

Efficacy and Tolerance of Silver Sulfadiazine in Grade II Burns

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ABSTRACT

Objective: To determine the efficacy and tolerability of silver sulfadiazine in grade II burns.**Study design:** Cross sectional study.**Place and duration of study:** Department of Plastic surgery & Burn Unit, Sheikh Zayed Hospital Rahim Yar Khan during 01-09-2020 to 31-03-2021.**Material and Methods:** In this study the cases of both genders with age more than 12 years having grade II burn were included. Silver sulfadiazine was applied in 1% strength in the form of dressing on alternate day and was assessed for degree of healing on day 5, 10, 15 and 20 where final outcome was seen with the help of photographs and graphs and efficacy was labelled where there was more than 90% of epithelisation of the wound. The cases were also assessed subjectively regarding tolerance of the drug.**Results:** In this study 30 cases of grade II burn were included. The mean age of the subjects was 16.47±5.31 years and mean duration of burns was 6.79±2.73 hours. There were total 18 (60%) males and 12 (40%) females in this study. Mean percentage of burn was 23.31±7.49 percent. Efficacy of Silver sulfadiazine was noted in 19 (63.33%) of the cases. Out of 30 cases, 3 (10%) had excellent and 12 (40%) had optimal tolerance of the drug.**Conclusion:** SSD is efficacious and this efficacy is seen in 2/3rd cases suffering from grade II burn.**Key words;** SSD, Efficacy, Grade II Burn

INTRODUCTION

Burns are one of the common causes of high degree morbidity and potential mortality in the plastic surgery units. Their number is increasing day by day courtesy advent of newer technologies, machineries and combustible materials in the modern world and incidence is higher in the developed world.¹⁻²

Burns can be categorized into various degree depending upon its depth and the involvement of the underlying tissues. Superficial the burn and easy is the management which can be done on the outpatient basis and deeper burns may need debridement of the tissue and re construction. There are number of scores to categorize the degree of burns and their severity. Amongst them rule of nine is the most commonly deployed one.³⁻⁴

Grade I and II burns are relatively superficial and can be managed by wide variety of drugs that can be applied either topically or their special dressings are commercially available. Infection is the major risk factor associated with poor outcome and even intravenous antibiotic have been used widely but due to hemodynamic variability at the burn site and long term need of antibiotic have led to emergence of drug resistance with conventional therapies.⁵⁻⁶

Silver sulfadiazine (SSD) is a silver containing anti microbial agent which is most commonly used and has the broad spectrum coverage and acts against both Gram positive, negative and also against fungal infections. SSD inhibits the bacteria I growth as well as inhibits the molecular transport system and DNA synthesis. SSD is usually well tolerated and has minimal side effect profile, but systemic absorption is a concern associated with this and the most commonly reported side effects include pain and burning sensation.⁷⁻⁸

PATIENTS AND METHODS

This was across sectional study and was conducted at Department of Plastic surgery & Burn Unit Sheikh Zayed Hospital Rahim Yar Khan during 01-09-2020 to 31-03-2021.

Inclusion Criteria In this study the cases of both genders with age more than 12 years having grade II burn were included.

Exclusion Criteria The cases with immunocompromised state, the ones with end stage liver of renal failure and those with hypersensitivity to the drug studied were excluded form this study.

Silver sulfadiazine was applied in 1% strength in the form of dressing on alternate day and was assessed for degree of healing on day 5, 10, 15 and 20 where final outcome was seen with the help of photographs and graphs and efficacy was labelled where

there was more than 90% of epithelisation of the wound. The cases were also assessed subjectively regarding tolerance as excellent, good, optimal or poor.

Statistical analysis: The data was analysed by SPSS 21. Frequency and percentages were calculated for nominal and mean and standard deviation for numerical data.

RESULTS

In this study 30 cases of grade II burn were included. The mean age of the subjects was 16.47±5.31 years and mean duration of burns was 6.79±2.73 hours. There were total 18 (60%) males and 12 (40%) females in this study. Mean percentage of burn was 23.31±7.49 percent as shown in table I. Efficacy of Silver sulfadiazine was noted in 19 (63.33%) of the cases (figure 1). Out of 30 cases, 3 (10%) had excellent and 12 (40%) had optimal tolerance of the drug as in table II.

Table I. Study variables (n= 30)

Variables	Mean ± SD	Range
Age	16.47±5.31	12-53
Weight	56.31±12.17	24-93
Duration of burn (hrs)	6.79±2.73	1-10
Percentage burn	23.31±7.49	15-35%
	Number	Percentage
Male	18	60%
Female	12	40%

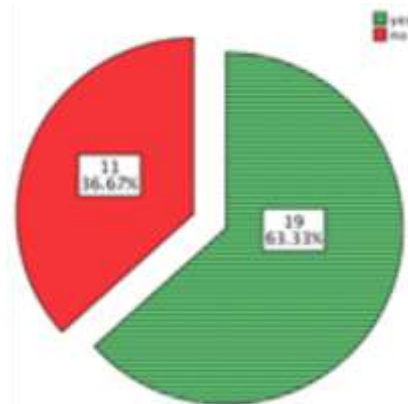


Figure 1. Efficacy of SSD (n= 30)

Table II. Tolerability of SSD (n= 30)

Tolerability	Number	Percentage
Excellent	3	10%
Good	8	26.67%
Optimal	12	40%
Poor	7	23.33%

DISCUSSION

Burn is one of the major health care burden and can be of various types. It can impact via great physiological and pathological changes in the body and fluid imbalance. The breach to the skin and subcutaneous tissue not only leads to excess amount of water, proteins and electrolytes loss but also predisposes to a number of infections as well, as the skin is the best protective dressings. That's why early healing is the key to success. Out of the wide list of drugs silver sulfadiazine has a salient recognition.⁹⁻¹⁰

In the present study, efficacy in the form of re epithelisation after burn with Silver sulfadiazine was noted in 19 (63.33%) out of 30 cases. The results of the present study were almost similar to the data that has analysed its efficacy in the past. According to a study done by Tang H et al they compared Silver sulfadiazine with Mepilex Ag and it was observed that there was no statistically significant difference in both the groups regarding healing and time taken to healing. And the overall efficacy with silver sulfadiazine was 79% which was slightly higher than 63.33% in the present study.¹¹

In another study they compared this drug with hydrosome wound gel and it was seen that there was no significant difference in terms of overall efficacy which was nearly 70%, but the mean time taken to efficacy was slightly faster in hydrosome gel as compared to silver sulfadiazine and was 1.5 to 2 times earlier.¹² The study done by Huang WH et al found that the healing was good with silver sulfadiazine and was seen in around 73% of the cases and moreover, the risk if infection was much lower with this drug.¹³

The other studies also proved SSD as a good agent and with good epithelisation rates and no major side effects were noted in previous studies and so was seen in the present study where out of 30 cases, 3 (10%) had excellent and 12 (40%) had optimal tolerance of the drug. According to the studies done by Brown M et al and Verbelen et al there were no major side effects of the drugs except for irritation and mild pain at the site and overall drug tolerance was good along with optimal efficacy.¹⁴⁻¹⁵

CONCLUSION

SSD is efficacious and this efficacy is seen in 2/3rd cases suffering from grade II burn.

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