

## **A low peripheral perfusion index can accurately detect prolonged capillary refill time during general anesthesia: A prospective observational study**

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**Background:** Capillary refill time (CRT) is the gold standard for evaluating peripheral organ perfusion; however, intraoperative CRT measurement is rarely used because it cannot be conducted continuously, and it is difficult to perform during general anesthesia. The peripheral perfusion index (PI) is another noninvasive method for evaluating peripheral perfusion. The PI can easily and continuously evaluate peripheral perfusion and could be an alternative to CRT for use during general anesthesia. This study aimed to determine the cutoff PI value for low peripheral perfusion status (prolonged CRT) by exploring the relationship between CRT and the PI during general anesthesia.

**Methods:** We enrolled 127 surgical patients. CRT and the PI were measured in a hemodynamically stable state during general anesthesia. A CRT >3 s indicated a low perfusion status.

**Results:** Prolonged CRT was observed in 27 patients. The median PI values in the non-prolonged and prolonged CRT groups were 5.0 (3.3–7.9) and 1.5 (1.2–1.9), respectively. There was a strong negative correlation between the PI and CRT ( $r = -0.706$ ). The area under the receiver operating characteristic curve generated for the PI was 0.989 (95% confidence interval, 0.976–1.0). The cutoff PI value for detecting a prolonged CRT was 1.8.

**Conclusion:** A PI <1.8 could accurately predict a low perfusion status during general anesthesia in the operating room. A PI <1.8 could be used to alert the possibility of a low perfusion status in the operating room.