COVID-19 Outbreak Control and Prevention State Cell

Health & Family Welfare Department

Government of Kerala

ADVISORY WITH REGARD TO OPTIMAL USE OF HIGH FLOW NASAL CANNULAS [HFNC] AND OXYGEN AUDITS

NO: 26/31/F2/2020/H&FW- 12th May 2021

Optimal Oxygen therapy is the cornerstone of treatment for hypoxaemic patients with COVID 19 bronchopneumonia. High-flow nasal cannula (HFNC) is an integral component of treatment of patients with hypoxemia and is very effective in improving oxygenation. Among patients with acute hypoxaemic respiratory failure, timely use of HFNC has been proven to avoid intubation compared to conventional oxygen devices .However HFNC at high flow rates consume more oxygen than NIV and hence prudent use of HFNC at high flow rate is essential to minimize use of oxygen and this aspect has to be given utmost importance during institutional oxygen audits.

INSTITUTIONAL OXYGEN AUDIT COMMITTEES

1. Institutional Oxygen audit committees should maintain an inventory of Oxygen requirement, daily usage, stock available on a 6-12 Hr basis

2. Oxygen Audit committee shall sent a weekly report to DME/DHS with regard to details of Audit conducted. The report should include compliance with recommendations, leakages identified, proportion of admitted patients on HFNC, NIV, invasive ventilation, nasal cannula, simple face mask, NRBM etc.

FOCUS AREAS FOR OXYGEN AUDIT

1. Oxygen prescription: (Written-like any other drug, mention flow rate, end points in terms of SpO_2/ PaO_2)

OXYGEN SHOULD NOT BE ADMINISTERED WITHOUT PRESCRIPTION.

Goals:

a. SpO_2: 90-94% (COPD: 88-90%), if not having increased work of breathing.

b. PaO_2: 60-70mmHg, (COPD: 55-65mmHg)

c. Monitor SpO_2 continuously and make necessary changes so as to meet the Oxygenation goals.

IN THE CASE SHEET FLOW RATE AND TARGET SPO2 HAS TO BE CLEARLY MENTIONED

2. De-escalate Oxygen therapy as patient improves clinically. If SPO2 is more than 94% for 12 hours should be switched over to intermittent oxygen therapy.

3. **HFNC USE SHOULD BE MINIMISED. HFNC USE AT HIGH FLOW RATES HAS TO BE MINIMISED. HFNC SHOULD BE USED AT FLOW RATE MORE THAN 30 L/min ONLY AFTER GETTING APPROVAL FROM INSTITUTIONAL CRITICAL CARE TEAM/MEDICAL BOARD.**

4. Encourage to keep mouth closed during HFNC use.

5. Awake repositioning protocol to be started in all hospitalised patients with hypoxemia. Awake proning should be done for at least 16 hours per day.

IF AWAKE PRONING PROTOCOL IS NOT FOLLOWED, REASON FOR THE SAME HAS TO BE DOCUMENTED IN THE CASE SHEET.

6. Wastage of Oxygen through leaks sought for daily and rectified at the earliest.

7. Maintain Base flow in ventilator to minimum if such can be adjusted.

8. Ensure closure of valves in pipeline system in "no-use areas.

9. Use Non-Rebreathing Bag with optimally fitting mask (Monitor for air hunger- if so, increase flow rate)

10. Use CPAP machine/BiPAP machine with lower Oxygen flow (higher mean airway pressure can increase Oxygenation) instead of high flow oxygen devices, as tolerated.

11. Ensure adequate fit of right size mask (use templates while selecting interface) in patients receiving Non-invasive ventilation to avoid leakage.

12. Ensure right size of Endotracheal tube with optimal cuff pressure so as to minimise leaks

13. Switch to standby mode when disconnecting the ventilator from patient as during feeding. (Supplement Oxygen with nasal prongs/cannula while feeding as needed).

14. Use Closed suction device thus preventing de-recruitment during open suctioning.

15. Regular training to Staff nurses, Nursing Assistants, ICU/OT Technicians regarding the optimal use of Oxygen, the end points of Oxygen therapy, to detect leaks and to follow Oxygen prescription as directed by the clinician.

Principal Secretary

Annexure 1

Table 1 Oxygen Administration Chart

Continuous Oxygen / PRN / Not on Oxygen Therapy Target range: 88-92% 90-94% Other:

Date							
Time							
Respiratory rate							
Oxygen saturation %							
Oxygen device used							
Oxygen flow rate in L /min							
Signature							

All changes in Oxygen delivery to be recorded

Codes

A: On room Air	N: Nasal Cannulae	SM: Simple Mask	V28: Venturi 28% V35: Venturi 35% etc	NRBM: non rebreathable mask	HFNC: High flow nasal cannula	CP: CPAP	NIV	Oth: Others

Table 2: Prototype Checklist for Oxygen Auditing in hospitals

Date							
No of circuits checked							
No of leaks identified							
No of leaks rectified							
Stock checked							
Have valves in pipeline to no use areas been closed							
HFNC > 30L/min being used							
If Yes: permission taken							
Awake proning > 16 hrs/day							
Alternatives to HFNC >30L/min considered	Y / N	Y/ N	Y/ N	Y / N	Y/ N	Y / N	Y / N
Is NIV mask fit -Optimal							
Is ET tube size optimal							
Is ET tube cuff pressure optimal							
If SPO2> 94 for more than 12 hours, oxygen de-escalation done.							
Are ventilators in standby mode while feeding							
Is closed suction being used							
Staff trained in optimal oxygen therapy							