

## Haemodynamic and Analgesic Effects of Intraoperative Lignocaine Infusion in Day Care Laparoscopic Surgery

One of the common ambulatory surgeries is Laparoscopic cholecystectomy (LC). Pain remains a significant factor to delay postoperative recovery and discharge from the day-surgery unit, leading to unanticipated hospital admission<sup>1</sup>. Unfortunately, pain is not treated in one-half of such surgical procedures<sup>2,3</sup>.

Opioids play the vital role as mainstay for postoperative pain management in this patient population. However, opioids administration can exacerbate postoperative ileus and further delay patient recovery. Multimodal approaches and adjunctive therapies are thereby recommended for pain control after abdominal surgery, in order to reduce opioid consumption and opioid-related adverse effects.

To treat pain, intravenous lidocaine has been used perioperatively; it was associated with a significant opioid sparing effect, earlier return of bowel function, and shorter hospital stay after surgery<sup>4-10</sup>. Intravenous lidocaine infusion may attenuate IL-8, IL-6 and IL-1ra production and accelerate the recovery of bowel function following open abdominal surgery<sup>13-18</sup>. Though the mechanism analgesic efficacy of systemic lidocaine remains elusive, it has been believed that one of the main explanations is that effects mechanoinsensitive nociceptors<sup>7</sup>, which are believed to be involved in many types of tissue injury-induced hyperalgesia and inflammatory hyperalgesia. IL-6 induces peripheral and central nervous system sensitization, leading to hyperalgesia<sup>15</sup>. Aggregation of neutrophils and monocytes to inflammatory sites is accelerated by IL-8, which aggravates the inflammatory reaction. In addition, IL-8 has been considered as the first inflammatory mediator that induces sympathetic involvement in the sense of pain<sup>19</sup>. IL-1b induces long-lasting synthesis and the release of substance P from peripheral nerve terminals of primary afferent neurons, which may contribute to neurogenic inflammation plays and an important role in acute phase reactions. Generally, IL-1b is too low to be detected in plasma levels. IL-1ra is an assumed marker for the presence of IL-1b, which is more sensitive to minor immune changes<sup>20</sup>. IL-1ra

otherwise reflect non-detectable changes in IL-1b plasma levels. In both vitro and in vivo, Lidocaine's anti-inflammatory property can be reflected by the decrease in the upregulation of pro-inflammatory cytokines.<sup>4,21</sup>. However, the beneficial effects of perioperative intravenous lidocaine infusion for postoperative recovery after LC and the role of anti-inflammatory properties of lidocaine needed be further studied.

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