

ROLE OF TOPICAL POVIDONE-IODINE (BETADINE) ON WOUND HEALING

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Much progress has been made during last decades in the management of wound infection but it has always remained a serious challenge to a surgeon. Infection and septicaemia is still a threatening problem in burn patients, despite many measures have been adopted to keep the burned area sterile. The ideal local preparation for burned patient is that it should be cheap, non-irritant, without affecting the acid base balance and with a great penetrating power. Iodine is a time honoured germicidal agent but its use was limited due to its local irritant effect. This can be avoided by combining Iodine with an organic molecule as Polyvinylpyrrolidone forming Povidone-Iodine. Povidone-Iodine is as effective as Iodine but without any side or local effects of parent Iodine. Povidone Iodine being a non-antibiotic, chances of problems of drug resistance is almost negligible. It is active against both Gram positive and negative bacteria (Peter Cesany, 1977).

This paper is based on clinical experience with use of povidone-Iodine 5% solution and ointment in different varieties of wounds.

Material and Method

A prospective study was done to lay out the efficacy of Povidone-Iodine (5%) solution and ointment by including 100 patients having different types of wound problems. Broadly 4 groups were made. The cases are summarised in table I.

Table I
Showing distributian of cases

Type	No. of Cases
Group I	
<i>Burn</i>	15
10-20%	6
20-30%	4
More than 30%	5
Group II	
<i>Decubitus ulcer</i>	10
Sacral	8
Trochanteric	1
Both Sacral & Trochanteric	1
Group III	
<i>Leg & Foot ulcers</i>	10
Diabetic	5
Traumatic	3
Varicose	2
Group IV	
<i>Post operative wound Infection</i>	65
Abdominal Wounds	40
Amputation Wounds	15
Excision of ulcerated skin tumors	10

In burn cases, Povidone-Iodine solution or ointment was applied on the burn area from the first day onwards and this application was repeated twice or thrice a day. The wound was left open in 12 cases but in 3 cases

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due to burn on both anterior and posterior side of the trunk, Betadine dressing was done.

In all other cases, the wound was cleaned with savlon and spirit and then Betadine dressing was done along with the proper primary management of the case.

Results and Discussion

Burn:—The results of Betadine in burn patients were quite encouraging. No side effects like local irritation or allergic reactions were noted. The course of healing was uneventful and out of 15 cases, 2 cases of deep burn of more than 30 percent went into septicaemia out of which one was controlled with systemic antibiotics while other patient could not be saved as she went into irreversible septicaemic shock. Rest of the cases were clean at an early stage and were ready for skin grafting.

Decubitus Ulcers:—Decubitus ulcer has always remained a challenge to a surgeon even upto this period especially in paralysed patients. The ideal treatment of decubitus ulcer is radical excision of the defect with cover by a large flap. But before under-going such a major surgery that too in a paralysed patients, it is a duty of surgeon that the wound must be properly clean otherwise chance of failure is quite high. In this respect, Betadine has given a great advance in preventing as well as curing the infection from the decubitus ulcer which is usually grossly infected and thereby increasing the chances of success of surgical procedure. Betadine application took on an average 8 days to clean the wound as compared to average of 14 days by other local applications, after proper surgical debridement of the ulcer.

Leg and Foot Ulcers:— Leg and foot ulcers are of various origin, out of which diabetic ulcers are commonest. Local dressing of wound with Betadine has really enhanced the results

in cleaning the diabetic ulcers. It took on an average 14 days to clean the wound as compared to other methods. Similar good results were obtained in traumatic ulcers and varicose ulcers. Out of 3 cases of post traumatic ulcers, 2 cases needed skin grafting because of the massive loss of skin while 3rd case had complete healing of wound in 26 days.

Post Operative Wound Infections:— It had been observed by most of the surgeons that emergency abdominal surgery has always higher incidence of wound infection as compared to elective procedures. It has been implied that wound infection is not so much from the skin surface as such as it is from a potential source inside the peritoneal cavity (Polk 1969, Gilmore 1974). Even some of the great authorities like Hamilton Bailey believe in leaving the wound open in cases of infected peritoneal cavity. Sir David Wilke demonstrated that the heavily contaminated appendix wound may be left open down to the deep muscles with advantages in terms of sepsis and then delayed primary closure is done. In this respect, we used Betadine very frequently in cases of post operative abdominal wound sepsis and could get very encouraging results in terms of early cleaning of wound and resuturing of wound without any infection. The advantage of Betadine lies over the antibiotic preparation that it is active in presence of pus, blood or serum (Shelanski, 1965) and further being a non-antibiotic, there is no problem of drug resistance to the organisms as well. We also studied role of Betadine as prophylaxis against wound infection in emergency abdominal surgery and could get very encouraging results as compared to control groups in which Betadine was not used. Betadine treated wound gave only 24.5% infection as compared to 90% infection rate in non-Betadine treated group. It was a major achievement in terms of psychological and financial problems of the patient.

Amputation stump sepsis is a very common problem to every surgeon. Out of 22 amputations done for different reasons, 15 had wound sepsis. Betadine treatment was done in all of these cases and sepsis was controlled on average in 6 days.

Excision of ulcerated skin tumors with skin grafting usually leads to infection of the recipient area and local application of Betadine on alternate days greatly reduces the chances of infection at the site.

Conclusion

Betadine (5%) has proved its efficacy

in almost all types of wound infection. Advantage of Betadine lies in the fact that being a non-antibiotic, there is no chance of bacterial resistance. It is active in presence of pus, blood and serum and active against both Gram positive and negative bacteria. We could not get even a single case where Betadine treatment was limited because of the side effects. It was well tolerated by all the patients, no sensitivity to Iodine and no untoward reactions were noted.

References

1. Gilmore, O. J. A.; Martin, T. D. M. : Aetiology and prevention of wound infection in appendicetomy. Br. J. Surg. 61:281, 1974.
2. Peter Cesany. : Clinical experience with Providone-Iodine (Betadine) in the treatment of burns and as an adjunct in plastic surgery. Pharmacotherapeutica. 1:514,1977.
3. Polk, H. C ; Lopez-Mayer. J. F. : Post operative wound infection : A prospective study of determinant factors and prevention. Surgery. 66 : 97, 1969.
4. Shelanski, H. A.; Shelanski, M. V. : Polyvinyl pyrrolidone iodine, history, toxicity and therapeutic uses. J. INT. Coll. Surg. 20:727, 1965.