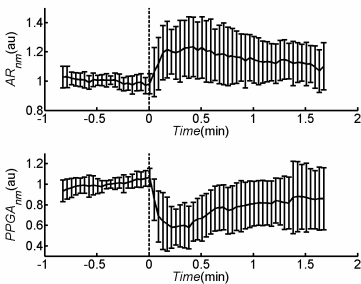


# Effect of Tracheal Intubation on the Morphology of Photoplethysmographic Pulse

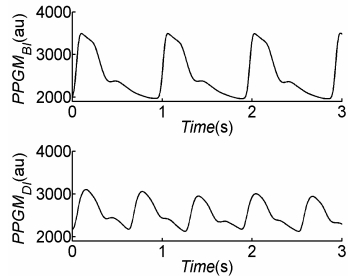
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Photoplethysmogram (PPG) of pulse wave has been proposed for analgesia monitoring recently with most attentions paid to its magnitude and little attention to its morphology. Therefore, effect of nociceptive stimuli on the morphology of PPG was studied using a morphological parameter named area ratio (*AR*). Fifty patients, ASA I or II, scheduled for laparoscopy surgery under general anaesthesia were enrolled. They were anaesthetized using propofol and remifentanyl, and their PPG signals were recorded. Tracheal intubation was used as nociceptive stimuli. Off-line analysis showed that the morphology of PPG was influenced by the intubation. The *AR* increased during intubation and returned to the initial level. Its distributions before intubation ( $0.687\pm 0.153$ ) and during intubation ( $0.862\pm 0.125$ ) were very highly significantly different ( $P<0.001$ ) according to the Wilcoxon signed rank test. The results indicated that the morphology of PPG could be influenced by stimuli and also had potential for analgesia monitoring as the magnitude of PPG.



Increase of AR



An example of initial PPG waveform before (BI) and during intubation (DI)