

Kliiniline küsimus nr 14

Kas kõikidel kroonilise venoosse haavandiga patsientidel kasutada ravitulemuse parandamiseks haavandi töötlemisel vett vs soolalahuseid vs antiseptikume (oktenilliin, polüheksaniid, joodipreparaadid)?

Tulemusnäitajad: ravisoostumus, ravi tulemuslikkus, haavandi paranemine, patsiendi elukvaliteet, patsiendi rahulolu, hospitaliseerimine, elulemus, üldsuremuse vähenemine

Kokkuvõte

Enamik süstemaatilistest ülevaadetest ja randomiseeritud uuringutest ei leidnud eeliseid antiseptikumidel vee ja soolalahuste ees.

Osades uuringutes oli soovitatud haavandi puhastamiseks kasutada tavalist kraanivett ("tap water"), kuna ei leitud erinevust haavandi paranemise/infitseerumise osas. Samas oli nendes uuringutes tegemist akuutsete haavadega ja enamustes ravijuhendites siiski ei ole krooniliste haavandite töötlemiseks soovitatud kraanivee kasutamist.

Igas ülevaates ning ravijuhendis oli soovitatud kasutada minimaalselt ärritavat/tsütotoksilist haavaloputus/töötlusvahendit ning vältida antibakteriaalsete agentide kasutamist kui haavand ei näe infitseeritud välja.

2012 a Cochrane Database "Water for wound cleansing" hõlmas endas 11 uuringut. Ei leitud seost kraanivee kasutamise suurenenud haavandi infitseerumise vahel. Samas süstemaatilises ülevaates kasutatud uuringud hõlmasid ägedaid haavasid.

O'Meara jt poolt tehtud süstemaatiline ülevaade 2001 aastal toob välja et toopilised antiseptikumid on ebaefektiivsed ja vastupidi tsütotoksilised.

2013 a Cochrane Database „Antibiotics and antiseptics for venous leg ulcers“ näitas mõningast edu cadexomer iodiini kasutamisel. Sel juhul oli aga Cadexomer Iodiin sidumises, mitte aga haavandi töötlemisel (Cadexomer iodiini leiab nii lahusena haavandite puhastamisel kui ka sidemetes/geelina. Et anda soovitusi povidoon-iodiini (braunol/braunovidon), kloorheksidiini efektiivsuse kohta venoosse haavandi ravis peab tegema edasisi uuringuid. Vähesed uuringud, mis on tehtud povidoon-iodiiniga ei näita selle eelist teiste haavatöötlusvahendite ees.

Viited

Kokkuvõtte (abstract või kokkuvõtlikum info)	Viide kirjandusallikale
We included 11 trials in this review. We identified seven trials that compared rates of infection and healing in wounds cleansed with water and normal saline; three trials compared cleansing with no cleansing and one trial compared procaine spirit with water. There were no standard criteria for assessing wound infection across the trials, which limited the ability to pool the data. The major comparisons were water with normal saline, and tap water with no cleansing. For chronic wounds, the relative risk of developing an infection when cleansed with tap water compared with normal saline was 0.16, (95% CI 0.01 to 2.96). Tap water was more effective than saline in reducing the infection rate in adults with acute wounds	Fernandez R, Griffiths R. Water for wound cleansing. Cochrane Database of Systematic Reviews 2012, Issue 2. Art. No.: CD003861. DOI: 10.1002/14651858.CD003861.pub3.

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(RR 0.63, 95% CI 0.40 to 0.99). The use of tap water to cleanse acute wounds in children was not associated with a statistically significant difference in infection when compared to saline (RR 1.07, 95% CI 0.43 to 2.64). We identified no statistically significant differences in infection rates when wounds were cleansed with tap water or not cleansed at all (RR 1.06, 95% CI 0.07 to 16.50). Likewise, there was no difference in the infection rate in episiotomy wounds cleansed with water or procaine spirit. The use of isotonic saline, distilled water and boiled water for cleansing open fractures also did not demonstrate a statistically significant difference in the number of fractures that were infected.

Clinicians and manufacturers have recommended various cleansing agents for their supposed therapeutic value. Preparations with antiseptic properties have been traditionally used, but published research using animal models has suggested that antiseptic solutions may hinder the healing process (Brennan 1985; Thomlinson 1987; Glide 1992; Bergstrom 1994; Hellewell 1997).

The use of tap water as a cleanser would not be recommended in a country where a constant supply of potable drinking water is not available.

AUTHORS' CONCLUSIONS:

There is no evidence that using tap water to cleanse acute wounds in adults increases infection and some evidence that it reduces it. However there is not strong evidence that cleansing wounds per se increases healing or reduces infection. In the absence of potable tap water, boiled and cooled water as well as distilled water can be used as wound cleansing agents.

Kommentaar: enamikus systemaatilises ülevaates kasutatud uuringutest oli tegemist ägedate mitte krooniliste haavadega

Systemic review of antimicrobial agents used for chronic wounds.
Thirty trials were included, 25 of randomized design. Small sample size and other methodological problems meant that findings were often difficult to interpret. Results do not support the routine use of systemic antibiotics for leg ulcers or diabetic foot ulcers without acute infection
Topical antiseptics are ineffective in cleansing ulcers

O'Meara SM, Cullum NA, Majid M and Sheldon TA. Systemic review of antimicrobial agents used for chronic wounds. Br J Surg 2001; 88:4-21.
(<http://www.ncbi.nlm.nih.gov/pubmed/11136304>)

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and are, in principle, cytotoxic.
(viidates teisele uuringule: Tsytotoksilisuse ja antibakteriaalsete omaduste osas tehtud in vitro 2010 a uuringus võrreldi Octanicepti, Lavasepti, Prontosani, Braunoli ja Betaisodooni. Tulemuses Octanisept, Lavasept ja Prontosan näitasid kõrgemat efektiivsust antibakteriaalsete omaduste poolest kui Braunol ja Betaisodoon. Lavasept ja Prontosan olid uuritavatest kõige vähem tsytotoksilised primaarsetele inimese fibroblastidele ja keratinotsyytidele, samal ajal kui Octanisept, Betaisodoon ja Braunol näitasid olulist ($p < 0,05$) tsytotoksilisust.

Hirsch T1, Koerber A, Jacobsen F. Evaluation of toxic side effects of clinically used skin antiseptics in vitro (<http://www.ncbi.nlm.nih.gov/pubmed/19726054>)
Lisaks leiab 2009 aastal tehtud uuring 251 patsiendil, kellel kasutati regulaarselt Octanisepti, kujunes üle 3% patsientidest kontakt dermatiit antispetikumile (Calow T, Oberle K. „Contact dermatitis due to use of Octenisept in wound care“.
(<http://www.ncbi.nlm.nih.gov/pubmed/19228295>)
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(<http://www.ncbi.nlm.nih.gov/pubmed/19228295>)

III Süstemaatilises ülevaates oli cadexomer iodine (11 RCTs reporting 12 comparisons); povidone-iodine (six RCTs reporting seven comparisons); peroxide-based preparations (four RCTs reporting four comparisons); honey-based preparations (two RCTs reporting two comparisons); silver-based preparations (12 RCTs reporting 13 comparisons); other topical antibiotics (three RCTs reporting five comparisons); and other topical antiseptics (two RCTs reporting two comparisons).

Conclusion: In terms of topical preparations, some evidence supports the use of cadexomer iodine. Current evidence does not support the routine use of honey- or silver-based products. Further good quality research is required before definitive conclusions can be drawn about the effectiveness of povidone-iodine, peroxide-based preparations, ethacridine lactate, chloramphenicol, framycetin, mupirocin, ethacridine or chlorhexidine in healing venous leg ulceration. In light of the increasing problem of bacterial resistance to antibiotics, current prescribing guidelines

O'Meara S, Al-Kurdi D, Ologun Y, Ovington LG, Martyn-St James M, Richardson R. Antibiotics and antiseptics for venous leg ulcers. Cochrane Database of Systematic Reviews 2014, Issue 1. Art. No.: CD003557. DOI: 10.1002/14651858.CD003557.pub5

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<p>recommend that antibacterial preparations should be used only in cases of clinical infection, not for bacterial colonisation..</p>	
<p>I Randomiseeritud uuring. 705 consecutive patient with soft tissue wounds less than six hours old that did not penetrate a viscus, cavity, or joint and could be treated by primary suture. Randomly allocated to have the wound cleaned with either sterile saline or tap water in addition to debridement. Sterile saline should be replaced by tap water for the cleaning of acute traumatic superficial soft tissue wounds.</p> <p>Kommentaari: randomiseeritud uuring hõlmas ägedaid haavasid. Uuringut on hiljem kritiseeritud kuna tap water oli kehatemperatuuriga (37 kraadi), steriilne NaCl aga toatemperatuuril.</p>	<p>Angerås MH1, Brandberg A, Falk A, Seeman T. Comparison between sterile saline and tap water for the cleaning of acute traumatic soft tissue wounds. Eur J Surg. 1992 Jun-Jul;158(6-7):347-50. http://www.ncbi.nlm.nih.gov/pubmed/1356466</p>
<p>II Randomiseeritud kontrollitud uuring. Uuritavad oli 46 simple latsersioonidega last, haavad paiknesid üla või alajäsemetel. Uuringust jäid välja lapsed, keda oli hammustanud koer, olid immuunkomprimeeritud ja kellel oli AB-ravi vigastuse hetkel juba kasutusel. Kraanivett kasutati 21 patsiendil, NaCl 24'l. Mõlemas rühmas oli 2 infitseeritud haava. Infitseeritud haavadest võeti proovid ning bakterikultuurid olid sarnased. Uuringu kokkuvõtte: kraanivee kasutamine ei põhjusta ebatavaliste bakterite kasvumist haavadel. See piloot-uuring pakub välja et kraanivee kasutamine lihtsate haavade puhul on ohutu.</p> <p>Kommentaari: Tegemist on ägedate haavadega ning uuringugrupiks olid lapsed. Väga raske on uuringus leitud seoseid ületuua vanemaealisele kontingendile krooniliste haavadega.</p>	<p>Bansal BC1, Wiebe RA, Perkins SD, Abramo TJ. Tap water for irrigation of lacerations. Am J Emerg Med. 2002 Sep;20(5):469-72.</p>

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<p>III Uuringus osales 40 patsient (22 N, 18 M), kellel oli valulik krooniline haavand (>8 nädala), tõestatud venoosne puudulikkus (kliiniline pilt + inst analüüs), haavandi suurus kuni 100 cm², olid saanud kompressioon teraapiat vähemalt 2 nädalat enne uuringut.</p> <p>Baseline pH on the wound surface (median range) was initially 8,9 and after 4 weeks of cleansing treatment and moist wound dressind was reduced at stable 7,0 in the group treated with active cleanser. The pH value was significantly lower (p<0,05) in this group compared the control group at the end of the study. Pain control was achieved during and the end of the treatment in group A (Prontosan) better than in group B (control) p<0,05. During treatment, patients were not affected by serious and/or unexpected adverse reactions, and there was a significant improvement of wound bed preparation. Wound size was not statistically different in the two groups from baseline to the end of the study. We think that this was mainly due to the short period of observation. The treatment with the solution containing polihexanide and betaine was well tolerated by the patients and was found useful in the absorption of wound odours. At the end of the study group A showed significantly better control of the bacterial burden both clinically and by means of instrumental evaluation compared to group B.</p> <p>Kommentaari: leitud on kroonilise haavandi pH ning paranemiskiiruse vahelisi seoseid. Happelisem keskkond soodustab haavandite paranemist (Wilson 1979, Diksten 1988; Dissemmond 2003; Glibbery 1992; Tsukada 1992)</p>	<p>Romanelli M.; Dini V.; Barbanera S.; Bertone M.S. Evaluation of the Efficacy and Tolerability of a Solution Containing Propyl Betaine and Polihexanide for Wound Irrigation. <i>Skin Pharmacol Physiol</i> 2010;23(suppl 1):41–44</p> <p>RCT http://www.karger.com/Article/Pdf/318266</p>
<p>IV Clinical practical S3 guideline: The literature does not provide evidence of any advantage for one kind of rinsing solution over another. A consensus statement was issued that rinsing with unsterile solutions or with non-sterilely filtered tap water carries the risk of introducing microbial pathogens. There is no evidence that Ringer's lactate is any more efficacious as a rinsing solution than normal saline. Wound-rinsing solutions with chemical additives (polyhexanide, octenidine, hypochloride, H₂O₂, ethacridine lactate and dye solutions) have not been shown to promote wound healing any better than</p>	<p>Rüttermann M.; Maier-Hasselmann A.; Nink-Grebe B.; Burckhardt, M. Local Treatment of Chronic Wounds in Patients With Peripheral Vascular Disease, Chronic Venous Insufficiency, and Diabetes. <i>Deutsches Ärzteblatt</i>, 2013 Jan; 110(3): 25–31.</p> <p>http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3566621/</p>

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<p>normal saline. For non-infected wounds, the use of antiseptic substances is not recommended, because there is no evidence that these substances promote wound healing (RR 1.09 95% CI 0.819-1.375 or prevent infection (RR 1.06 95% 0,87-1,3). Neutral solutions without any added active chemicals are recommended for active periodic wound cleansing. The use of approved antiseptic agents can be considered if infection is suspected.</p>	
<p>Retrospektiivne uuring:</p> <p>I A retrospective review was conducted on 59 patient records on the effect on venous leg ulcer healing using polyhexanide solution (study group). The retrospective analysis reviewed the clinical efficacy of wound cleansers in problem wounds. Wound cleansing upon dressing changes using polyhexanide solution in venous leg ulcers was compared to cleansing with either Ringer's solution or saline (control).</p> <p>The results of the study group (SG) were compared with 53 control group (CG) patients, who were selected in adherence to the same inclusion/exclusion criteria. In the CG, wounds were cleansed using either Ringer's solution or saline, initiating the wet-to-dry phase. The healing pattern of the ulcers was evaluated for time to healing, wound bed condition, pain, and patient comfort during dressing changes and wound cleansing. A comparison of the SG and CG was made by assessing the percentage of healed wounds in relation to the time to ulcer closure.</p> <p>Results:</p> <p>In the CG (saline/Ringer's solution), 47 of 53 wounds (89%) healed completely during the 6-month observational period (Table 1 and Figure 1).</p> <p>In the SG (polyhexanide solution), 57 of 59 wounds (97%) healed completely during the 6-month observational period (Table 2 and Figure 1). A direct comparison of healing performance is shown in Figure 1.</p> <ul style="list-style-type: none">• CG (saline/Ringer's solution, n = 53), infection during the course of treatment occurred in 7 cases (13%). No signs of infection were noted during the course of treatment in 46 cases (87%).• SG (polyhexanide, n = 59), infection during the course of treatment was noted in 2 cases (3%). There were no signs of infection noted during the course of treatment in 57 cases (97%). <p>The wounds of the patients treated with polyhexanide solution healed in more cases during the 6-month</p>	<p>Retrospektiivne uuring:</p> <p>I Andriessen, A. E.; Eberlein, T. Assessment of a Wound Cleansing Solution in the Treatment of Problem Wounds. <i>Wounds</i>, Vol 20, Issue 7, July, 2008</p> <p>http://www.woundsresearch.com/article/8882</p>

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<p>period (97% versus 89%) and healed in a shorter time (60% versus 28% for CG) within the first 3 months of treatment. There was a statistically significant difference between treatment groups ($P < 0.0001$) in time to healing.</p>	
<p>Muud: Dissemond, Augustin Modern wound care – practical aspects of non-interventional topical treatment of patients with chronic wounds (http://onlinelibrary.wiley.com/doi/10.1111/ddg.12351/full)</p> <p>At the beginning of wound therapy, it is often necessary to perform débridement, or at least to cleanse the wound. In addition to necrotic areas, fibrin, crusts, or dressing remnants must also be removed [4]. For wounds that are to be cleansed when changing the wound dressing, Ringer solution or physiological saline solution are the cleansers of choice. Sterility is no longer ensured once the container has been opened. Solutions which do not contain preservatives must be used immediately. For practical purposes, it is often more feasible to use cleansing solutions which contain preservatives, such as polyhexanide, or which are completely used up in a single dressing change. Care should be taken to ensure that the solution has been warmed to body temperature [5].</p> <p>The use of tap water is strongly debated among experts [6]. The German law on the prevention of infection, and the recommendations of the Commission for Hospital Hygiene and Infection Prevention (KRINKO) of the Robert Koch Institute (RKI), have unequivocally stated that only sterile cleansing liquids may be used for wound care. The use of tap water is only permissible in Germany if filters with a maximum pore size of 0.2 μm are used [7]. Patients rarely purchase such filters, given their expense. Yet, for doctor's offices and wound clinics, they represent a viable alternative if one wishes to continue using tap water</p> <p>For wound cleansing only sterile solutions such as Ringer's or physiological saline solution should be used. If tap water is used, then the use of sterile filters is strongly recommended. In patients with increased risk of infection, a critical colonization or local signs of infection, modern wound antiseptics using polyhexanide or octenidine are available. The use of systemic antibiotics should be strictly limited to patients with systemic signs of infections.</p>	<p>Dissemond J1. Chronic wounds and bacteria. Clinical relevance, detection and therapy. Hautarzt. 2014 Jan;65(1):10-4. http://www.ncbi.nlm.nih.gov/pubmed/24343032</p>

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Ravijuhendid

Kokkuvõtte ravijuhendites leiduvast

Koikkides kasutatud ravijuhistes soovitati kasutada minimaalselt tsütotoksilist/allergeenset lahust. Kahjuks ei ole tehtud väga palju süstemaatilisi ülevaateid leidmaks tugevaid soovitusi haavandi töötlusel eelistatavate vahendite osas. Enamikes ravijuhendites toetuti ekspertide hinnagule/soovitusele.

EDF: Level 3 Tap water cleanses as good as physiological saline. B Angeras 1992

Level 1 Topical antiseptics are ineffective in cleansing ulcers and are, in principle, cytotoxic. Al O'Meara 2001 A.

SVS: We suggest that venous leg ulcers be cleansed initially and at each dressing change with a neutral, nonirritating, nontoxic solution, performed with a minimum of chemical or mechanical trauma. [GRADE - 2; LEVEL OF EVIDENCE - C] . Ekspertide soovitus on enim sidemete vahetust haavandit töödelda/puhastada. Oluline on kasutada minimaalselt tsütotoksilist haavatöötlusvahendit.

SIGN: There is no contraindication to regular cleansing of the leg.

Ulcerated legs should be washed normally in tap water and carefully dried.

AWMA: Recommendation

Cleanse the leg and ulcer when dressings and bandages are changed. (CBR)

Ravijuhendis antud soovitused põhinesid ekspertide arvamusele, SIGN ravijuhendile ja Australian Wound Management Association Inc'ile. Oluline haavandi töötlemisel on hoida neutraalset või veidi happelisemat pH taset, kuna uuringud on näidanud et happelisem pH soodustab haavandi paranemist. Lisaks on haavandi pH seotud kudede verevarustuse ning hapniku partsiaalse rõhuga pO₂. Uuringud on näidanud et: A lowering of pH by 0.6 units releases almost 50% more oxygen and a five-fold increase in release of oxygen by a shift of 0.9 pH units (Leveent al, 1973). Within the chronic wound this is important as the likelihood of healing is high if tissue oxygen tension pO₂ is >40 mmHg but is unlikely at the levels of <20mmHg (Hunt and Hopt 97)

RNAO: Cleansing of the ulcer should be kept simple; warm tap water or saline is usually sufficient. Level of evidence C (expert opinion)

Otsingusõnad:

water, tap water, antiseptics, chronic venous ulcer, wound cleansing. Kasutatavaid allikaid leidis 6 + ravijuhendid (SVS; EDF; RNAO; AWMA)