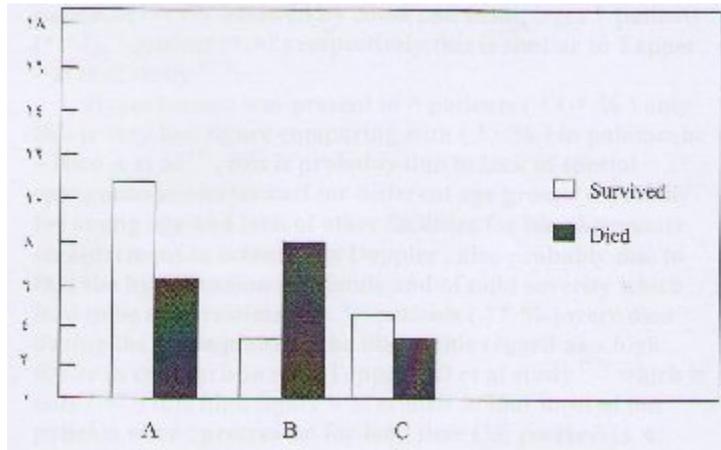
CNS = Central nervous system.

Table -2: Treatment of patients with HUS

Procedure	Total no. required the procedure and%	1 time	2times	3times
Blood transfusion	43 (78%)	25	12	6
Dialysis	35 (64%)	29	5	1

Table-3: Risk Factors For Death in HUS

Risk Factors	Total No.	Survived patients		Died patients		Z test	P valus
		NO.	%	NO.	%		
GIT complication	18	11	67	7	33	1.33	>0.05(NS)
CNS complication	11	3	27.3	8	72.7	2.132	<0.05(S)
Hypertension	8	5	62.5	3	37.5	1.000	>0.05(NS)



Figure(2) Risk Factors For Death in HUS

A- Gastro intestinal complication.

B- Central nervous system complication.

C- Hypertension.

Discussion

In this study I sheds light up on 55 cases of HUS Admitted during a period of eight years (1991 – 1998) to Al – Mansour pediatric teaching hospital in Baghdad in clinical aspect of complications and treatment. The study shows that GIT complications 18 patients (32.7%) were the most frequent complications followed by CNS complications 11 patients (20%) (table 1) and (figure 1) Bhimma – R et al⁽³⁾ showed the reverse while Tapper –D et al⁽¹¹⁾ study showed that the GIT complications were more frequent (38%) and CNS complications were (16%) which is much similar to my study . Hematamesis and malena 13 patients (23.6%) was the most frequent GIT Complication .

Followed by rectal prolapse 5patients (9.1%) while convulsion was the most frequent CNS complication 7 patients (12.7%) followed by coma and hemiplegia 3 patients (5.5%) ,1 patient (1,8%) respectively this is similar to Tapper – D et al study⁽¹¹⁾ . Hypertension was present in 8 patients (14.5%) only this is very low figure comparing with (90%) in palomeque – Rico A et al⁽⁷⁾ , this is probably duo to lack of special sphygmomanometer cuff for different age groups especially for young age and lack of other facilities for blood pressure measurement in infants like Doppler , also probably duo to that hypertension was labile and of mild severity which lead to be underestimated . Eighteen patients (33%) were died during the acute phase of the illness this regarded as a high figure in comparison with Taper – D et al study⁽¹¹⁾ which is only (8%) this high figure was related to that most of our patients were pretreated for long time (1-2 weeks) with antibiotics and in most of the cases with out sensitivity testing so most of our cases were complicated cases, another factor that delay in dialysis because

there is delay in patient arrival to the hospital and also because there is no dialysis unite in this hospital were contribute to increase the death of the patients in this study . No data was available in the patients records regarding chronic renal failure , colonic stricture and diabetes mellitus which need follow up. The presence of CNS complications were statistically significant risk factor for death this finding is copes with Rowe-pc et al⁽⁹⁾

Conclusions

After having discussed the results of the work done on HUS the following points were concluded:

1. HUS is emerging as an important clinical problem.
2. GIT complications were the most frequent complications.
3. CNS complications were statistically significant risk factor for death.
4. Most of our cases were complicated cases.
5. There is a delay in dialysis which contribute to increase the death of the patients.

Recommendations

1. Special attention paid by physician to patients with HUS who have one of the risk factor for death include presence of CNS complications.
2. Early medical management including fluid and electrolytes balance, aggressive nutritional support and controlling of blood pressure.
3. Avoid using certain therapeutic measures such as the use of trimethoprim - sulfamethoxazol empirically with bloody diarrhea which may be harmful.
4. A pediatric dialysis unite may be the problem solving step for the misinterpretation between the pediatricians and physicians regarding indications for dialysis in HUS cases.
5. Regular follow-up of survival patients to check residual renal function impairment and non renal sequelae such as colonic stricture and insulin dependant diabetes mellitus.

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