



Innovative treatment of chronic wounds with cold air plasma : Case Study

Sasithorn Pichaipong, MNS, ET Nurse
Chronic wound care center, Surgery department,
Lamphun Hospital

Abstract

Chronic wounds are a group of diseases that require a long period of care until they heal. At present, the treatment of these patients has been developed extensively under the new wound management concept, Wound bed preparation (Falanga, 2002). From statistics, it was found that the number of chronic wound patients treated with new concepts together with special equipment that promote wound healing in 2018, 2019, 2020 were 68, 55, 39 cases, respectively. The problem with wound management was that the wound progression remained the same for more than 2 months. The wound did not narrow, but it did not worsen. The review found that there is also a new conceptual wound management approach that promotes wound healing. E.g., wound oxygenation, plasma wound healing, etc. As a chronic wound case manager, he coordinated with the Department of Physics and Materials Science, Faculty of Science, Chiang Mai University to support the cold air plasma machine is used to treat chronic wounds.

With the support of a cold plasma generator in chronic wound treatment trials as an adjuvant treatment, it can enhance the healing of advanced wound dressing in chronic wound patients treated with advance wound dressing. Wound progression remained the same for more than 2 months. The results showed that within 1 month the patients had Epithelialization narrowed and no infection and no pain. pain score = 1-2



Methodology

Detailed table: Case study: Using air plasma in combination with modern products.

Case Study	Duration	Length of wound progression remained the same	Treat with air plasma		Take cold air plasma
			Epithelialization	Infection	Pain score
1. Infected Dornor site <u>Underlying</u> CA breast	1 year 5 months	7 months	1 cm	No	1
2. third degree Burn <u>Underlying</u> DM HT No care giver ,home alone	11 months	9 months	1.5 cm	No	0
3. NF with DM ulcer with HIV positive	2 months	2 months	5 cm	No	0
4. DM ulcer type Ischemic ulcer S/P amputate big toe	3 months	3 months	4 cm	No	2

Conclusions

From the properties of free radicals produced by cold air plasma, including Hydroxyl and oxygen help to kill bacteria. Nitric oxide stimulates tissue regeneration. Chronic wound progression of lesion persists for more than 2 months has improved

References

- T. Putthithorn ,B. Teerawan. Air plasma Jet for Treatment of infected wounds frequently Retrieved 2 April 2020 2. Available From: <http://www.thaiphysoc.org/article/96/>
British Columbia Provincial Nursing Skin and Wound Committee. (2015). *Guideline: Wound Bed Preparation for Healable and Non-Healable Wounds* in Adults & Children1. Retrieved May 2, 2017, from <https://mail.com/attachment/u/o/?view>
Caroline Dowsett and Heather Newton. (2005). *Woundbed preparation :TIME in practice*. Retrieved January 2, 2017, from http://www.woundsinternational.com/media/issues/122/files/content_86.pdf