

Original Research Article

To Assess to the Role of Preoperative Bilateral Intra-Abdominal Drain In The Management of Abdominal Compartment Syndrome in Cases of Perforation Peritonitis.

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Abstract:

Background &Method: The aim of this study is to assess to the role of preoperative bilateral intra-abdominal drain in the management of Abdominal Compartment Syndrome in cases of perforation peritonitis.Study of role of pre-operative bilateral intra-abdominal drain in the management of abdominal compartment syndrome in cases of perforation peritonitis. All the patients will be evaluated before and after the bilateral drain placement and after definitive surgery.

Result:In the present study, Mean pulse rate settled down to 124.09; Mean arterial pressure (MAP) raised from 68.69 mm of Hg. Mean respiratory rate settled down from 26.1 per min; Mean abdominal girth decreased from 102.86 cms; Mean IAP decreased from 25.57 mm of Hg; Mean value of urine output increased from 22.79 ml in study group.

Conclusion:Abdominal compartment syndrome is a well-recognized disease entity related to acutely increase intra-abdominal pressure but its management is uncertain. Patients of ACS are usually critically ill, many land up with unrecordable pulse and blood pressure with deranged haematological and renal functions. Providing anaesthesia for such critically ill patients undergoing decompressive laparotomy is extremely challenging and usually further delays the definitive surgery. There has been significant improvement of vitals after percutaneous abdominal drains placement prior to definitive surgery in study group.

Keywords:intra-abdominal,abdominal, perforation &peritonitis.

Study Designed:Observational Study.

1. INTRODUCTION

Compartment syndrome occurs when the pressure within a closed anatomic space (a compartment) becomes so elevated that capillary perfusion is compromised and tissue ischemia develops. Compartment syndromes are classically thought of as complications associated with orthopaedic trauma, occurring when muscular compartments of extremities develop elevated pressures requiring decompressive fasciotomies[1&2]. However, any closed anatomic space, including the abdominal cavity, is at risk of developing a compartment

syndrome. Abdominal compartment syndrome is a clinical disease spectrum that results from elevated intra-abdominal pressure (IAP) due to tissue edema or free fluid collecting in the abdominal cavity[3]. Elevated pressure in the abdomen is referred to as intra-abdominal hypertension (IAH) while the end stage organ failure that occurs due to the pathophysiologic derangements that occur as a result of increasing intra-abdominal pressure is referred to as the abdominal compartment syndrome (ACS). This clinical spectrum dramatically impacts patient outcome: The end result of undetected and untreated intra-abdominal hypertension is multisystem organ failure and patient death[4&5].

The primary pathophysiologic event leading to intra-abdominal hypertension and the abdominal compartment syndrome (IAH/ACS) is interstitial edema in the bowel and mesentery due to capillary endothelial damage. This capillary endothelial damage occurs due to ischemia from the original physiologic insult (sepsis, hemorrhage, etc) and due to secondary damage from the pro-inflammatory cytokines released in response to this insult. Many liters of interstitial fluid can accumulate within the intra-abdominal compartment via this mechanism[6].

2. MATERIAL & METHOD

The study is designed as a Prospective and comparative Study of role of pre-operative bilateral intra-abdominal drain in the management of abdominal compartment syndrome in cases of perforation peritonitis. All the patients will be evaluated before and after the bilateral drain placement and after definitive surgery.

IAP can be measured by direct or indirect methods. Though the direct methods are quite accurate over all ranges of IAP, it is impractical and not feasible for routine practice. Indirect pressure measurement is done through Inferior Vena cava, gastric, rectal and Urinary Bladder. However, the simplest and the method of choice is transurethral measurement of UBP using a Foley's catheter. The bladder is drained and then it is filled with 25 ml of normal saline. This saline in the bladder acts as a passive diaphragm for pressure transmission.

Patient's selections criteria

Patients of perforation of peritonitis with:

1. Abdominal distension
2. Intra-abdominal pressure > 20 mmHg
3. Oliguria (not responding to volume repletion).

3. RESULTS

TABLE NO-1:SHOWING SEX DISTRIBUTION

S.NO	SEX	WITH DRAIN	WITH OUT DRAIN	TOTAL
1	MALE	41	39	80
2	FEMALE	09	11	20
	TOTAL	50	50	100

Inference: In the present study male : female ratio was 4:1.

TABLE NO-2: SHOWING LABORATORY INVESTIGATION IN STUDY GROUP

S.No.	PARAMETER	mean
1	HB(gm%)	12.125
2	BUN(mgm%)	87.925
3	S. CREAT(mgm%)	1.918
4	TLC(per cu mm)	8899

TABLE NO-3: SHOWING VITALS IN STUDY GROUP AND CONTROL GROUP AT THE TIME OF PRESENTATION(mean value)

S.NO	PARAMETER	WITH DRAIN	WITH OUT DRAIN
1	PULSE(per min)	124.17	118.36
2	MAP(mm of Hg)	66.03	69.61
3	R.RATE(per min)	25.89	26.4
4	A.GIRTH(cms)	102.22	103.57
5	IAP(mm of Hg)	26.425	23.47
6	U. OUTPUT(ml)	21.57	39

TABLE NO-4: SHOWING VITALS BEFORE PLACEMENT OF INTRAABDOMINAL DRAINS IN STUDY GROUP (Mean value)

PARAMETER	BEFORE DRAIN
	AT PRESENTATION
PULSE(per min)	124.09
MAP(mm of Hg)	68.69
R.RATE(per min)	26.1
A.GIRTH (cms)	102.86
IAP(mm of Hg)	25.57
U. OUTPUT(ml)	22.79

In the present study, Mean pulse rate settled down to 124.09; Mean arterial pressure (MAP) raised from 68.69 mm of Hg. Mean respiratory rate settled down from 26.1 per min; Mean abdominal girth decreased from 102.86cms; Mean IAP decreased from 25.57 mm of Hg; Mean value of urine output increased from 22.79 ml in study group.

4. DISCUSSION

The purpose of present study was to assess the outcome of abdominal decompression in the comprehensive management of ACS. The patients were randomly divided into study and control groups based on preoperative drain mediated decompression versus immediate decompressive laparotomy respectively and outcome in terms of improvement in vitals viz pulse rate, mean arterial pressure, respiratory rate, intraabdominal pressure, and urine output were assessed in the two groups under study[7]. The patients were also assessed in terms of morbidity (vasopressor support, postoperative complications, ICU stay and total hospital stay) and mortality(deaths) in the two groups. This is the first study of its type comparing these two treatment options exclusively in perforation peritonitis patients[8].

A study compares percutaneous decompression with decompressive laparotomy in abdominal compartment syndrome in thermal injury patients and found that fluid collection in abdomen are amenable percutaneous with substantial reduction of IAP. (Aggressive surveillance and early catheter directed therapy in the prevention of abdominal compartment syndrome in Trauma patients, 2005) were able to reduce IAP by 6 mm of Hg and increased abdominal perfusion pressure by 16 mm of Hg and MAP by 10 mm of Hg within 30 min of catheter placement in patients whose IAP crossed the 20 mm of Hg. Survival was 75% in whom intervention was done early [9].

4. CONCLUSION

Abdominal compartment syndrome is a well-recognized disease entity related to acutely increase intra-abdominal pressure but its management is uncertain. Patients of ACS are usually critically ill, many land up with unrecordable pulse and blood pressure with deranged haematological and renal functions. Providing anaesthesia for such critically ill patients undergoing decompressive laparotomy is extremely challenging and usually further delays the definitive surgery. There has been significant improvement of vitals after percutaneous abdominal drains placement prior to definitive surgery in study group.

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