International Journal Dental and Medical Sciences Research
Volume 3, Issue 6, Nov-Dec 2021 pp 566-571 www.ijdmsrjournal.com ISSN: 2582-6018

Pre-Operative Factors Affecting Outcome in patients with perforation peritonitis

Author-Dr.sarathphanikumarbethina
Co-author –Dr.sushamasurapaneni

Submitted: 10-12-2021 Revised: 22-12-2021 Accepted: 25-12-2021

I. INTRODUCTION

Gastrointestinalperforation is the third mostcommoncauseforexploratorylaparotomyasane mergency. With the adventof drugs againstacidpepticdisease the incidenceofpepticulcerperforations is ondecline. The managementof these patientsprovides a number of unique challengesto the attendingsurgeon. Manyof these patientspresentatandaremanaged in ruralhospitals, where resourcesareoften very limited. Latepresentation, inadequatepreoperativeresuscitation, delayedoperation, number ofperforationsand the extent offaecalperitonitishave been foundtohave a significanteffectonprognosis.(A1)

AIM

To study the preoperative factors affecting outcome in patients with perforation peritonitis

II. MATERIALS AND METHODS

Source of Study:

The study was conducted on 53 patients who presented with peritonitis secondary tohollow viscus perforation to the General Surgery department at NRI General Hospital from November 2018 to October 2020

Type Of Study :

This study is a prospective,observational study conducted at NRI General hospital during 2yrs.

Inclusion criteria

Patients diagnosed withperitonitis secondary to hollow viscus perforation has been included in the study.

Exclusion Criteria

Age <14 years.

Patients who underwent emergency explorative laparotomy for abdominal trauma.

Patients with primary peritonitis due to tuberculosis, alcoholic cirrhosis, nephrotic syndrome, cardiac failure, or systemic lupus erythematosus.

Method

The demographic data (age, sex, weight, etc) ofpatients diagnosed with peritonitis wasrecorded. The physiologicalvariables like pulserate, systolicbloodpressure, respiratoryrate, cardiac signs andGlasgowcomascale, hemoglobin, white bloodcount, Urea, Sodium, Potassium, ECG and CXR were recorded just before surgery. During the surgicalprocedure six operativevariablesincludingoperative severity, totalbloodloss, multipleprocedures, peritonealsoiling, cancerandmodeof surgery were recorded by the operatingsurgeons. Their finalphysiologicalandoperativescorecalculatedfrom possumdata sheet (attached). The predictedmortalityandmorbiditywascalculated by POSSUM equation. After surgery the patient'sobservedmortalityandmorbidity were notedforonemonthandcompared with the predictedoutcomes. The patients were followedupfor 1 monthon 1st, 3rd, 7th, 15th, 30th post-operativedaysformorbidity (list attached in operationaldefinitions) andmortality. Patient was followed, the occurrence of complications noted, and discharge dueto improvement or death recorded. Time elapsed from initial diagnosis tothe time of event (death or discharge from hospital) was determined.Out-patient follow-up was continued for 30 days from the time of dischargeto establish perioperative morbidity and mortality.

III. OBSERVATION AND RESULTS

Descriptive statistics and Assessment of Individual Parameters

International Journal Dental and Medical Sciences Research
Volume 3, Issue 6, Nov-Dec 2021 pp 566-571 www.ijdmsrjournal.com ISSN: 2582-6018

Table 3: Age distribution

Age Group	No of cases	Mortality	Morbidity
</= 60	47	2 (4.3%)	32 (68.1%)
61-70	11	8 (72.7%)	11 (100%)
>/= 70	-	0 (0%)	0 (0%)
P-Value		0.0012	0.32786357
Result (P <0.05)		Significant	insignificant

In the present study, most of the patients belong to >60 age group,and in that age group, there was 68.1% morbidity and 4.3% mortality, and in the age group between 61-70, high morbidity is seen with all the patients having post-op morbidity and a mortality of 72.7% is observed showing that there is significant high mortality and morbidity in the age group of 61-70 (p<.05)

Table 4: Distribution based on cardiac signs

Cardiac	No of cases	Mortality	Morbidity
Normal	28	1 (3.6%)	16 (57.1%)
On oral antihypertensives	26	7 (26.9%)	24 (92.3%)
On warfarin	4	2 (50%)	3 (75%)
P-Value		0.0151	0.01293
Result (P < 0.05)		Significant	Significant

In the present study,26 patients were on antihypertensives with seven deaths (26.9%).most of the patients (28) have normal cardiac history. Four patients were on warfarin with two deaths (50%).

Table 5: Distribution based on respiratory signs.

Respiratory signs	No of cases	Mortality	Morbidity
Normal	40	1 (2.5%)	26 (65%)
Breathlessness on exertion	17	8 (47.1%)	16 (94.1%)
Breathlessness on walking	1	1 (100%)	1 (100%)
P-Value		0.000024	0.98934
Result (P < 0.5)		Significant	Significant

In the present study, most of the patients belong to the group with normal respiratory signs, and a 100 % risk of mortality was observed in patients with breathlessness on walking. The highest mortality was observed in patients with breathlessness on exertion.

Table 6: Distribution based on Systolic Blood Pressure

Systolic BP(mmHg)	No of cases	Mortality	Morbidity
110-130	25	0 (0%)	13 (52%)
100-109	29	7 (24.1%)	26 (89.7%)
90-99	4	3 (75%)	4 (100%)
p-Value		0.0004	0.00330

Result (p< 0.05)	Significant	Significant

In the present study, patients with systolic blood pressure between 90-99 mm Hg had the highest risk of mortality (75 %) and morbidity (100%). No patient died with systolic blood pressure between 110-130 mm Hg.

Table 7: Distribution based on Heart rate

Heart Rate(beats/min)	No of cases	Mortality	Morbidity
50-80	2	0 (0%)	0 (0%)
80-100	18	3 (16.7%)	11 (61.1%)
101-120	33	5 (15.2%)	27 (81.8%)
>121	5	2 (40%)	5 (100%)
p-Value		0.5055	0.50550
Result (p< 0.05)		Insignificant	Insignificant

Thirty-three patients were included in the group of heart rate 101-120, with five deaths (15.2%) .two out of five patients (40%) with a heart rate over 120 beats /minute had died. P-value was insignificant for both mortality and morbidity.

Table 8: Distribution based on Glasgow coma scale

GCS	No of cases	Mortality	Morbidity
15	57	9 (15.8%)	42 (73.7%)
12-14	1	1 (100%)	1 (100%)
p-Value		0.027103	0.00001
Result (p< 0.05)		Significant	Significant

Except for one remaining, all patientshad a Glasgow coma score of 15 .remaining one patient with a Glasgow coma scale of 12 had died with sepsis.

Table 9: Distribution based on Hemoglobin

Hb g/dL	No of cases	Mortality	Morbidity
13-16	17	0 (0%)	10 (58.8%)
11.5-12.9	17	5 (29.4%)	14 (82.4%)
10-11.4	20	3 (15%)	15 (75%)
<9.9	4	2 (50%)	4 (100%)
p-Value		0.0387	0.03869
Result (P < 0.05)		Significant	Significant

20 patients have hemoglobin between 10-11.4g/dL with 3 deaths (15%) and 17 patients with hemoglobin between 11.5-12.9 g/dL with 5 deaths (29.4%).all patients with hemoglobin <9.9 g/dL developed postoperative complications.

Table 10: Distribution based on White Blood Count

WBC *10/L	No of cases	Mortality	Morbidity
4-10	3	0 (0%)	0 (0%)
10.1-20	45	8 (17.8%)	34 (75.6%)
>20.1	10	2 (20%)	9 (90%)

International Journal Dental and Medical Sciences Research
Volume 3, Issue 6, Nov-Dec 2021 pp 566-571 www.ijdmsrjournal.com ISSN: 2582-6018

p-Value	0.7091	0.00688
Result (p< 0.05)	Insignificant	Significant

Most of the patients (45) have white blood cell count between 10.1-20 *10 $^{12/L,}$ with eight deaths (17.8%). Patients with normal counts have no fatalities and post-operative complications. P-value is statistically insignificant for mortality

Table 11: Distribution based on blood urea nitrogen

UREA NITROGEN mmol/L	No of cases	Mortality	Morbidity
<7.5	10	0 (0%)	4 (40%)
7.6-10	25	1 (4%)	19 (76%)
10.1-15	22	8 (36.4%)	19 (86.4%)
>15	1	1 (100%)	1 (100%)
p-Value		0.0014	0.00137
Result (p< 0.05)		Significant	Significant

A total of 48 patients were with elevated blood urea levels and accounted for all the ten deaths. Most deaths (8) belonged to blood urea levels with 10.1-15 mmol/Lp-value is statistically signifi

Most of the cases(35) have mild hyponatremia, with four deaths (11.4%) and 11 patients having moderate hyponatremia (11) with six deaths (54.5%).Our study comprised of 11 patients with moderate hypokalemia with six deaths (54.5%) and ten developed postoperative complications.

Table 14: Distribution based on Electrocardiogram

ECG	No of cases	Mortality	Morbidity
Normal	50	4 (8%)	35 (70%)
AF	6	4 (66.7%)	6 (100%)
Other changes	2	2 (100%)	2 (100%)
P-Value		0.0000	0.19818
Result (P < 0.5)		Significant	Significant

There were 8 cases with electrocardiographic abnormalities, and six patients died. Abnormal ECG findings were associated with the adverse outcome the association was statistically significant.

IV. DISCUSSION

Primarily, the mortalityand the morbidityratedependon the generalstatusof the patientand the durationofdiseaseevolutionbeforesurgicaltreatment. That is why it is soimportanttoprovideadequatepreoperativemanage mentassociatingaggressiveresuscitation with antibiotictherapy. (3,11,12) This study has been undertaken in ordertocontributeto the improvement in the knowledgeofprognosticfactorsof this disease. Mostof the patients in our study belongedtoless than 60 year age group, which is alsosameasother studies, while Aziz. (14) andAjaoreportedsecondand third decadesof life in their studies.

All the patientspresentedto the hospital with historyofpainabdomenandabdominaldistension. Othermajorcomplaintsinvolvedare fever, vomiting, diarrhoeaandconstipation. Mostpatientspresented with features suggestive ofperitonitis. Examinationrevealed tenderness, guarding, distensionandintraperitoneal free fluid; 4patients were in shockonadmission.

Examinationrevealed signs oftoxaemiaandacuteabdomen.
The need foradequateresuscitation resulted in further delaybeforeoperation in someofourpatientswhohadpresented in a poorstate, whichwasalsofoundtoaffect the outcomeadversely.

Single perforationwasassociated with less complications. Multipleperforations were associated with more severe complications like wounddehiscenceandincreasedmortalitytreated with resectionanastomosis. In our study, septicaemiawasfound in 10(20%) patients. Overwhelmingsepticaemiawas the majorcauseofmortality in this study. Overallmortalityratewas 12%, which is less comparabletoother studies as 28% reported by AdesunkanmiandAjao. (12,13) 16.4% by Talwar. (3) and 13.8% by Aziz. (14) and 48% by Ameh
Survivorsofperforation were faced with variouspostoperativecomplications, suchaswoundinfectionandwounddehiscence with prolongedhospitalizationandincreasedcostofmanagement. The overallwoundinfectionwasobserved in 18%. In the literaturewoundinfectionhad been observed 33-100%. (4,5)
Mechanicalcausesandmalignancyare the commonestcausesofsmallbowelperforation in the western world. Mechanicalcausesandlymphomasaccountedfor 40.7% ofperforations in the series by Dixon. (15) Malignancywas the commonestcause in the series by Orringer. (16) There was a malepreponderance with the male:femaleratio in this study being 4:1. Chest X-ray is a useful investigationtodetecthollowviscusperforation. Free gaswas seen under the diaphragm in almostallofperforations. Abdominal X-rayrevealedgasfeatures suggestive of ileus. Pneumoperitoneumhas been reported in 52% to 82% in studies by Hadley, Archampong, TacyildizandVaidyanathan. (17,18,19,20)

The commoncomplications were woundinfection, wounddehiscenceandrespiratorycomplicationwhich wascompared with publishedreports. (17,21,22,23) Faecalfistulawas seen in onlyonepatient. The surgicalprocedure did notinfluence either the morbidityor the mortality in patientsirrespectiveofaetiology. Resectionanastomosiswasfoundtohave a higher complicationrate, but this wasnotstatisticallysignificant.
Egglestonreportedthat the proceduredone did notinfluenceoutcome. (16) TalwarandSharmareportedthatmortalitywasleast with earlyprimaryclosure. Lagperiodhas been knowntoinfluencebothmortalityandmorbidity. Regressionanalysisshowedthat the mortalityandmorbidityincreased with increasinglagperiod.
Increasinglagperiodwasassociated with increasedmortality in series by Archampong, Eggleston, BoseandTalwar. (18,16,3,24)

V. SUMMARY AND CONCLUSIONS

This study wasconductedfromnovember 2018 to October 2020. It includes fifty threecasesofperitonitis due tohollowviscusperforation . Aetiology, presentation, managementandoutcomeofpatients with perforations were studied with emphasison the factorsthatinfluenced the prognosis. Typhoid fever is the mostcommoncauseofilealperforation. Age of the patient and vitals at the time of presentation had huge impact on theoutcome of patient.

REFERENCE

[1]. Agbakwuru EA, Adesunkanmi AR, Fadiora SO, et al. A review oftyphoidperforation in ruralAfricanhospital. West Afr J Med 2003;22(1):22-5.
[2]. Ugwu BT, Yiltok SJ, Kidmas AT, et al. Typhoidintestinalperforation in northcentralNigeria. West Afr J Med 2005;24(1):1-6.
[3]. Talwarr S, Sharmad A, Mittala IND, et al. Typhoidentericperforation. Aust N Z J Surg 1997;67(6):351-3.
[4]. Parry EHO. Typhoid fever. In principlesofmedicine in Africa. Edited by: Parry EHO. Oxford: Oxford university press, 1984;2 ed:268-76.
[5]. Ajao 0G. Typhoidperforation: factorsaffectingmortalityandmorbidity. IntSurg 1982;67(4):317-9.
[6]. Carmeli Y, Raz R, Scharpiro JM. Typhoid fever in ethiopianimmigrantstoIsraelandnative-bornIsraelis: a comparative study. ClinInf Dis 1993;16(2):213-5.
[7]. Chang YT, Lin JY. Typhoidcolonicperforation in childhood: a ten yearexperience. World J Surg 2006;30(2):242-7.
[8]. Otegbayo JA, Daramola OO, Onyegbatulem HC, et al. Retrospectiveanalysisoftyphoid fever in a

tropicaltertiaryhealthfacility. TropGastroenterol 2002;23(1):9-12.
[9]. Edino ST, Yakubu AA, Mohammed AZ, et al. Prognosticfactors in typhoidilealperforation: a pro
[10]. Replace
[11]. Koume J, Kouadio L, Turquin HT. Typhoidilealperforation: surgicalexperienceof 64 cases. ActaChirBelg 2004;104(4):445-7.
[12]. Naorani M, Sial I, Pain V. Typhoidperforationofsmallbowel: a study of 72 cases. J R CollSurgEdinb 1997;42(4):274-6.
[13]. Foster EC, Lefor AT. Generalmanagementofgastrointestinalfistula s: recognition, stabilizationandcorrectionof fluid andelectrolyteimbalances. SurgClinNorthAm 1996;76(5):1019-33.
[14]. Adesunkanmi AR, Ajao OG. The prognosticfactors in typhoidilealperforation: a prospective study of 50 patients. J R CollSurgEdinb 1997;42(6):395-9.
[15]. Aziz M, Qadir A, Aziz M, et al. Prognosticfactors in typhoidperforation. JournCollPhysiciansSurgPak 2005;15(11):704-7.
[16]. Dixon JM, Lamusden AM, Piris J. Smallbowelperforation. Journalof the RoyalCollegeofSurgeonsof Edinburgh 1985;30(1):43-6.
[17]. Orringer RD, John A Coller, Veidenheimer MC. Spontaneous free perforationof the small intestine. DiseasesofColonRectum 1983;26(5):323-6.
[18]. Keenan JP, Hadley GP. The surgicalmanagementoftyphoidperforation in children. Br J Surg 1984;71(12):928-9.
[19]. Archampong EQ. Typhoidilealperforations: why suchmortalities? Br J Surg 1976;63(4):317-21.
[20]. Kaul BK. Operativemanagementoftyphoidperforation in children. IntSurg 1975;60(8):407-10.
[21]. Vaidyanathan S. Surgicalmanagementoftyphoidilealperforatio n. Ind J Surg 1986;335-41.
[22]. Santillana M. Surgicalcomplicationsoftyphoid fever: entericperforation. World J Surg 1991;15(2):170-5.
[23]. Donald E Meier, Obioha O, Imediegwu, et al. Perforatedtyphoid enteritis: operativeexperience with 108 cases. Am J Surg 1989;157(4):423-7.
[24]. Mock CN, Amaral J, Visser LE. Improvement in survivalfromtyphoidilealperforation results of 221 operativecases. AnnSurg 1992;215(3):244-9.
[25]. Billing A, Frolich D, Schildberg FW. Predictionofoutcome using manheimperitonitis index in 2003 patientsperitonitis study group. Br J Surg 1994;81(2):209-13.