THE VALUE OF PULSE OXIMETRY IN ONE-LUNG VENTILATION

R. Frasatkish, E. Hydarpure, Gh. Mollasadeghi
Cardiac Auaesthesia Dept., Rajaii Ileart Center - Tehran - Iran

Background: Today frequent ABG measurments are replaced by pulse oximetry (PO) in patients who undergo thoracic surgery under on~lung ventilation (OLV). However, no study has yet been done to evaluate of PO in predicting the diagnosis of disturbances of SaO2, PaCO2 and arteriai pII in these patients. In this study efficiency of PO used as a sole monitor in patients undergoing OLV is evaluated and the results are compared by the results of ABG taken simultaneously.

Methods: In fifty patients who were underwent thoracic surgery, under OLV and were ventilated with a constant minute volume, AGB samples were taken while SpO2 was recorded simultaneously. The information obtained from statisticai evaluation of Sp 02, Sa()2, PaCO2 and arterial pII were used in evaluation of predicting pulse oximerty in diagnosing the disturbances in 5a02, PaCO2 and arterial pII.

Finding: The value of diagnostic test of PO (SpO2), when is compared to SaO2 has a moderate sensitivity <0.57), but high specificity (0.98). So that in 98 percent of cases when SpO2 is in the normai range, SaO2 is also normal. The value of diagnostic test of PO (SpO2) for evaluation the disturbances in PaCO2 and arterial pII has a very low sensitivity (0.12, 0.11) and thus is most cases when SpO2 is normai, the patients may be hypercapneic. On the other hand, this test has a high specificity (0.99, 0.93), that means, in most cases when SpO2 is abuormal, PaCO2 and arterial pH are also abnormal.

Conclusion: Generally in a patient who is under uncomplicated on-lung ventilation (OLV) for thoracic surgery ABG measurement can be
replaced by pulse oiimetiy ~0). Ilowever, normal SaO2 does not predict a normal PaCO2 aud arterial pII, and for correct management of these patients EtCO2 and or frequent ABG are necessary.

Key words: Pulse oximetry, one lung ventilation.