Conservative versus Liberal Oxygenation Targets in Intensive Care Unit Patients: A Multicentre Randomized Clinical Trial

Sig.ra IMEEN VAN DER WAL (1), Sig.ra CHLOE GRIM (1), Dott. DAVID VAN WESTERLOO (1), Dott. PAOLO PELOSI (2), Dott. MARCUS SCHULTZ (3)(4), Dott. HENDRIK HELMERHORST (1), Dott. EVERT DE JONGE (1)

(1) Leiden University Medical Centre, Albinusdreef 2, Leiden, Paesi Bassi.
(2) San Martino Policlinico Hospital, Largo Rosanna Benzi 10, Genoa, Italia.
(3) Amsterdam University Medical Centre, Meibergdreef 9, Amsterdam, Paesi Bassi.
(4) Nuffield Department of Medicine, Old Road Campus, Oxford, Regno Unito.

Argomento: VENTILAZIONE

Background

Supplemental oxygen is widely administered to intensive care unit (ICU) patients, but appropriate oxygenation targets remain unclear. Aim of this study was to determine whether a low-oxygenation target improves 28-days survival compared to a high-oxygenation target.

Methods

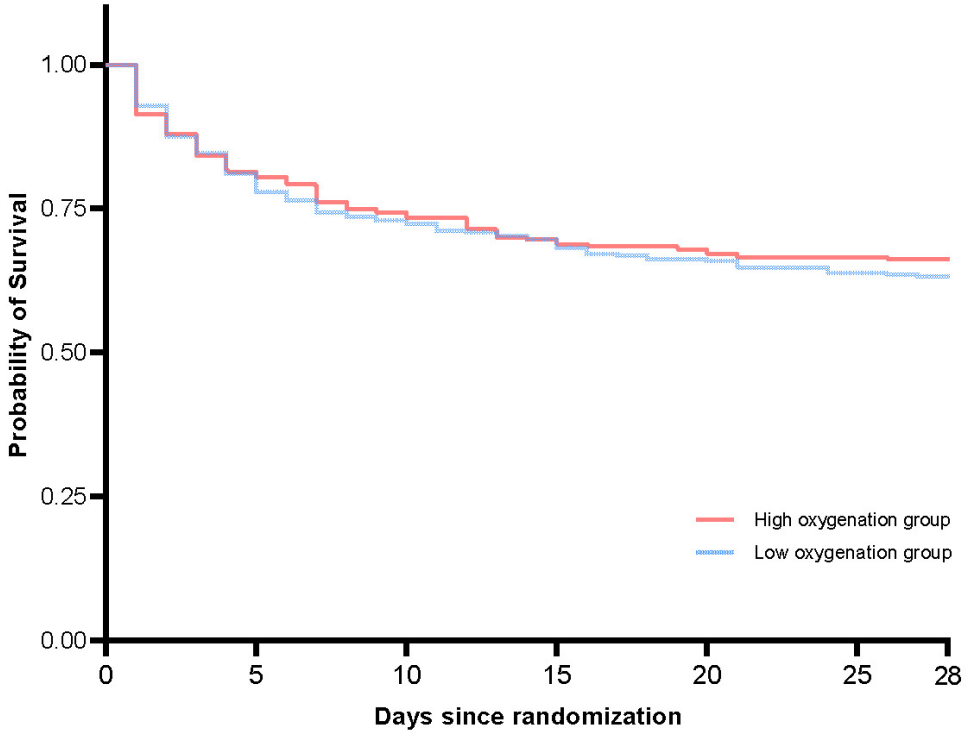
This randomized multicenter equivalence trial included mechanically ventilated ICU patients with an expected ventilation duration of at least 24 hours who were randomized 1:1 to a low-oxygenation (PaO_2 55-80 mmHg or SpO_2 91-94%) or high-oxygenation (PaO_2 110-150 mmHg or SpO_2 96-100%) target until ICU discharge or 28 days after randomization, whichever was first. This trial was conducted in 1 ICU in Italy and 8 ICUs in the Netherlands. Primary outcome was 28-day mortality. Clinicians were not blinded but data analysts remained blinded. The study was stopped prematurely due to the COVID-19 pandemic when 664 of the planned 1512 patients were included.

Results

Between November 2018 and November 2021, a total of 664 patients were included in the trial; 335 in the low-oxygenation group and 329 in the high-oxygenation group. The median achieved PaO_2 was 75 mmHg [IQR, 70-83] and 115 mmHg [IQR 100-129], in the low- and high-oxygenation group, respectively. At day 28, 129 (38.5%)and 114 (34.7%) patients had died in the low- and high-oxygenation group (Figure 1), respectively (Risk Ratio 1.11, 95% Confidence Interval 0.9-1.4, P=0.30). At least 1 SAE was reported in 12 (3.6%) and 17 (5.2%) patients in the low- and high-oxygenation group, respectively.

Conclusion

Among mechanically ventilated ICU patients with an expected mechanical ventilation duration of at least 24 hours, using a low-oxygenation strategy did not result in a reduction of 28-day mortality compared to a high-oxygenation strategy.



No. at risk

High oxygenation group	329	263	240	225	219	215	215
Low oxygenation group	335	264	238	227	216	208	206