



Evaluation Of The Effect Of Different Pneumoperitoneum Pressures Used During Laparoscopic Cholecystectomy On Serum Levels Of Transaminases And GGT: A Prospective Study.

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BACKGROUND AND AIMS

The introduction of laparoscopic cholecystectomy (LC) has revolutionized the treatment of gallstones. Both hepatic and gastric microcirculation fell significantly with a pneumoperitoneum of 12 mmHg, indicating splanchnic ischemia.

- The aim of present study was to evaluate the changes in liver function tests (LFTs) after (LC) at different pressure pneumoperitoneum and to know its applicability.

MATERIALS & METHODS

- The present study was conducted at Kafrelsheikh University hospital, Egypt. Patients with cholelithiasis were included in this study from June 2018 to June 2019,
- patients were randomly allocated into two groups (I and II) using sealed envelope technique. Group I for whom LC was performed at 10 mmHg pneumoperitoneum and at 14 mmHg pneumoperitoneum for group II patients.
- Inclusion criteria:
All patients having cholelithiasis aged 20 to 75 years of age who were recruited from the outpatient clinic of general surgery department at Kafr Elshiekh University.
- Exclusion criteria:
Patients who were diagnosed during pregnancy, patients having common bile duct (CBD) stones and those having high levels of enzymes before operation were excluded.

- Preoperative workup:

All patients were subjected to medical history taking, thorough physical examination and laboratory investigations as liver function tests (ALT, AST, Bilirubin, GGT) ,Two blood samples were taken, preoperatively and 24 hours after surgery for comparison of the enzyme level alterations. Biochemical analyses for enzymes were done using the same analyzer. The accepted normal values are; for AST, 5-40 U/L

RESULTS

Both the groups were comparable regarding patient's age, gender and BMI. There was no significant difference in the operative time between the two groups ($P>0.05$). Also, there was no significant difference between the two group as regards preoperative LFTs and GGT, no postoperative morbidity or mortality occurred in any of the patients.

All patients were hemodynamically stable during the operations. There was significant rise in the mean value of serum AST, ALT and GGT after 24 hours of surgery from the preoperative values. Furthermore, the rise of the serum levels of AST, ALT and GGT were significantly higher with higher pneumoperitoneum (group II) than with lower pressure group I ($P=0.05$, 0.04 and 0.03 respectively). They returned to normal value on the seventh day.

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	Group I (n=69)		Group II (n=72)			
Age (in years) mean (SD)	37.66(10.85)		40.54(11.16)			
Mean BMI(SD) (kg/m2)	27.11(3.32)		27.5±4.34			
Operative time (min) mean (SD)	66.8(8.6)		57.7(10.4)			
	Group I (n=69)		Group II (n=72)		z	P value
	Before	After	Before	After		
AST (IU/L) Mean (SD)	23.75(10.74)	41.93(25.74)	28.34(13.75)	50.12(25.26)	-10.3	<0.001
ALT (IU/L) Mean (SD)	23.2(13.42)	37.12(20.68)	26.47(11.93)	48.49(19.53)	-10.6	<0.001
GGT (IU/L) Mean (SD)	39.06(25.74)	49.1(30.36)	41.97(35.77)	63.79(39.23)	-13.254	<0.001

Mean surgeon's comfort level was calculated for all 4 parameters, that is, ease of insertion of ports, visibility, manipulation of instruments, and ease of dissection and found to be significantly better in the NPPLC group (Table 4). Except for minor leak in 1 patient in low-pressure group, no significant adverse event was observed. All the patients in either group resumed their normal activity by seventh day of follow-up.

CONCLUSIONS

The elevation of serum liver enzymes after laparoscopic cholecystectomy occurs due to transient decrease in splanchnic blood flow. Lower 10 mmHg pneumoperitoneum is less harmful and could be better adopted in practice than 14 mmHg pneumoperitoneum during LC without significant increase in the operative time.