

Silver-Releasing Dressings in Treating Chronic Wounds

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Summary and Conclusions

SBU's appraisal of the evidence

Silver-releasing dressings are used to treat chronic (hard-to-heal) wounds, ie, wounds that do not heal within the time expected. Common causes of chronic wounds include poor blood circulation or infection in the wound. Silver-containing dressings release silver ions intended to reduce the amount of bacteria in the wound and thereby promote healing.

- The scientific evidence is insufficient to determine whether silver dressings differ from dressings without silver in terms of effects on the percentage of healed wounds, wound size, pain, quality of life, percentage of infections, and use of antibiotics in treating chronic wounds. The reason is that too few studies of sufficient quality are available. The studies reviewed have not identified serious side effects or complications related to silver dressings, but they were not designed to study this specifically.
- The scientific evidence is insufficient to draw conclusions on the cost-effectiveness of silver dressings since too few studies are available.
- No controlled studies have investigated the effects of silver dressings on bacteria in chronic wounds.
- Well-designed studies are required to determine the effects of silver dressings and the appropriate indications for treating chronic wounds. It is important to consider the risk for development of bacteria that are resistant against antibiotics and the risks for negative environmental effects from using silver dressings. Hence, until further notice, silver dressings should be used only within the framework of controlled trials, or in other systematic follow-ups and compilations of their effects.

Technology and target group

Silver has been used in health care for many years to treat various infections. Dressings and creams containing silver are used primarily in treating chronic wounds and

burns. Silver-releasing dressings contain silver (usually in the form of silver salt or nanoparticles) that is released as positively charged ions when in contact with liquid. The silver is targeted at reducing the bacteria concentration in the wound, thereby promoting the healing process. The use of silver dressings has been questioned since silver is a heavy metal with toxic properties that can present risks for human health, animals, and the environment. Another risk that has been discussed is that bacteria can develop resistance against silver, and this resistance could be linked to resistance towards antibiotics.

In this assessment, patients with chronic wounds comprise the target group for treatment with silver dressings.

Primary questions

- What are the effects of silver dressings in treating chronic wounds as measured by the percentage of wounds healed, wound size, pain, quality of life, percentage of infections, and use of antibiotics?
- What is the cost of treating wounds with silver dressings? Is treatment cost-effective?
- Does the silver in silver-containing dressings have an antibacterial effect in the wound?
- Is there a risk for bacteria to develop resistance against silver and antibiotics?

Patient benefit

- The scientific evidence is insufficient* to draw conclusions on the effects that silver dressings might have on the percentage of healed wounds, wound size, pain, quality of life, percentage of infections, and use of antibiotics in treating chronic wounds.

This assessment included 6 randomized controlled trials. Two of those studies were judged to be of medium quality, and they provide the basis for the conclusions. The remaining 4 studies were judged to be of low quality. One of the medium-quality studies shows greater improvement in terms of wound size in the group treated with silver dressings. The second study shows no difference between silver dressings and dressings without silver in terms of the percentage of wounds healed and in quality of life. No serious side effects or complications related to silver dressings were identified in the studies reviewed.

No controlled studies have investigated the effects of silver dressings on bacteria in chronic wounds.

Silver resistance and its underlying mechanisms have been documented in experimental and clinical studies, but the clinical importance of these findings is unclear. Likewise, experiments have shown that bacteria exposed to silver can develop antibiotic resistance since the mechanisms that bacteria use to develop and spread silver resistance are, to some extent, the same mechanisms that bacteria use to develop antibiotic resistance.

Economic aspects

- The scientific evidence is insufficient* to draw conclusions on the cost-effectiveness of silver dressings.

* Criteria for Evidence Grading SBU's Conclusions

Evidence Grade 1 – Strong Scientific Evidence. The conclusion is corroborated by at least two independent studies with high quality, or a good systematic overview.

Evidence Grade 2 – Moderately Strong Scientific Evidence. The conclusion is corroborated by one study with high quality, and at least two studies with medium quality.

Evidence Grade 3 – Limited Scientific Evidence. The conclusion is corroborated by at least two studies with medium quality.

Insufficient Scientific Evidence – No conclusions can be drawn when there are not any studies that meet the criteria for quality.

Contradictory Scientific Evidence – No conclusions can be drawn when there are studies with the same quality whose findings contradict each other.

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PO Box 3657, SE-103 59 Stockholm, Sweden • alert@sbu.se

This summary is based on a report prepared by SBU in collaboration with **Anna-Christina Ek**, Professor Emeritus, Faculty of Health Sciences, Linköping University; **Margareta Lindgren**, Senior Lecturer, Faculty of Health Sciences, Linköping University; **Åsa Melhus**, Associate Professor, Uppsala University. It has been reviewed by **Christina Lindholm**, Professor, Högskolan Dalarna, and **Folke Sjöberg**, Professor, Faculty of Health Sciences, Linköping University. Project manager: **Karin Rydin**, SBU, rydin@sbu.se.

The complete report is available in Swedish.