

HYDROCYN[®]
aqua

QUESTIONS AND ANSWERS

GLOBAL WOUND CARE WEBINAR
23 & 24 November 2023

Clean **TO HEAL** - Uncompromised
Wound Care with HYDROCYN aqua[®]



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Bactiguard[®]

1. What is the wound cleanser's role concerning Matrix Metalloproteinases (MMP) and chlorine release by hypochlorous acid? How do these factors contribute to effective wound care?

Due to the broad spectrum of their substrate specificity, MMPs contribute to the homeostasis of many tissues and participate in several physiological processes, such as bone remodelling, angiogenesis, immunity and wound healing. In chronic wounds, there is a misbalance of MMPs in the wound bed, which is harmful; with a reduction in Microbial load, MMPs are balanced out and more effective in wound healing. So, there is an indirect advantage of using effective antimicrobial cleansing /products on wound beds. On a molecular level, emerging evidence suggests that hypochlorous acid affects various MMPs, and further research is likely to highlight its clinical relevance.

2. What is the significance of the TIME principle in wound care? How do considerations of Tissue management, Inflammation or Infection control, Moisture balance, and Epithelial advancement guide effective wound healing strategies?

The TIME principle is a crucial and key approach in managing chronic wounds. It is a holistic strategy towards wound healing that ensures the wound bed has a reduced bacterial load while maintaining optimal moisture, promoting fast wound healing and closure. When used concomitantly, both HYDROCYN aqua solution and gel prove effective in reducing microbes in the wound bed. The gel can be applied to maintain moisture over time, facilitating keratocyte migration.

3. How does an antimicrobial cleanser prevent the development of antimicrobial resistance?

It depends on the active ingredients' properties in the antimicrobial cleanser. In this context of HYDROCYN aqua, it has broad-spectrum antimicrobial activity. HOCl's antimicrobial activity is attributed to its ability to disrupt cell membranes and interfere with cellular processes, making it less likely to be resistant compared to other antimicrobial agents.

4. How often should a wound be cleaned and dressed?

The recommended frequency of dressing changes depends on the degree of infection. Changing the dressing frequently, potentially up to three times per day, is advisable for highly infected wounds. As the wound progresses in healing, this frequency can be extended to once or twice per week.

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5. What is the recommended solution for a third-degree wound?

Cleansing with an effective antimicrobial solution such as HYDROCYN aqua is key & applying Paraffin / Petroleum Jelly is suggested.

6. What is the mode of action of HYDROCYN aqua after the debridement of a wound categorized as major?

The TIME principle is a crucial and holistic approach to managing chronic wounds, encompassing Tissue management, Infection and inflammation control, Moisture balance, and wound Edge optimization. It ensures a reduced bacterial load and optimal moisture in the wound bed, promoting fast healing and closure. Following this principle, when used concomitantly, HYDROCYN aqua solution & gel effectively reduce microbes in the wound bed, aiding in post-debridement care. The gel can be applied to maintain moisture over time, facilitating keratocyte migration.

7. Which element in the mixture contributes to hygroscopic action, especially in the case of excessively moist wounds with elevated venous pressure?

HYDROCYN aqua does not have Hygroscopic action.

8. Usually, the antibiotic solution, such as gentamycin, is added into normal saline lavage washout to prevent infection. Can antibiotics solution be excluded from the practice if HYDROCYN aqua is used instead of normal saline lavage?

It is possible to exclude antibiotics. We know that many doctors have been able to exclude antibiotics after starting using HYDROCYN aqua. However, we strongly advise you to conduct a thorough evaluation before making any changes to routines in your hospital.

9. Can HYDROCYN aqua solution be used intraoperative? Such as cleaning the tissue/muscle before suturing?

HYDROCYN aqua solution is approved to be used for peritoneal lavage.

10. How frequent can we use HYDROCYN aqua?

It varies based on the type of wound.

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11. How do biofilms contribute to antibiotic resistance in wound infections, and what strategies do you consider effective in addressing this challenge?

We need to clarify the terms antibiotic resistance and temporary antibiotic tolerance. Antibiotic resistance is due to permanent genetic mutations in the bacterial DNA that changes the proteins that the antibiotic targets. Bacteria in biofilm communities frequently develop temporary tolerance to antibiotics because many of the bacteria are metabolically dormant so exposure to the antibiotics does not inhibit key processes in the bacteria that can kill the bacteria. Because exposure of mature biofilm communities to antibiotics does not quickly and effectively kill all the bacteria due to the presence of metabolically dormant "persister" cells. These persister cells are at a higher risk of mutating and generating true genetically resistant bacteria.

12. What impact does applying a hypochlorous acid solution as an antimicrobial solution have on a clean wound? Does it provide any specific benefits to the wound, or is it considered unnecessary?

Evidence indicates that hypochlorous acid (HOCl) accelerates wound healing, even in uncomplicated wounds. Therefore, there is undoubtedly a positive effect in such cases.

13. How does HYDROCYN aqua effectively remove biofilm?

The antimicrobial activity of HYDROCYN aqua, coupled with proper debridement, contributes to effective biofilm management in wound care.

14. Would the immersion technique (around 10 to 15 minutes) considered a safe practice for a plantar ulcer?

It is safe. However, please check for the sensitivity of the peri-wound skin area for any maceration.

15. Based on the presentation, the contact time for HYDROCYN aqua is 60 seconds in VITRO. What is the contact time in VIVO?

It is challenging to provide a definitive answer. This depends on many aspects, such as the amount of slough, type of biofilm, etc. HYDROCYN aqua requires sufficient contact with bacteria, so we recommend a 10 to 15 minute contact time on biofilm. This duration allows HYDROCYN aqua to penetrate the biofilm and reach the bacteria effectively.

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16. Can hypochlorous acid (HOCl) be combined with any AG dressing?

It is okay to use HYDROCYN aqua for irrigation and then use of AG dressing. HYDROCYN aqua addresses neutralization challenges by having a lower chloride anion concentration than saline solutions. Silver dressings release positively charged silver cations. In saline, these combine with chloride anions to form inactive silver chloride, reducing antimicrobial effectiveness. HYDROCYN aqua minimizes this effect, allowing silver dressings to maintain antimicrobial activity for longer. This unique formulation supports a powerful reduction in microbes and biofilm during wound bed preparation and enables continued 'active' silver release between dressing changes.

17. Is it necessary to perform pre-preparation steps before applying HYDROCYN aqua solution?

No.

18. What are the reasons and situations for choosing gel over liquid solution?

The standard procedure involves applying the liquid solution for cleansing and debridement of the wound bed. Following this, the wound gel is applied and left on the wound bed before being covered with an appropriate secondary dressing.

19. How do you engage in educating patients about their responsibilities in self-care for diabetic foot ulcers?

We have experience using a tool to identify warning signs in ulcers that are being treated by patient at home. Usually, the patients are scared to treat their ulcers at home because they are concerned about promptly identifying complications. Educating patients about signs associated with worsening ulcers, explaining when to seek medical attention, and providing fast access in emergencies can help patients to engage in self-care actively.

20. Since HYDROCYN aqua can accelerate the healing of wounds, is there any possibility that it might induce hypergranulation?

Hypergranulation happens due to overuse of gels or solutions (regardless of any type/brand). It is advised to use solution/gel until the vertical closure stage and use the gels at the edges.

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21. Can the HYDROCYN aqua solution be incorporated in irrigational vac therapy for better healing?

Yes, that is possible and standard of care in many hospitals around the world.

22. Can HYDROCYN aqua effectively disrupt biofilm without the need for mechanical debridement? In other words, is irrigation alone sufficient to disrupt biofilm?

In general terms, the answer is yes. The hypochlorous acid, the active agent in HYDROCYN aqua produces “oxidative debridement” of wound slough and necrotic debris. The term “oxidative debridement” is rather new to the field of wound care, but it is included in the new publication that will be published in early 2024 in Journal of Wound Care that describes the breakdown of proteins, polysaccharides, lipids, and glycoproteins in wound beds and also in the exopolymeric matrix of bacterial biofilms. However, combining HOCl with mild mechanical debridement acts synergistically to remove necrotic tissue and biofilm. Finally, the relatively new technique of NPWT with instillation of HOCl causes extensive removal of wound debris and slough, which is clinically observed in the “collection tank” of the NPWT + instillation unit.

23. Can HYDROCYN aqua be used routinely to remove or prevent biofilm for chronic wounds?

Yes, HYDROCYN aqua can be used routinely for chronic wounds. Since there is virtually no risk of resistance developing and HYDROCYN aqua is very tissue-friendly

24. Can HYDROCYN aqua be used for weeping wounds?

Yes, we can use the HYDROCYN aqua solution for cleaning. Meanwhile, HYDROCYN aqua Gel is only recommended for light to moderate exudate.

25. Does HYDROCYN aqua help with wounds with slough?

Yes, HYDROCYN aqua does facilitate effective cleaning and debridement methods.

26. Is it necessary to perform pre-preparation steps before applying HYDROCYN aqua solution?

No.

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27. Can HYDROCYN aqua be used to hydrate wounds?

No, HYDROCYN aqua is used to clean the wound from debris, remove the wound bioburden (owing to its antimicrobial activity) and reduce biofilm. Overall, it helps accelerate the wound healing.

28. Can HYDROCYN aqua be used in abdominal wounds with bowels in wound bed?

Yes, we have a case study demonstrating the use of HYDROCYN aqua in abdominal wounds with bowels in the wound bed. The data shows positive outcomes.

Click the link for the published clinical paper:

<https://link.springer.com/article/10.1007/s42399-020-00701-6>

or we invite you to reach out to us and get the full article

29. Can HYDROCYN aqua be used in the OB/Gyn field?

The most obvious application in ObGyn is as an irrigation solution for the common problem of bacterial/fungal vaginosis. While the vaginal infection involves several bacteria, it is believed that most infections start with *Gardnerella vaginalis* creating a biofilm, which allows other opportunistic bacteria, such as *Prevotella* and *Bacteroides*, to thrive. The acute infection that quickly becomes a chronic infection by bacteria including *Gardnerella vaginitis* that forms biofilms and displaces the common vaginal bacteria of the species *Lactobacillus* (*Lactobacillus crispatus*, *Lactobacillus gasseri*, *Lactobacillus jensenii* and *Lactobacillus iners*).

30. Should an antiseptic product for surgical wounds have auto-sterile properties that protect against secondary infection?

The primary characteristics of an antiseptic for surgical wounds include a broad spectrum of antimicrobial activity, long-lasting effects, biocompatibility, and safety. Autosterile properties present an added value. Such properties would prevent microbial growth within the solution, indirectly mitigating the risk of secondary infections. Moreover, the concept implies that the solution remains uncontaminated post-opening, offering an advantage over solutions like saline. While auto-sterile properties are not essential, they are considered beneficial to have. These features collectively contribute to the antiseptic's efficacy, safety, and suitability for clinical use. Ensuring that any selected antiseptic aligns with established healthcare guidelines and standards for optimal wound care and infection prevention is essential.

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31. Can HYDROCYN aqua be the most suitable for lavage washout in total arthroplasty and wound debridement washout procedures?

In theory, the use of a superoxidized solution as a lavage washout in total arthroplasty procedures is potentially safe. However, it's crucial to acknowledge that this would be considered an off-label use. Discussions about off-label uses of medications or products on this platform are intended for informational purposes only. It is strongly recommended to consult with a healthcare professional or medical expert regarding any specific medical conditions or treatment options. The information provided here should be regarded as something other than medical advice, and individual circumstances may vary. Always adhere to the guidance of your healthcare provider.

32. Can the HYDROCYN aqua solution be incorporated in oral maxillofacial surgery?

In-vitro testing has indicated that HYDROCYN aqua is considered safe for oral use; however, as of now, there are no available in-vivo studies. It's important to highlight that utilizing HYDROCYN aqua in the oral context would be an off-label use. Any discussions regarding off-label applications of medications or products on this platform are intended solely for informational purposes. For specific medical conditions or treatment options, seeking guidance from a healthcare professional or medical expert is crucial. The information presented here should not be construed as medical advice, and individual circumstances may vary. Always adhere to the recommendations of your healthcare provider.

33. Can HYDROCYN aqua Solution be used as mouth wash for ulcer?

In-vitro testing has indicated that HYDROCYN aqua is considered safe for oral use; however, as of now, there are no available in-vivo studies. It's important to highlight that utilizing HYDROCYN aqua in the oral context would be an off-label use. Any discussions regarding off-label applications of medications or products on this platform are intended solely for informational purposes. For specific medical conditions or treatment options, seeking guidance from a healthcare professional or medical expert is crucial. The information presented here should not be construed as medical advice, and individual circumstances may vary. Always adhere to the recommendations of your healthcare provider.

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34. Can HYDROCYN aqua Solution be used for CABG case?

HYDROCYN aqua solution is suitable for use on a CABG wound on the leg. When applying it to the chest area that comes in contact with a 316L wire, it's noteworthy that for the expected duration of contact, 316L and HYDROCYN aqua are compatible. However, it is crucial to consult with a healthcare professional or medical expert regarding any specific medical conditions or treatment options. The information provided here is for general knowledge and should not be regarded as medical advice. Individual circumstances may vary, so always follow the guidance of your healthcare provider. It's noteworthy that for the expected duration of contact, 316L and HYDROCYN aqua are compatible.

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