



# EFFECTIVENESS OF BIOCELLULOSE WOUND DRESSING ON HEALING RATE OF CHRONIC HARD TO HEAL WOUNDS

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## ABSTRACT

An enhancing healing rate by applying biocellulose dressings is an innovative wound caring challenging to chronic hard to heal wound now. This research aimed to study the effectiveness of biocellulose wound dressing on healing rate of chronic hard to heal wounds. Samples were 23 patients with chronic hard to heal wounds who treated at Advance Wound Care Clinic, one tertiary hospital. Research instruments consisted of 1) A protocol of wound care with biocellulose wound dressing 2) data collection tool consisting of 2.1) case record form 2.2) chronic hard to heal wound and relevant affected wound healing factors record form 2.3) A packaged computerized program records for wound healing analysis via a mobile phone (Tissue Analytics application: TA). The statistics used were frequency, percentage, mean, standard deviation. The results revealed that most of chronic hard to heal wound after applying biocellulose wound dressings reducing wound size and improving wound characteristics without any complications finding. The wound healing duration were approximately 4–5 weeks. Therefore, the application of biocellulose wound dressings could be an alternative wound dressing technique in chronic hard to heal wounds.

Keywords: Biocellulose dressing, chronic, hard to heal, healing, wound

## INTRODUCTION

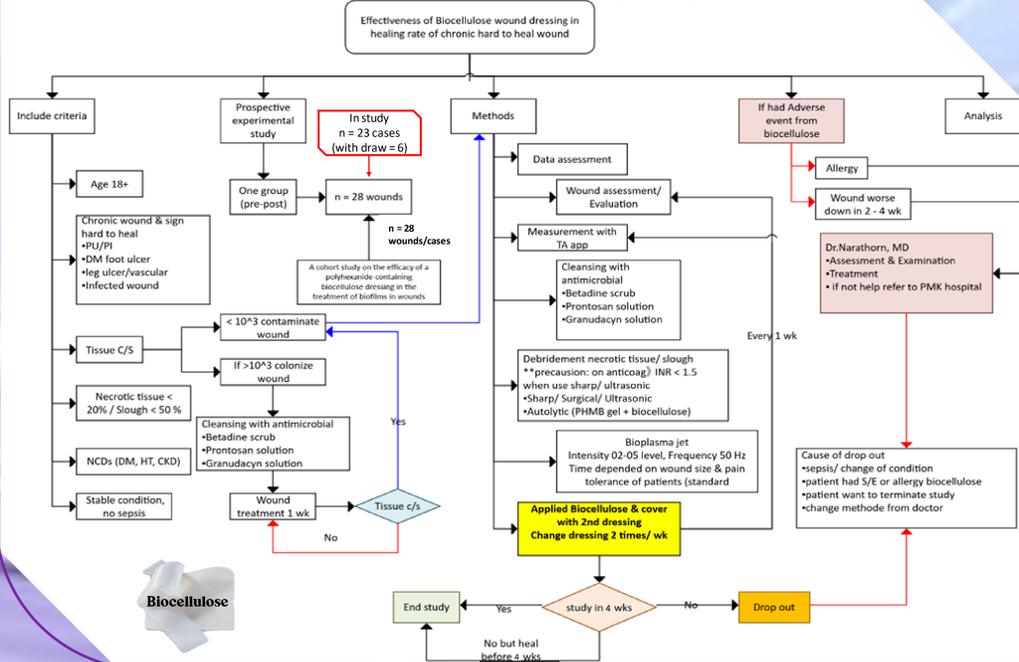
Nowadays, the various technological treatments have been applied to promote wound healing process in hard to heal wounds. A biocellulose wound dressing is an innovative treatment applying in chronic hard to heal wound with positive proved outcomes. However, the crucial practice guidelines for preventive chronic hard to heal wounds development has been wound care consisting of necrotic tissue removing to promote new granulation tissue and biofilm removing to enhance antiseptic functions. Indeed, most of wound care product is now import product, expensive, limited quantity and only available in some wound care clinic resulting to inequity and limited accessibility to this beneficial wound dressing technology now. The PTT Public Company Limited, Thai well-known research team had launched the innovative research project to develop the biocellulose product as a medical material to develop the biocellulose wound dressing for Thai people living with chronic heard to wound.

## OBJECTIVE

- To examine effectiveness of biocellulose wound dressing on wound healing in chronic hard to heal wounds
- To explore complication of biocellulose wound dressing in chronic hard to heal wounds

## METHADODOLOGY

**Study design:** Quasi-experimental research (one group pre-posttest design)  
**Populations:** Persons living with chronic hard to heal wound at Advance Care Clinic, One Military Hospital, November 2019 – July 2021  
**Samples:** 23 Persons living with chronic hard to heal wound (Total 29 cases, Loss F/U 6 cases) (Female = 6, Male = 17)(Averaged age = 56.91 years old)



## LIMITATIONS:

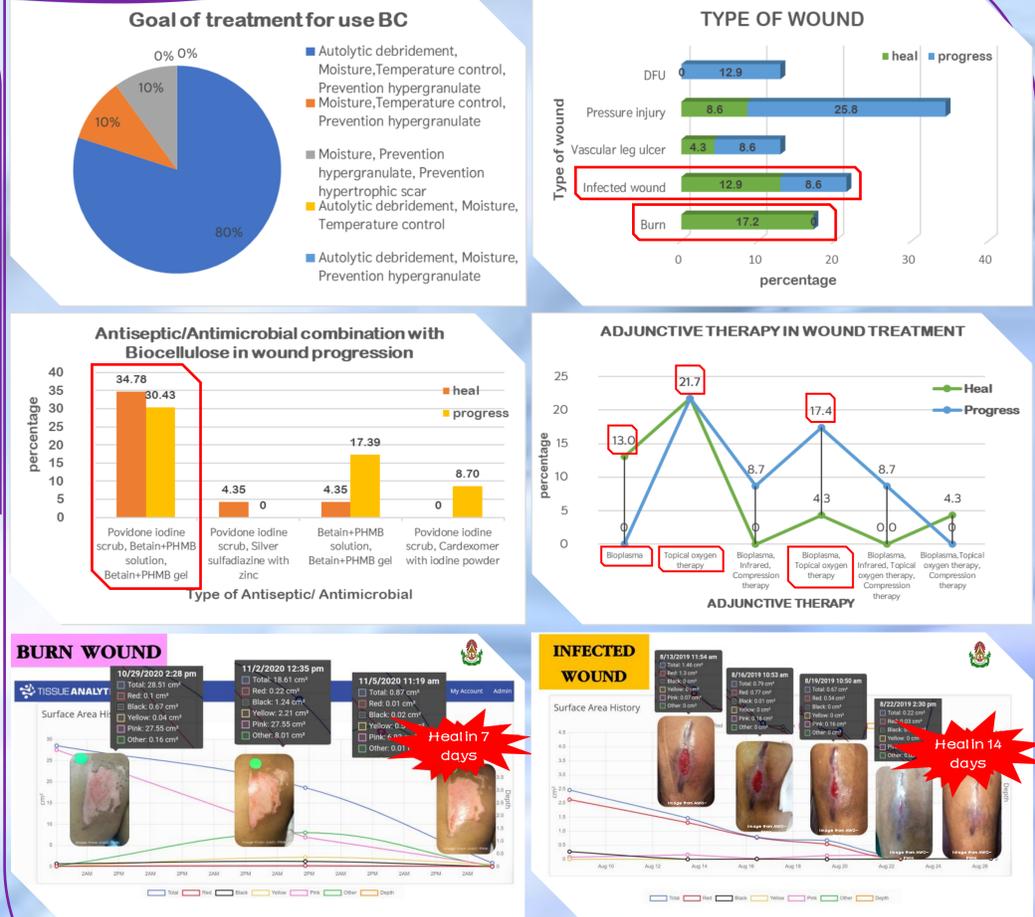
- The pandemic COVID-19 situation, hospital visit was usually canceled or postponed period that impacted to the smaller sample size than calculation with 6 cases of loss F/U. The discontinuing wound care and disruptive of overall hospital care system was the unpredictable issue that affected to the patient and care process. Therefore, larger sample size and proper continuing wound care ought to well design in the further study.
- The randomization with comparison groups as randomized control trail research design (RCT) could be developed in the further study to maximize power of generalization.

**ACKNOWLEDGMENTS:** We would like thankful The PTT Public Company Limited for financial support for this study and we would like to grateful for all persons living with chronic hard to heal wound at Advance Wound Care Clinic for their free-willing to joint with this project.

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## RESULT



23 Chronic hard to heal wounds were good recovery condition and wound healing process within 4 weeks without any wound complications after the Biocellulose wound dressing applied.

## CONCLUSION

- The effectiveness of Biocellulose wound dressing on healing wound of chronic hard to heal wounds were proved with statistically significances.
- Antiseptic or antimicrobial substance were combined with the Biocellulose wound dressing applied; this wound care technique revealed the better wound healing outcomes in this study. Therefore, the Thai Biocellulose wound dressing should be developed inn the future as a cheaper, easily accessibility, and more available for Thai people living with chronic hard to heal wound.
- What I learned from the research is that the healing of the wound depends on knowledge and skills to the correct assessment, wound healing process, as well as management to chosen appropriately of Antiseptic or Antimicrobial or other medical supplies used in the wound. The new technological tools, users must have the knowledge and expertise to use them in order to be able to choose the right time that will lead to a faster healing period of wounds. Reduce patient suffering and reduce long-term costs of care.