



## OBSERVATIONAL STUDY OF INTRAABDOMINAL PRESSURE IN PREGNANT WOMEN POSTED FOR ELECTIVE CESAREAN SECTION

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**ABSTRACT** **BACKGROUND:** Till date, little is known about normal values of IAP during pregnancy, either in healthy or complicated pregnancies. In 1913, Paramore was the first to investigate IAP during pregnancy. **MATERIAL AND METHODS:** The study population consisted of 100 term parturients, ASA grade I and II, aged 20-40 years scheduled for elective lower segment caesarean section under SAB. Foley's catheter was inserted in all patients pre-operatively under sterile technique. IAP measurements were recorded using intra-bladder pressure measurement. Mid axillary line at the level of iliac crest was taken as zero reference point, in supine position. **RESULTS:** In the present study, IAP was physiologically normal in 27% of patients, Degree I of intra-abdominal hypertension [IAH] was observed in 55% of patients and Degree II of IAH was observed in 18% of patients.

### KEYWORDS :

#### INTRODUCTION:

IAP was defined in 2006 by the World Society of Abdominal Compartment Syndrome consensus definition as the steady state pressure concealed within the abdominal cavity. In general, a normal IAP varies from sub-atmospheric values to 7 mmHg in normal-weight individuals, with higher baseline levels in morbidly obese patients of about 9 to 14 mmHg. Intra-abdominal hypertension (IAH) is defined as a sustained increase in IAP  $\geq 12$  mmHg and abdominal compartment syndrome (ACS) is defined as IAP  $> 20$  mmHg with new onset end organ failure.<sup>1,2</sup> Till date, little is known about normal values of IAP during pregnancy, either in healthy or complicated pregnancies. In 1913, Paramore was the first to investigate IAP during pregnancy.<sup>3</sup> There are few studies regarding normal value of IAP in pregnancy.

#### MATERIAL AND METHODS:

One hundred patients fulfilling our inclusion criteria were included in the study.

#### Inclusion Criteria

1. Patients of age between 20-40 years
2. Lying between pre pregnancy BMI group of 18.5 – 22.9
3. Period of gestation between 37- 40 weeks
4. ASA physical status I, II
5. Hemodynamically stable patients
6. Scheduled for LSCS under subarachnoid block
7. Weight gain in pregnancy 10-15 kg

#### Exclusion Criteria

The following classes of patients were excluded from the study

1. Patients having any history of cardiovascular, renal, hepatic, respiratory, endocrine and neuromuscular disorder.
2. Patients having epilepsy, neurological and psychiatric disorders.
3. Patients having bleeding or coagulation disorders.
4. Patients with known allergy to bupivacaine
5. Polyhydramnios, Pregnancy Induced Hypertension, Eclampsia or Pre-eclampsia, multiple gestation, premature rupture of membranes and acute foetal distress.
6. Regional anaesthesia converted into general anaesthesia
7. Patient's refusal for intervention
8. Patients with height  $< 150$  cm or  $> 160$  cm
9. Patients with incomplete or partial block after SAB

Foley's catheter was inserted in all patients pre-operatively under sterile technique. IAP measurements were recorded using intra-bladder pressure measurement. IBP was measured using Foley's manometer. This technique uses patient's own urine as pressure transmitting medium and presents a closed sterile circuit between patient's Foley's catheter and manometer using high pressure tubing. Mid axillary line at the level of iliac crest was taken as zero reference point. While measuring IBP, tone of abdominal muscles was evaluated by palpation to ensure absence of straining or spontaneous uterine contractions, patient was asked to hold breathing at the end of

expiration and corresponding end expiration value of IBP was registered when meniscus has stabilised after about 10 seconds.

All readings were then converted into millimetre of mercury values by multiplying with conversion factor of 0.73 [1 cm of H<sub>2</sub>O = 0.73 mmHg].

Corresponding IBP values were then recorded as the IAP values (in mmHg).

#### OBSERVATIONS:

**Table 1: General characteristics**

	Mean $\pm$ SD
Age (Years)	30.2 $\pm$ 5.67
Weight (Kg)	57.41 $\pm$ 4.03
Pre-gestational BMI (Kg/m <sup>2</sup> )	21.0 $\pm$ 1.14
Pre-incision IAP (mmHg)	13.59 $\pm$ 1.96

#### Intra-abdominal pressure (IAP)

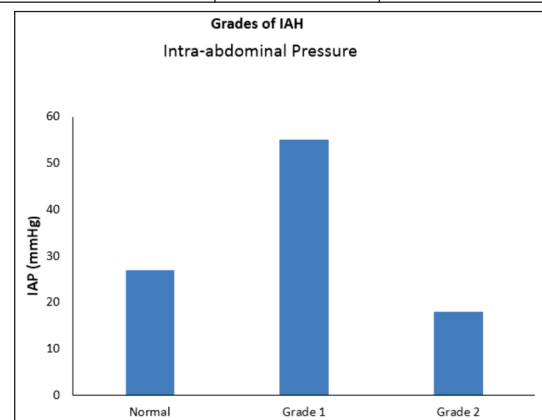
In the present study, IAP was less than 11 mmHg (physiologically normal) in 27% of patients.

Degree I of intra-abdominal hypertension [IAH] (12-15 mm Hg) was observed in 55% of patients.

Degree II of IAH (16-20 mmHg) was observed in 18% of patients.

**Table 2: Intra-abdominal pressure**

	n	%
Normal	27	27%
Grade I	55	55%
Grade II	18	18%



**Figure 1: Intra-abdominal pressure**

- IAP was observed to be less than 11 mmHg (physiologically normal) in 27% of patients, from 12 to 15 mmHg (degree I of intra-abdominal hypertension) in 55% of patients and from 16 to 20 mmHg (degree II of intra-abdominal hypertension) in 18% of patients.

#### **CONCLUSION:**

Intra-abdominal pressure (IAP) is an important parameter in the surveillance of critical patients, but when it comes to pregnancy few studies are available. During critical illness in pregnancy, little importance is given to the possible impact of intra-abdominal pressure (IAP) and intra-abdominal hypertension (IAH) on such conditions. There are few studies in literature that studied the relationship of IAP with preeclampsia and supine hypotension. Further studies are needed to find out the IAP in different trimesters of pregnancy and its relationship with diseases like preeclampsia and supine hypotension syndrome.

#### **REFERENCES**

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