



Published on *British Columbia Drug and Poison Information Centre (BC DPIC)* (<http://www.dpic.org>)

[Home](#) > [Printer-friendly PDF](#) > [Printer-friendly PDF](#)

Topical Insulin

Access:

professional

Article type:

drug information

Old Drugs – New Tricks? Maybe – Maybe Not.

Janet Webb, BSc(Pharm), MSc

As previously discussed in this column, DPIC answers a wide variety of drug information queries from pharmacists throughout BC. Questions into novel applications for established products are among the common calls to DPIC's drug information pharmacists. Here is another example of such queries recently posed to the Drug Information Service at DPIC.

Q: A prescriber has requested "Humalogue" insulin cream to enhance wound healing. Is this preparation available?

A: In May 2008 an online journal, *Dermatology Times*, reported that the application of an insulin analogue cream improved healing of wounds caused by burns.(1) The article was based on a poster abstract which studied the use of a cream prepared with "humalogue" (no further description given) 10 U/g or 30 U/g, compared to placebo.(2) Cream was applied every 2nd day for 2 weeks to guinea pigs with second degree burns (n=7 for each treatment). The authors reported that burn contracture was significantly improved in the higher insulin concentration group compared to placebo, although objective measurement values were not provided, and there was no significant improvement in wound healing area.

The idea of using insulin topically has been around for decades. The application of insulin to wounds was described in anecdotal case reports and animal studies dating back to the 1960s.(3) A 1976 pilot trial in 14 subjects which studied topical insulin in the healing of decubitus ulcers did not show statistically significant improvement, but prompted further investigation because of "general support" for the therapy.(4) The authors subsequently randomised 29 geriatric subjects with pressure sores to receive twice daily topical application of 10 U regular insulin and again failed to note a statistically significant differences compared to control.(4) They therefore cautioned that with lack of demonstrated benefit, and possible adverse outcomes, the use of topical insulin could not be justified. Indeed, profound hypoglycemia (blood glucose < 2.5 mmol/L) occurred in a patient who had a decubitus ulcer

sprayed with 1-2 mL of insulin (20 U/ mL).(5)

Since these early publications, additional investigations and anecdotes regarding insulin and wound healing have appeared sporadically (3,6), but none have provided convincing evidence as to the safety and efficacy of topical insulin in a clinical situation. In vitro experiments have studied the effects of insulin on wound healing mechanisms, including keratinocyte motility, adhesion molecules expression, and endothelial cell migration.(7) Others have studied local injections of insulin zinc suspensions in a rabbit model, speculating that lack of proven effectiveness may be due to difficulties in providing sufficiently persistent insulin levels at the wound itself.(8) No doubt studies will continue into this area, but at this time information regarding the usefulness of insulin in wound healing remains speculative, and safety issues have yet to be addressed.

References:

1. Petrou I. Healing open wounds: the 'right' topical insulin can expedite closure. *Dermatology Times* [Internet] 2008 May 01 [cited 2008 Oct 10]. Available from: <http://www.modernmedicine.com/modernmedicine/article/articleDetail.jsp?id=515845>
2. Kassem R, Trau H. The effect of topical insulin on the healing process of second degree burn in guinea pigs [abstract]. *J Am Acad Dermatol*. 2007;56(Suppl. 2):AB207.
3. Greenway SE, Filler LE, Greenway FL. Topical insulin in wound healing: a randomised, double-blind, placebo-controlled trial. *J Wound Care*. 1999;8:526-8.
4. Gerber RM, Van Ort SR. Topical application of insulin to pressure sores: a questionable therapy. *Am J Nurs*. 1981(June):1159.
5. Coid DR. Hypoglycaemia during treatment of decubitus ulcer with topical insulin. *Br Med J*. 1977;2(6094):1063-4.
6. Wilson JM, Baines R, Babu ED, Kelley CJ. A role for topical insulin in the management problematic surgical wounds. *Ann R Coll Surg Engl*. 2008;90:160.
7. Liu Y, Martins-Green M. Insulin accelerartion [sic] of healing and its effects on human microvascular endothelial cells [abstract]. *Wound Rep Reg*. 2008;16:A21.
8. Zhang X, Wu X, Wolf SE et al. Local insulin-zinc injection accelerated skin donor site wound healing. *J Surg Res*. 2007;142:90-6.

DPIC answers a wide variety of drug information questions from pharmacists and other health professionals throughout BC. The Centre would rather assist health providers with questions, than have them be doubtful about drug safety or therapeutic options in their patients.

If pharmacists and other health professionals are finding it difficult to locate information, then DPIC's Drug Information Service is here to help.

- Hours: 0900 – 1600 h weekdays
- Lower mainland: 604-806-9104
- Rest of BC: 1-866-298-5909

Originally published in BCPHA Tablet. 2009;18(3):10.

Keywords: insulin analogues
wound healing
topical agent

We are grateful to all the First Nations who have cared for and nurtured the lands and waters around us for all time, including the xʔmʔʔkʔʔyʔʔm (Musqueam), Skʔwxʔwuʔ7mesh Uʔxwumixw (Squamish Nation), and sʔlʔilwʔtaʔ (Tsleil-Waututh Nation) on whose unceded and ancestral territory our centre is located.

© 2024 BC Drug and Poison Information Centre

All material found on the BC Drug and Poison Information Centre (DPIC) website is provided for informational purposes only. It is *not* meant to replace the expert advice of a healthcare professional such as a physician, pharmacist, nurse or qualified poison specialist. Use of this site is governed and restricted by specific terms of use. Please review the **full terms and conditions** below prior to using the DPIC website. In the event of a poisoning emergency, call your local poison control centre immediately. Portions of this web site are intended for healthcare professionals. Interpretation and application of information may require more detailed explanation than contained herein, particularly regarding any clinical information that is found in or linked to this site. Patients are advised to consult their health care provider regarding diagnosis and treatment, and for assistance in interpreting these materials and applying them in individual cases.

Terms and Conditions

Source URL (retrieved on 2025-04-18 20:10): <http://www.dpic.org/article/professional/topical-insulin>