INTRODUCTION
INTRODUCTION

The problem of burn is as ancient as the time when man attempted to use fire. Burns have caused great suffering to mankind physically, socially as well as economical and still remain a major health problem. More than 2 millions suffer thermal injury annually all over the world. According to "Central Bureau of Health Intelligence" number of deaths by fire in 1984 was 15,741, which had increased up to 18,943 in 1988.

Thermal burns are caused by application of heat to the body. The degree of resulting burn injury depends on intensity and duration of heat application and conductivity of tissue involved. Congested living condition and wearing loose garments cause burn from wood stove, kerosene stove, kerosene lamp and leaking gas cylinders. Burning dress can produce a temp of about 100°C. In addition thermal injury is frequently observed in patients who have been exposed to direct contact with hot liquid, hot metal, toxic chemicals or high voltage electric current and explosion of natural gas, propane, gasoline and other inflammable liquids. In civilian practice, scald usually from hot water is the most common cause of burn. Water
at 140°F (60°C) creates a deep dermal or full thickness burn in 3 seconds. At 156°F (69°C) the same burn occurs in 1 second. Scald burns from grease or hot oil are usually deep dermal or full thickness burns. Cooking oil and gas may produce temp.of about 400°F. In scald burn, exposed area burns less deep than the burnt area covered with thin clothing. Clothing retains the heat and keeps the liquids in contact with the skin for longer period.

The cause and risk in burn injury as well as risk of burn death are influenced by age, economic circumstances, geographic location and season of year and occupation. Risk of burn injury and death is maximum in the very young, the elderly, the economically disadvantaged and in the winter months.

More than 90% of burns are caused by carelessness or ignorance and are completely preventable, about 74% are domestic burns and 79% of all domestic burns involve women and children.

The chemical burn, in the civil population is most commonly seen in industrial mishaps, laboratory accidents, civilian assaults and inexpert
application of agents used for medical purposes. The principle difference between thermal and chemical injury is the length of time during which tissue destruction continues. The chemical agent causes progressive damage even after inactivation, while thermal injury ceases after removal of heat source.

Ever since man burnt himself, he has covered the raw wound with a variety of medicaments in an effort to heal. Coverage of this raw area expeditiously, still remains an inseparable part of treatment. Various mode of local treatment have been suggested and used from time to time but the dilemma continues and the search for an ideal agent continues. In ancient times the emphasis on treatment of burn wounds was local application of various medicinal products like resins and bitumen vinegar, extracts of plants, honey and bran, gum, goat hairs and other funny things like milk from a mother who has given birth to a male child. Subsequently these local applicants changed to specific chemicals as tannic acid, silver nitrate, gention violet and petroleum gauze, but with the advent of anti-microbials like sulfamylon, sulphadizine cream etc. the emphasis turned to their local application.
The three basic concepts regarding the local problem of burn injury are:

1. To protect microorganism invasion from without.
2. Burn injury provides a large raw area, which causes a loss of large amount of water, electrolytes and plasma proteins.
3. The problem of pain caused by irritation of exposed nerve endings by clothing, dressing or even the mere contact of air.

To minimize the evaporative effect of raw surface produced by burn injury, various biological and synthetic covering materials have been used by various workers at different times. Different biological and synthetic covering are homografts, skin heterografts, skin collagen sheets, amniotic membrane, solid silicone polymembrane, cotton gauze fabrics, sprays, gels and laminates etc. But a perfect wound dressing is still a dream because covering materials although being good dressing materials have their limitations and disadvantages like subgraft suppuration, limited availability, high cost and potential risk of transmission of diseases like Hepatitis.
To decrease the introduction of infection from without there are a number of topical agents which are used but almost all of them don’t fulfill the criteria of an ideal agent. An ideal topical agent should have a wide spectrum of action, and should be least toxic to the patient, i.e. with minimal chances of development of resistance against drug. It must have water vapour transmission rate which will allow the proper moisture balance in the healing wounds i.e. to prevent either hydration or desiccation of the healing tissue and it should penetrate eschar.

The management of burn wound sepsis is still a very challenging problem in terms of morbidity and mortality. The improvements in infusion therapy has led to a clear reduction in mortality due to shock but the problem of infection is the major cause of death in burn patients. The vast advancements in medical science and availability of various broad spectrum antibiotics, has lengthened survival time but still late deaths due to burns are invariably associated with infection. The avascular nature of burn tissue as a result of thrombosis of vessels limits the delivery of endogenic phagocytic cells and also decreases efficacy of systemically administered antibiotics leading to propagation of
infection. In addition to infection, wound maceration and pressure necrosis also favor microbial proliferation and impair circulation. The problem of the deep burn is slightly more complex because even adequately administered local antimicrobials do not reach the subescharal plane due to prolonged ischemia. The systemically administered antibiotic can only reach the subescharal plane by gradient diffusion from the wound periphery. So they are always inadequate in preventing colonization of bacteria and hence it is seen that patients with deep burns have more extensive sepsis.

This local source of virulent organisms in presence of lowered body resistance can alter the fragile balance between resistance and infection leading to frank septicaemia and death at any time (Liedberg, N.C.F., Reiss, E and Artz C.P. 1954). Once generalized burn wound sepsis has developed, the chance of survival is 10% or less (Mc Manus WF. Goodwin CW, Jr. Manson AD Jr et al, 1981).

Thus, it is necessary that treatment of local infection be given top priority and since systemic delivery of antibiotics is sub-optimal, more
reliance is to be put on local methods of control of infection.

With this view and also because daily dressing would not be needed hence pain would be minimized. Povidone Iodine (Polyvinyl pyrrolidone) and Neosporin powder would be used in superficial and deep burns. In this study in addition to the above, multiple subescharal injections of povidone iodine in subescharal plane would be given to counter the infection in subescharal plane by directly increasing the level of subescharal antimicrobials and help in early escharolysis by opening up subescharal plane and decreasing bleeding on separation of eschar.