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META-ANALYSIS ON ETIOPATHOGENESIS OF SMALL BOWEL OBSTRUCTION IN THE DEPARTMENT OF GEN. SURGERY P.M.C.H. & K.M.C.H., BIHAR

General Surgery

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ABSTRACT

Background: The small intestine is the longest and convoluted portion in the digestive tract. It starts from pylorus and ends at ileocaecal valve. The small bowel consists of three parts measuring about 5 to 6 meters. The first 25cm is the duodenum. Out of the rest part of small gut, jejunum constitute the proximal 2/5th and ileum distal 3/5$^{th.}$ The jejunum and ileum extend from the peritoneal fold that supports the duodeno-jejunal junction (Ligament of Treitz) down to ileocaecal valve.

Material and Methods: All the patients admitted to PMCH, Patna and KMC, Katihar as intestinal obstruction was included for the study. The time period of study was from October 2014 to November 2016 in PMCH and December 2016 to January 2019 in KMC, Katihar. Out of all Intestinal obstruction 59 cases only of adult small gut obstruction were recorded for comparison and conclusive study.**Conclusion:** Small bowel obstruction remains a frequently encountered problem in abdominal surgery. Although modern day surgical management continues to focus appropriately on avoiding delayed operation, whatever surgery is indicated, not every patient is always best served by immediate operation.

KEYWORDS

Intestinal Obstruction, Peristalsis, Common Surgery Emergrncy.

INTRODUCTION

The small intestine is the longest and convoluted portion in the digestive tract. It starts from pylorus and ends at ileocaecal valve. The small bowel consists of three parts measuring about 5 to 6 meters. The first 25cm is the duodenum. Out of the rest part of small gut, jejunum constitute the proximal 2/5th and ileum distal 3/5$^{th.}$ The jejunum and ileum extend from the peritoneal fold that supports the duodeno-jejunal junction (Ligament of Treitz) down to ileocaecal valve. Small bowel obstruction has always been a serious problem to the surgeons all over the world. It is defined as obstruction in the intestine either due to mechanical or neurological cause. It affects from birth to the last decade of life, being with multifactorial of aetiology. The recent studies reported a considerable change in the pattern of intestinal obstruction. In the paediatric age group, the congenital defects like atresia, stenosis, meconium ileus, aganglionic megacolon are the common causes, but in adult's life postoperative adhesions are the most common cause of mechanical SBO which cause extrinsic compression of the intestine. Malignant tumors or strictures of the small bowel can cause intrinsic blockage and are the second leading cause of SBO. Hernias cause extrinsic compression and are the third most common cause of SBO. Intussusception, volvulus, Crohn's disease, and gallstones (gallstone ileus) account for only a small percentage of cases. Intestinal obstruction accounts for approximately 5% all acute surgical admissions. In India in 1978, volvulus was the commonest cause as reported by R. Debnath whereas C.S Ramchandran, K.P. Rao showed bands and adhesion to be the commonest in 1982. P.B Chakravarty et al reported strangulated hernia to be the commonest cause in the same 1982 in Orissa. Mortality and morbidity are dependent on the early recognition and correct diagnosis of obstruction. If untreated strangulated obstructions cause death in 100% of patients. If surgery is performed within 36 hours, the mortality rate decreases to 8%. The mortality rate is 25% if the surgery is postponed beyond 36 hours in these patients. Some factors associated with death and postoperative complications include age, co-morbidity, and treatment delay. According to one Norwegian group, morbidity and mortality decreased from 1961 to 1995.

AIMS AND OBJECTIVE :

1. To study different types of etiopathogenesis of small bowel obstruction.
2. To study various clinical presentation in small bowel obstruction.

Review of literature :

In small gut obstruction principal loss is ingested liquid. The other main losses are; sodium, potassium and red blood cell, plasma in case of strangulation. The water is lost by (1) vomiting (2) cessation of further dietary intake, (3) the loss into the lumen of intestine proximal to the obstruction (4) area of absorptive mucosa distal to obstruction is unavailable for absorption (5) increase loss of fluid and electrolyte the into the lumen across the wall and marked reduction from the lumen to tissue spaces(6) in strangulation case exudation occurs into damaged segment of bowel and from serosal aspect and finally (7) in strangulation there is loss of frank blood or plasma from affected segment. From the above factors, there may be several litres of valuable extra cellular fluid from the body which may reflect the signs of peripheral circulatory failure leading to oligemic shock. There occurs absorption of toxins from gram negative organisms in the damaged bowel in strangulated obstruction. So there occurs a feature of septicemia and toxemia. If the obstruction remains unrelieved there is a high risk of the damaged segment to undergo complete necrosis with free escape of contaminated intestinal content into peritoneum leading to fecal peritonitis.

SMALL INTESTINAL OBSTRUCTION:

Small intestinal obstruction is classified according to ages.

1. Intestinal obstruction in paediatric age group.
2. Intestinal obstruction in adult group.

INTESTIONAL OBSTRUCTION IN ADULTS

Intestinal obstruction is a common surgical emergency in all age groups including adults. Because of its serious nature it demands early diagnosis and prompt management so as to get an early and speedy relief.

CLASSIFICATION:

Intestinal obstruction is classified into two types.

Mechanical

Neurogenic.

INCIDENCE:-

Age and sex:-

Intestinal obstruction is comparatively rare in children and young adults but the incidence rises in middle age group and reaches a plateau in those over 50 years of age. **Adolf M.Lo MD. Willian E. Evans M.D Larry C. Carey M.D 1966** reviewed 150 cases of intestinal obstruction and found that 59% were over the age of 60] 33.3% were within 70-80 years of age. **Herman Playforth (1970)** reported that 70% patients were above 40 years of age and 40% were 60 years or older. **C. Ramachandran (1982)** reported in this series that adhesion was the 1st, Volvulus 2nd and inguinal hernia the 3rd cause of intestinal obstruction. He also found tuberculosis (8.6%) and malignancy (9.3%) as causes of intestinal obstruction in his series.

MATERIAL AND METHODS

All the patients admitted to PMCH, Patna and KMC, Katihar as intestinal obstruction was included for the study. The time period of study was from October 2014 to November 2016 in PMCH and December 2016 to January 2019 in KMC, Katihar. Out of all Intestinal obstruction 59 cases only of adult small gut obstruction were recorded for comparison and conclusive study. The Diagnosis was established on symptomatology, clinical manifestations supported by radiological evidences. The difficult suspected cases were finally diagnosed by laparotomy.

METHODS:

Detailed history taking and thorough clinical examination were done for all patients admitted as intestinal obstruction. All were subjected to plain abdominal x-ray on erect posture.

I. GENERAL PHYSICAL EXAMINATION

Body built nutrition, tongue, anemia jaundice, clubbing edema feet, pulse, B.P, Respiration rate, temperature, presence or absence of generalized lymphadenopathy.

II. LOCAL EXAMINATION OF ABDOMEN

Inspection, Palpation, Percussion, Auscultation, P.R. Examination

III. SYSTEMIC EXAMINATION

IV. INVESTIGATION : Blood investigation, radiological investigation were done.

OBSERVATION

The time period for the observation of this study was from October 2014 to November 2016 in PMCH, Patna and December 2016 to January 2019 in KMC, Katihar. During this period 141 adult patients of intestinal obstruction were admitted to Patna Medical College and Hospital, Patna (80) and Katihar Medical College, Katihar (61) Out of which 59 were with small gut obstruction (41.84%). Different observations were made in these 59 patients.

ADULTS INTESTINAL OBSTRUCTION

The adult small gut obstructions were found to be 59 out of which 35 were males and 24 females making the M.F ratio to be 1.6:1.

AGE AND SEX INCIDENCE

The age range for the study was taken from 15 years to 80 years. 41 to 50 years of age was found to be more vulnerable (24.42%) for small get obstruction and 61 to 70 years group was the second in order (18.64%). But in old age (70+) incidence was very low (1.69%) and also in 15 to 21 years of age group it was only 5.08%. So the incidence was highest in the 4th decade.

SEX AND AGE INCIDENCE

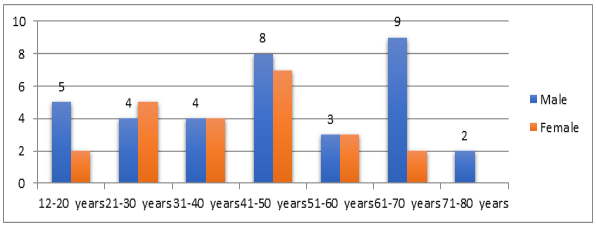

Table-b Aetiological Factors

Etiology	No of cases	Percentage
Bands & adhesions	26	44.06
Hernia	16	27.12
Volvulus	4	6.77
Tuberculosis	4	6.77
Malignancy	3	5.08
Paralytic Ileus	3	5.08
Intussusception	2	3.38
Unknown	1	1.69
Total	59	100.0

Bands and adhesions as a cause was the commonest (44.06%) whereas intussusceptions was the rarest detected in 2 cases only (3.38%) Hernia was seen to be the second common cause (27.12%) but others like volvulus, tuberculosis, malignancy were found in small numbers. In one case etiology was unknown and so managed conservatively with success.

Table-c This Table Shows The Clinical Presentation

Clinical features	No of cases	Percentage
Pain abdomen	51	86.44
Vomiting	50	84.74
Constipation of abdomen	53	89.83
Increased bowel sounds	50	84.74
Tenderness	41	69.49
Dehydration	40	67.79
Rigidity	25	42.37
Ballooning on D.R. Exam.	14	23.72
Visible peristalsis	13	22.03

Distension of abdomen, Pain abdomen, vomiting and increased bowel sound were the common clinical features found in 89.83%, 86.44%, 84.74%, and 84.74% of cases respectively. The less common clinical findings were visible peristalsis (22.03%) and ballooning on DRE 23.72%. Other features like constipation tenderness, dehydration and rigidity also found in more than half patients being 81.35%, 69.49%, 67.79%, 42.37% in order.

DISCUSSION

Out of 141 patients of intestinal obstruction cases 59 patients are found to be small gut obstruction (41.84%) in my study.

AGE AND SEX INCIDENCE

In this study the adult small gut obstruction were found to be 59 out of which 35 were males and 24 females making the M:F ratio to be 1.6:1 which is comparable to M.F Ratio 2:1 in the study of **C. Ramchandran (1982)**

In adults 2nd and 4th decades were the vulnerable age groups with the incidence of 15.52% and 24.42% respectively. This incidence is found to be similar with the age incidence of **Brooks and Butler**(30-50 years) series.

CLINICAL FEATURES: Symptoms in adults like pain, vomiting constipation (86.44%, 84.74, and 81.35%) were similar to those of **Budharaj (1976), Belokar (1978)** study. The other study like distension increased bowel sounds tenderness, dehydration, multiple fluid level on plain x-ray abdomen, ballooning of rectum, were similar to finding of **R.K. Gandhi (1970) and Beloker (1978) series**

AETIOLOGY:

In the adults age group bands and adhesions were found to be the common cause (44.06). This is similar to reported of **Gill and Eggleaton 1965(44%)** of India. The second cause hernia (27.12%) was similar to study of **Bllis (1962) (23%), Meentec at al (1986) (25) and Gill Eggleston 1965 (27%).** The obstruction due to tuberculosis and volvulus each being 6.77% was comparable with the study of **C. Ramchandran (1982)** Here all were hypertrophic varieties having multiple enlarged lymph nodes. This reports seems like the report of **Vicky R.J (1932) and Wangesteen (1955)**

Summary Fifty nine cases of small intestinal obstruction were admitted and treated in the surgical ward of Patna Medical College & Hospital, Patna were studied. The percentage of small gut obstruction was found to be 41.8% with the male and female ratio being 1.6:1

1. 59 cases of small gut obstruction were studied. The percentage of incidence among intestinal obstruction being 41.84% with male, female ration 1.6:1
2. Maximum incidence occurred in 4th decade of life.
3. Common clinical features were, vomiting constipation distension, increased bowel sound, dehydration, multiple fluid level with gas shadows on plain x-ray abdomen.
4. Bands adhesion, hernia were common causes of small gut obstruction.
5. 58 cases managed surgically and 4 conservatively.

CONCLUSION

Small bowel obstruction remains a frequently encountered problem in abdominal surgery. Although modern day surgical management continues to focus appropriately on avoiding delayed operation, whatever surgery is indicated, not every patient is always best served by immediate operation. Certain entities such as SBO secondary to incarcerated abdominal wall hernia and patients with clinical signs and symptoms suggestive of strangulation do require prompt intervention. Other conditions, however such as post –operative adhesions,

particulars in patients with numerous previous abdominal procedures concomitant medical problem or incomplete or partial obstruction, often justifiable benefit by a trial of conservative management. This risk of strangulation with adhesive and neoplastic SBO is relatively low as compared with incarcerated hernia. Close and careful evaluation in conjugation with laboratory and radiologic studies will usually dictate the proper course of management in any given case. If any uncertainty exists prompt operative intervention is indicated.

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