



## The Effectiveness of Honey Vs Saline Dressing in Diabetic Wounds: A Prospective Study

Authors

**Dr Arvind Ramachandran<sup>1</sup>, Dr Shashirekha C A<sup>2</sup>, Dr Sreeramulu P N<sup>3</sup>,  
Dr Mohan Kumar K<sup>4</sup>, Dr Bhaskaran A<sup>5</sup>, Dr Krishna Prasad P<sup>6</sup>**

<sup>1</sup>Post Graduate, Department of General Surgery, SDUMC, Kolar

<sup>2</sup>Associate Professor, Department of General Surgery, SDUMC, Kolar

<sup>3</sup>Professor and HOD, Department of General Surgery, SDUMC, Kolar

<sup>4,5,6</sup>Professor, Department of General Surgery, SDUMC, Kolar

### BACKGROUND

Diabetes mellitus is the leading cause of non-communicable disease morbidity and mortality. Diabetic foot is one the most common complications of diabetes mellitus. Different techniques are being used in treatment of diabetic foot to overcome long-term effects including surgical amputation. Normal saline is now widely used in the dressing of diabetic foot. Literature running way back to the 1800's has shown that honey has been very effective in the treatment of various types of wounds. Honey, according to the various recent studies shows that it holds a position in the diabetic foot care.

This comparative study helps in choosing a better treatment option for effective diabetic foot care.

### OBJECTIVE

To evaluate and compare the effectiveness of honey-impregnated gauzes, and saline-soaked gauzes for diabetic foot care.

### INCLUSIONS

Diabetic patients of the age group 30-75 years with foot ulcers

### EXCLUSIONS

1. Hb: <10 gm/dl
2. Serum albumin: <3 gm/dl
3. Patients with infected foot ulcers
4. Pregnant women either with gestational or previously known case were not included in the study

### METHODS

A prospective study of 48 diabetics who had developed diabetic foot, uninfected diabetic foot was treated with saline-soaked gauzes and honey impregnated gauzes over a 4 month period.

The healing time, rate of infection, and sense of pain were evaluated. The entire study was randomized. Two groups were made. Group A were treated with honey impregnated gauzes. Group B were treated with saline-soaked gauzes.

	Honey impregnated dressing	Saline dressing
Days required for healing	More	Less
Cost	Less	More
Pain sensation	Less	More

## RESULTS

In this prospective of 48 diabetics who had developed diabetic foot, were randomized into Group A and Group B by odd and even method. In the Group A, which consisted of 24 patients the diabetic foot was being treated with honey-soaked gauzes and Group B consisted of 24 patients in whom the diabetic foot was treated with saline-soaked gauzes.

The healing time, rate of infection, and sense of pain were evaluated.

Out of 24 patients in Group A, 6 developed fever, tachycardia and was attributed to infection. In group B, there was lesser incidence of such infection counting to 2 only. Attributing to cost effectiveness and easy availability of honey and lesser sense of pain (though more chances of infection) proved to have more consistent good results when compared to saline.

In the treatment of diabetic foot, honey-impregnated gauzes showed a fairly good epithelisation and a low sense of pain than and saline-soaked gauzes which showed better epithelisation but more sense of pain.

## DISCUSSION

Diabetes Mellitus is a chronic endocrine disorder characterized by high blood glucose levels. High blood sugar levels can cause damage to nerves and blood vessels leading to decreased sensory perception. Any injury even as trivial as a thorn prick can cause eruption of blisters and bursting of the same causing foot ulcers which has been given the name diabetic foot. Diabetic foot when left untreated may lead to secondary infection including those of the bones for which amputation the part may be the only treatment.

Moreover, honey caused no adverse skin reaction. Hamdy et al. reported that the number of microorganisms and bacterial species decreased by 50–100 % by application of honey on chronic infected wounds.

Various authors reported mild or no pain at all during dressing change with honey as compared to other treatments.

In our study, 24 of the subjects in the honey dressing group achieved complete healing of chronic wounds at the sixth week. Medhi et al. reported similar findings by conducting analysis to evaluate the efficacy of topical application of honey in observational studies as well as in clinical trials in the treatment of wounds. Most of the subjects reported complete healing within 4–12 weeks in clinical trials and within 2–9 weeks in observational studies.

The present randomized trial is unique in the sense that the salutary effects of honey have been combined with those of “moist occlusive” dressing. Occlusion of a wound cavity with the help of a semipermeable membrane retains the moisture of wound exudates and serves as a moisture-retentive dressing. Evaporation of wound exudates through an open dressing, namely, gauze or cotton pads, leads to cooling, desiccation, and dehydration of surface cells. The mitotic rate of healing cells is diminished at lower body temperatures. Moreover, the layer of dehydrated dead cells on the top of wound cavity serves as a good food for microbes hampering healing. These adverse effects of open dressing are averted with the application of occlusive dressing. The occlusion can be achieved with the help of a semipermeable polyurethane or hydrocolloid dressing.

The good results observed in the honey treated group. It provides an occlusive environment in which honey could exert its full beneficial effects as the entire honey poured into the cavity remained available to the healing cells. When honey application to a wound is covered with gauze or cotton, most of it gets absorbed in the gauze and is not available to healing cells. Moreover, polymorphs and macrophages immigrating into the wound cavity liberate growth factors essential for healing (e.g., e

dermal growth factor, fibroblast growth factor, and vascular endothelial growth factor).]. In the conventional dressings with gauze and cotton, the wound cavity is deprived of large fractions of these essential molecules as they get absorbed in gauze and cotton, losing their biological activity.

In other parts of the world, most wound clinics do not recommend the use of povidone iodine application on clean wounds. However, in India many physicians and nurses frequently use povidone iodine even in clean wounds. The present study demonstrates that the rate of wound healing with saline was much slower than that achieved by the honey-treated group.

## CONCLUSION

Honey dressing is more effective as compared to saline dressing in achieving complete healing, reducing wound surface area and pain, and increasing comfort in subjects with chronic wounds. The use of honey-impregnated gauzes is effective, safe, practical and economical. Honey can be an alternative material for diabetic foot care.

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