USE OF OXYGEN THERAPIES IN WOUND HEALING

FOCUS ON TOPICAL AND HYPERBARIC OXYGEN TREATMENT

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A JOINT DOCUMENT

Wounds Australia

EWMA

EWMA Oxygen Document

Copenhagen Wound Healing Center, F. Gottrup

A EWMA Project

Oxygen Therapies Guidance Document

Will provide a Practice-oriented Guidance on the Current use of various Forms of Oxygen Therapies for Wound Treatment

Table 3: Technologies available for distribution of topical oxygen in wound healing

	Technologies available for distribution of topical oxygen in wound healing
	Continuous delivery of non-pressurised oxygen (CDO)
	Low constant pressure oxygen in a contained chamber
	Higher cyclical pressure oxygen
→	Oxygen release through dressing or gel
ActiMaris®	Oxygen transfer
→	Application of oxygen species

Table 4. Types of topical oxygen devices and therapies currently available

TOT type	Medical devices	Treatment details				
	Company, Product			Treatment location	Moist wound environment	GRADE
Higher cyclical pressure oxygen	Aoti Inc., TWO_2	50mbar to 5mbar cycles;	Pressure low, > 1 bar Flow rate high Treatment time: 60–90 minutes Treatment frequency: 3–7 days	Open wound in chamber or bag	Possible	Grade 1B, (RCT, controlled cohort studies, various case series) positive effect shown
Low constant pressure oxygen in a contained chamber	OxyCare GmbH, O_2TopiCare System	2-5 l/min;<50mbar;	Pressure: low, >>1 bar Flow rate: high Treatment time: 60–90 minutes Treatment frequency: 3–7 days	Open wound in chamber or bag	Possible	
	GWR Medical, TO_2	2-5 l/min;<50mbar;	Pressure: low, > 1 bar Flow rate: high Treatment time: 60–90 minutes Treatment frequency: 3–7 days	Open wound in chamber or bag	Possible	
Continuous delivery of non-pressurised oxygen (CDO)	Ogenix Inc., EpiFLO	Continuous, slow flow of pure oxygen of 3 ml/hr for 15 days through a cannula to blanket the wound.	Pressure: low, < 1 bar Flow rate: low Treatment time: 24 hours Treatment frequency: 7 days	Occlusive wound dressing	yes	Grade 2C, (1 Interim report on RCT showed no advantage versus sham. Cohort studies, various case series) only weak evidence
	Inotec AMD Ltd., Natrox	Continuous, slow flow of pure oxygen of ~12ml/hour for several days via a thin flexible tube to the Oxygen Delivery System which is in direct contact with the wound surface	Pressure: low, < 1 bar Flow rate: low Treatment time: 24 hours Treatment frequency: 7 days	Occlusive wound dressing	yes	

EWMA Oxygen Project / Guidline „Topical oxygen therapy“

Table 4. Types of topical oxygen devices and therapies currently available

Oxygen release through dressing or gel	OxyBand Technologies Inc., OxyBand	Oxygen release for up to 5 days after contact with moisture within a simple occlusive wound dressing	Pressure: na Flow rate: na Treatment time: 24 hours Treatment frecuency: 7 days	Occlusive wound dressing	yes	Grade 2B (RCT cohort studies, various case series) only weak recommendation for oxyzyme by Nice due to lack of efficacy
	AcryMed/ Kimberly Clark OxygeneSys Continuous	Use as a foam dressing, Oxygen release for up to 5 days when dressing is moistened	Pressure: na Flow rate: na Treatment time: 24 hours Treatment frecuency: 7 days	Occlusive wound dressing	yes	
	AcryMed/ Kimberly Clark OxygeneSys On Demand	Oxygen release for up to 5 days after contact with moisture within a simple occlusive wound dressing	Pressure: na Flow rate: na Treatment time: 24 hours Treatment frequency: 7 days	Occlusive wound dressing	yes	
	Crawford Healthcare Ltd. Oxyzyme	Use as a primary dressing, in early stage wound treatment. Oxygen release when both layers are attached to each other	Pressure: na Flow rate: na Treatment time: 24 hours Treatment frecuency: 7 days	x	yes	
Oxygen transfer	SastoMed GmbH, Granulox	Liquid spray with 10% purified haemoglobin applied as thin layer to the wound bed and before wound is covered by a non occlusive dressing, twice weekly up to once daily application depends on wound status	Pressure: na Flow rate: na Treatment time: 24 hours Treatment frequency: 7 days	x	yes	Grade 1B (RCT 1 controlled open label study 3 controlled cohort studies, various case series) positive effect statistically shown,
Application of reactive oxygen species / singlet oxygen	ActiMaris AG Buchs, CH Wound rinsing solutions and gel	Solution followed by gel, short moist, long dry phase	Pressure: na Redoxpotential 300 mV el. current 100 µA el. conductivity 50 mS/cm Treatment frequency: daily	With or without dressing	moist and dry	GRADE: 1C – 2A Benefit vs risk: Clear (Balanced)