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## Combined Oximetry-Cutaneous Capnography in Patients Assessed for Long Term Oxygen Therapy.

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**Study Aim** To evaluate feasibility of combined oximetry (SpO<sub>2</sub>) and cutaneous capnography (P(tc)CO<sub>2</sub>) for oxygen titration in patients requiring long term oxygen therapy. **Methods** 20 patients with obstructive or restrictive lung disease underwent oxygen titration using a combined cutaneous oximetry-capnography sensor. Goal of titration was to achieve oxygen saturation >90% without a significant rise in carbon dioxide. SpO<sub>2</sub> and P(tc)CO<sub>2</sub> measurements at the end of titration were compared with blood gases using Bland-Altman analysis and linear regression analysis. **Results** Mean partial pressure of arterial oxygen (PaO<sub>2</sub>) at room air was 53.2 mmHg (+/- 8.1 mmHg) and increased to 75.9 mmHg (+/- 13.3 mmHg) with oxygen supplementation (p < 0.0001). Mean partial pressure of arterial carbon dioxide (PaCO<sub>2</sub>) was 45.9 mmHg (+/- 8.7 mmHg) at baseline and 47.8 mmHg (+/- 9.0 mmHg) after oxygen titration (p = 0.003). Bland-Altman analysis for comparison of P(tc)CO<sub>2</sub> and PaCO<sub>2</sub> showed a bias of 0.86 mmHg with a precision of 3.48 mmHg. Bland-Altman analysis for the comparison of SpO<sub>2</sub> and SaO<sub>2</sub> showed a bias of 0.14% with a precision of 1.13%. **Conclusion** Combined oximetry and cutaneous capnography is feasible during oxygen titration in patients needing long term oxygen therapy. This non invasive approach has the potential to reduce the number of arterial blood gas sampling.

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