Usefulness of oxygen reserve index (ORi™), a new parameter of oxygenation reserve potential, for rapid sequence induction of general anesthesia.

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Yoshida K, Isosu T, Noji Y, Hasegawa M, Iseki Y, Oishi R, Imaizumi T, Sanbe N, Obara S, Murakawa M.

The oxygen reserve index (ORi™) is a new parameter for monitoring oxygen reserve noninvasively. The aim of this study was to examine the usefulness of ORi for rapid sequence induction (RSI). Twenty adult patients who were scheduled for surgical procedures under general anesthesia were enrolled. After attaching a sensor capable of measuring ORi, oxygen (6 L/min) and fentanyl (2 μg/kg) were administered. After 3 min, propofol 2 mg/kg and rocuronium 1 mg/kg were administered without ventilation. Regardless of changes in ORi, tracheal intubation was performed either 2 min after administration of propofol or when percutaneous oxygen saturation (SpO2) reached 98%. Ventilation was then provided with oxygen at 6 L/min, and trends in ORi and SpO2 during RSI were observed. Data from 16 of the 20 patients were analyzed. Before oxygen administration, the median SpO2 was 98% [interquartile range (IQR) 97-98] and ORi was 0.00 in all patients. At 3 min after starting oxygen administration, the median SpO2 was 100% (IQR 100-100) and the median ORi was 0.50 (IQR 0.42-0.57). There was an SpO2 decline of 1% or more from the peak value after propofol administration in 13 patients, and 32.5 s (IQR 18.8-51.3) before the SpO2 decrease, ORi began to decline in 10 of the 13 (77%) patients. The ORi trends enable us to predict oxygenation reduction approximately 30 s before SpO2 starts to decline. By monitoring ORi, the incidence related to hypoxemia during RSI could be reduced.