CODEN [USA]: IAJPBB ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES

http://doi.org/10.5281/zenodo.3613862

Available online at: http://www.iajps.com Research Article

FACTORS THAT AFFECTING THE PROGNOSIS IN CHILDREN WITH HEMOLYTIC UREMIC SYNDROME

[1]Dr Shazia Munawar, [2]Dr Naheed

[1]Services Institute of Medical Sciences Lahore, [2]Quaid-e-Azam Medical College Bahawalpur.

Article Received: November 2019 **Accepted:** December 2019 **Published:** January 2020

Abstract:

Objective: *The aim of this study was to assess various factors that influence prognosis in children with hemolytic uremic syndrome (HUS).*

Place and Duration: *In the Department of Pediatrics, Services Hospital Lahore for one year duration form March 2018 to March 2019*

Methods: *Forty children with a classic HUS clinical picture were selected. Boys and girls between the ages of two months and ten were equally affected. 35 patients (87.5%) had diarrhea in the past, which was bloody in 25. All were treated with peritoneal dialysis during the first 24 hours. Freshly frozen plasma (FFP) was transfused during the first two days in all but two patients who were transfused on the third to fifth day of admission.*

Results: *Fifteen patients died (37.5%); of these, 12 (80%) had diarrhea for over 7 days, 11 (73%) had pronounced neutrophilia, and 9 (60%) had significant neurological symptoms. Eleven of fifteen patients were transfused with FFP after the third hospitalization clay. Statistical analysis of mortality data revealed the following prognostic factors in HUS in children: mortality is higher in people with a longer prodromal period (p <O.OO I), in people with bloody diarrhea (p <0.025), in patients with pronounced neutrophilia (p <0.001) and in those who delayed FFP treatment (p <0.001). Prognosis did not affect prognosis, gender or time of presentation.*

Keywords: *influence prognosis, neurological symptoms, neutrophilia.*

Corresponding author:

Dr. Shazia Munawar,

Services Institute of Medical Sciences Lahore

QR code

Please cite this article in press Shazia Munawar et al., ***Factors That Affecting The Prognosis In Children With Hemolytic Uremic Syndrome.,*** *Indo Am. J. P. Sci, 2020; 07(01).*

INTRODUCTION:

Hemolytic uremic syndrome (HUS) is characterized by microangiopathic hemolytic anemia. Thrombocytopenia and acute renal failure. It was recognized as the main cause of acute renal failure in children. Endothelial injury which results from localized activation of the coagulation system with subsequent deposition of fibrin-related antigens is most pronounced in the kidneys. The aim of this study was to assess various factors that affect prognosis in children with HUS.

PATIENTS AND METHODS:

A review of medical records of seventy patients admitted with a diagnosis of HUS was carried out. Thirty cases have been ruled out because of insufficient data or because of sepsis with kidney failure. 40 cases meeting the adopted HUS criteria were included. Twenty-one girls aged two months to ten years and nineteen boys aged six months to four years. All cases had hemolytic anemia with fragmentary RBCs. thrombocytopenia and elevated blood urea, creatinine. They all had blood, urine and fecal cultures, and urine excretion measurement. In all cases, administration of freshly frozen plasma (FFP) was calculated. If two or more cases occurred during the same or next month they were classified as "epidemic". In the statistical analysis, X2 was used for categorical variables and I-test for continuous variables.

RESULTS:

Of forty cases, eight (20%) were under one year old, four (10%) in five years, fourteen (35%) were 1-2 years old and fourteen (35%) were 2-5 years old. The age distribution in both sexes was similar. Eight patients (20%) reported in late spring (June), and the next peak occurred in early autumn (September October). History of diarrhea which was bloody in 25 was obtained in 35 patients (87.5%). Twenty-four (60%) patients had neurological symptoms such as localized or generalized convulsions, stupor or coma. Twenty-nine (72.5%) had oliguria and eleven (27.5%) had elevated blood pressure. One child had sick siblings also.

Fifteen (37.5%) patients died of which twelve (80%) had diarrhea. which was 50% bloody ($p < 0.025$). In these fifteen cases twelve (80%) had diarrhea over seven days before hospitalization ($p < 0.001$). Eleven of fifteen cases (73%) had pronounced neutrophilia ($p < 0.001$). All patients underwent peritoneal dialysis within 24 hours, but FFP was transfused after the third day of hospitalization in eleven cases who all died while the rest received FFP transfusion in earlier stages. Mortality in the group receiving early transfusion was reported at 37.5% ($p < 0.001$. Compared to those with delayed transfusion) (Tables I-IV)

Fourteen (35%) patients had follow-up lasting from three months to two years, six of them (42%) had impaired renal function, four (21.4%) had neurological sequelae.

Table I. Age Distribution of Patients With HUS

AGE (year)	DIED	LIVING	TOTAL
<1	4	4	8
1-2	6	8	14
2-5	2	12	14
>5	3	1	4
TOTAL	15	25	40

Table II. Period of Diarrhea and Mortality in HUS

	≤7 DAY	>7 DAY	TOTAL
DIED	3	12	15
LIVING	17	3	20
TOTAL	20	15	35

Table III. Neutrophilia with FFP and Mortality in HUS

	NL PMN	↑ PMN	TOTAL
DIED	4	11	15
LIVING	21	4	25
TOTAL	25	15	40

Table IV. Treatment with FFP and Mortality in HUS

	Days 1-2	Days 3-5	TOTAL
DIED	4	11	15
LIVING	25	0	25
TOTAL	29	11	40

DISCUSSION:

Gasser gave a preliminary description of hemolytic uremic syndrome with several separate clinical variants. The average age in all reports was recorded as infant. As in our series of patients, which 55% of cases occurred in the first two years of life. During the epidemic in Argentina. South Africa and Southern California, the distribution was equal among men and women. In several centers, women were reported more often than men. In our series with the possibility of an outbreak in 2001, more women were involved (nine out of fourteen cases). The previous disease was reported by Giannantonio as an upper respiratory tract infection in 33%: in our series it was noted among the 12.5% relief. A report from Boston in 2003 showed that the duration of diarrhea and the occurrence of bloody diarrhea were not related to the result: however. The Trompeter report from London in 2006 showed that the history of diarrhea at the beginning with a short prodromal stage ended with a good result. In our series, diarrhea bleeding was relatively prognostically significant while the prodromal stage longer than seven days was significant ($p < 0.001$).

Central nervous system disorders observed in 60% of cases did not have a significant correlation with biochemical changes or hypertension and were most likely caused by cerebral edema. The Bale series includes a patient who had CNS symptoms and associated biochemical changes: the autopsy in this case revealed brain edema. The fate of mortality in this study was 37.5%. Among 80% patients who died at the prodromal period was longer than seven days ($p < 0.001$). All patients had peritoneal dialysis (PD). Within the first 24 hours of admission. It has been shown that among patients treated with PD plus FFP transfusion, people transfused later than the first two days of admission had higher mortality. Eleven out of fifteen dead cases were transfused on 3-5 days of admission demonstrating that delayed transfusion has a significant effect on mortality ($p < 0.001$). It was found in HUS mortality is higher among people with a longer prodromal period ($p < 0.001$) in patients with pronounced neutrophilia ($p < 0.001$) and in those who received delayed FFP treatment ($p < 0.001$).

REFERENCES:

1. Tavasoli, A., Zafaranloo, N., Hoseini, R., Otukesh, H., Hooman, N. and Panahi, P., 2019. Chronic Neurological Complications in Hemolytic Uremic Syndrome in Children. *Iranian journal of kidney diseases*, *13*(1).
2. McKee, R.S., Schnadower, D., Tarr, P.I., Xie, J., Finkelstein, Y., Desai, N., Lane, R.D., Bergmann, K.R., Kaplan, R.L., Hariharan, S. and Cruz, A.T., 2019. Predicting Hemolytic Uremic Syndrome and Renal Failure in Shiga Toxin-Producing Escherichia coli Infected Children. *Clinical Infectious Diseases*.
3. Zuber, J., Frimat, M., Caillard, S., Kamar, N., Gatault, P., Petitprez, F., Couzi, L., Jourde-Chiche, N., Chatelet, V., Gaisne, R. and Bertrand, D., 2019. Use of Highly Individualized Complement Blockade Has Revolutionized Clinical Outcomes after Kidney Transplantation and Renal Epidemiology of Atypical Hemolytic Uremic Syndrome. *Journal of the American Society of Nephrology*, *30*(12), pp.2449-2463.
4. Scobell, R.R., Kaplan, B.S. and Copelovitch, L., 2019. New insights into the pathogenesis of Streptococcus pneumoniae–associated hemolytic uremic syndrome. *Pediatric Nephrology*, pp.1-7.
5. Bagga, A., Khandelwal, P., Mishra, K., Thergaonkar, R., Vasudevan, A., Sharma, J., Patnaik, S.K., Sinha, A., Sethi, S., Hari, P. and Dragon-Durey, M.A., 2019. Hemolytic uremic syndrome in a developing country: Consensus guidelines. *Pediatric Nephrology*, *34*(8), pp.1465-1482.
6. Conkar, S., Mir, S. and Berdeli, A., 2019. Genetics and outcome of atypical hemolytic-uremic syndrome in Turkish children: a retrospective study between 2010 and 2017, a single-center experience. *Iranian journal of kidney diseases*, *13*(5), pp.316-321.
7. Annicchiarico Petruzzelli, L., Ascione, S., Bruno, V., Ferretti, A., De Luca, A., Malgieri, G., Scavia, G., Bresin, E., Noris, M. and Pecoraro, C., 2019. FP818 Typical hemolytic uremic syndrome cohort screened for genetic complement abnormalities. *Nephrology Dialysis Transplantation*, *34*(Supplement_1), pp.gfz106-FP818.
8. Mele, C., Noris, M. and Remuzzi, G., 2019. Hemolytic Uremic Syndrome. In *Critical Care Nephrology* (pp. 294-301). Content Repository Only!.

9. Keenswijk, W., Raes, A., De Clerck, M. and Vande Walle, J., 2019. Is Plasma Exchange Efficacious in Shiga Toxin-Associated Hemolytic Uremic Syndrome? A Narrative Review of Current Evidence. *Therapeutic Apheresis and Dialysis*, *23*(2), pp.118-125.
10. Manzano, A.F.L., Lorenzo, A.F.G., Bocanegra, V., Costantino, V.V., Cacciamani, V., Benardon, M.E. and Vallés, P.G., 2019. Rab7b participation on the TLR4 (Toll-like receptor) endocytic pathway in Shiga toxin-associated Hemolytic Uremic Syndrome (HUS). *Cytokine*, *121*, p.154732.
11. Giordano, P., Netti, G.S., Santangelo, L., Castellano, G., Carbone, V., Torres, D.D., Martino, M., Sesta, M., Di Cuonzo, F., Resta, M.C. and Gaeta, A., 2019. A pediatric neurologic assessment score may drive the eculizumab-based treatment of Escherichia coli-related hemolytic uremic syndrome with neurological involvement. *Pediatric Nephrology*, *34*(3), pp.517-527.
12. Yamada, S., Shimizu, M., Kuroda, M., Inoue, N., Sugimoto, N. and Yachie, A., 2019. Interleukin-33/ST2 signaling contributes to the severity of hemolytic uremic syndrome induced by enterohemorrhagic Escherichia coli. *Clinical and experimental nephrology*, *23*(4), pp.544-550.
13. Sethi, S.K., 2019. Hemolytic Uremic Syndrome. In *Critical Care Pediatric Nephrology and Dialysis: A Practical Handbook* (pp. 187-194). Springer, Singapore.
14. Jenssen, G.R., 2019. Hemolytic-uremic syndrome in children in Norway: a study on epidemiology, surveillance, clinical aspects and outcome.
15. Khadizha, E., Olga, O., Tolstova, E., Sofia, M., Abaseeva, T., Alexzndr, M., Tatiana, P. and Galina, G., 2019. SP224 Hemolytic-uremic syndrome as a cause of acute kidney damage in children. *Nephrology Dialysis Transplantation*, *34*(Supplement_1), pp.gfz103-SP224.