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Letter to the Editor

Metabolic effects of carbon dioxide should be keep in mind when assessing cardiac contractile function during laparoscopic surgery

Dear Editor,

Laparoscopic surgery becomes more popular and is replacing many types of open surgeries in gynecology, urology and gastroenterology. The benefits of laparoscopic surgery are short recovery time, less pain and bleeding complications and reduced scarring[1]. Due to tecnological developments and its increasing usage, all laparoscopic surgery side effects should be known well. Pneumoperitoneum with carbon dioxide insufflation, which is mostly preferred, also needs special interests.

In their well written manuscript Russo et al[2] reported that carbon dioxide insufflation resulted with an increase in left ventricular end systolic wall stress and left ventricular ejection time and a decrease in mean velocity of fiber shortening. These cardiac effects are showed to be reversible.

CO_2 pneumoperitoneum exerts multiple cardiovascular effects through hypercarbia (secondarily leading to acidosis), simpatoadrenal stimulation (increasing both systemic vascular resistance and mean arterial pressure) and increased intraabdominal pressure (mechanically restricting lung functions, decreasing venous return)[3]. During cases of pronounced hypercarbia myocardial supression and direct vasodilation may occur. To take into account divergent mechanical and metabolic effects at different CO_2 pressures, serial blood CO_2 monitoring during surgery would render this study more precise.

In conclusion,CO_2 pneumoperitoneum have both mechanical and metabolic effects on cardiac contractile functions. When assessing cardiac effects of laparoscopic surgery metabolic effects of absorbed CO_2 on heart should be keep in mind.

Conflict of Interest

The Authors declare that they have no conflict of interests.

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