A Burning Issue

by Roger Tilton

Apart from a shark attack, being burned is about as terrifying as it gets. Excruciatingly painful, potentially fatal, burns are among the most horrific of all mutilating traumas. The good news is that a revolutionary new therapy is available which can mitigate most of the horrors exacerbating burn injuries.

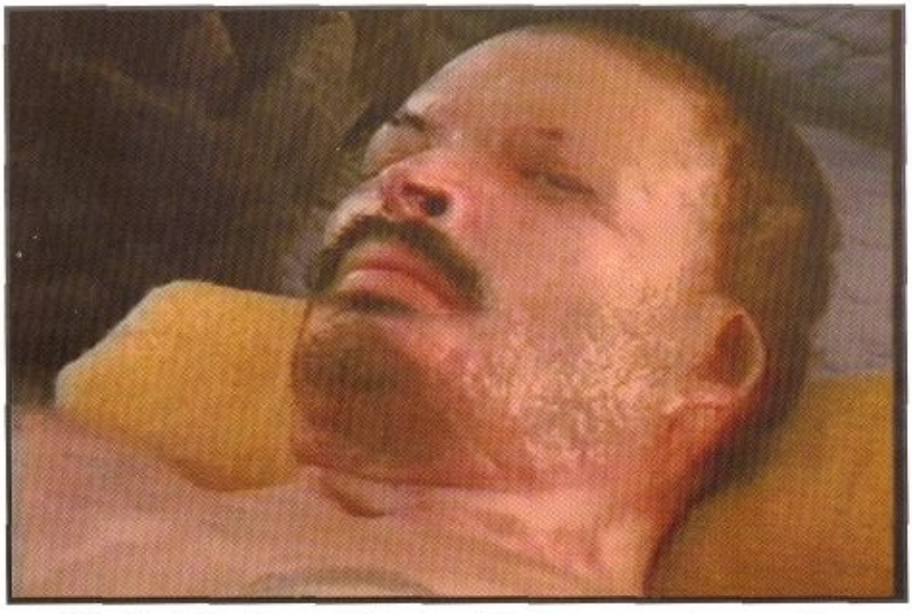
Take for example, the case of two equally seared victims of a propane gas explosion. Both men were burned over 65% of their bodies. The different treatments each received subsequently were as different as torture is from compassion. One, whom I will call "Poor Boy," received the current surgically-oriented therapy which is regularly employed in such cases. The other patient – I'll call him "Lucky" – was treated with a medicine which relieved his pain, avoided the need for surgery, and expedited his recovery. "Poor Boy" suffered in hospital for over three months, enduring numerous skin grafts while under the constant sedation of morphine. "Lucky" was out of the hospital in less than a month, painlessly healed with medicine alone. "Poor Boy" lost parts of his ears and nose, has limitations in movement due to burn contractures, and is scarred for life. "Lucky" went home totally healed, with smooth, unscarred skin free of contractures. "Poor Boy's" conventional, surgically intensive care cost over one million dollars. "Lucky's" total bill was less than a tenth of that amount. Two similarly burned victims; two opposite treatments; two dramatically different outcomes. If you, or a loved one, were seriously burned tomorrow, which treatment would you prefer? If the answer is obvious, then try this question: If there is such a truly superior therapy for burns, then why won't you receive it at your nearest burn center? This is a medical conundrum begging for an answer.

I had personal experience with this medical wonder when my wife Pat, burned her hand and lower arm with scalding water. Aware of his role in developing this new treatment, I called Dr. Michael J. Saliba. He urged us to meet him at his office, even though it was after hours. We found that Dr. Saliba's caring concern and self-effacing humility belies a scientific intellect which has won him the respect of leading burn specialists throughout the world. What Dr. Saliba did seemed unbelievable. He simply placed a clear medicine called heparin (more about this later) onto Pat's painful, open burn wounds and into her angry blisters. The pain in the burn surfaces and blisters was gone within a minute of application. Then, just as quickly, he relieved her deep burn pain by injecting some of the solution into a layer of fat just below her healthy skin, for slow absorption. Next, a quantity was infused into a vein for rapid distribution throughout her body. Quickly, her deeper pain was gone. Dr. Saliba then sprayed the burn surfaces and rinsed her blisters 2 or 3 more times over a 15-minute period. Finally, he taped bandages loosely over the wound area. The initial treatment was finished. Dr. Saliba explained that heparin is a well-known medicine widely used to prevent blood from clotting. He uses it for this and other beneficial effects. Pat's heparin treatment was continued by daily injection for a few days, and applied on the burn surface twice daily in diminishing amounts until final healing. Within a fortnight Pat's burn was healed leaving no residual scars. This personal experience won our total conviction.

One is tempted to call Dr. Saliba's treatment 'miraculous'; it is no such thing. It is the result of 40 years of meticulous scientific research. I came to this realization as I traced his work with burn colleagues in many countries in which they sought to improve burn treatment through a medical, rather than surgical emphasis. Dr. Saliba theorized that since the body could heal small burns by itself, then its own endogenous mechanisms might be assisted medically to facilitate the healing of larger burn injuries. Given supplemental medication, fluids, nourishment, exercise, and rest, the body could heal itself, thereby avoiding the additional punishment of surgery. Their focus was on enhancing the beneficial supply of blood to the burn site. Notice how, when you burn your finger, you shake your hand vigorously? The pain subsides; the healing begins. When he was badly burned, Richard Pryor took off and ran frantically down the street, instinctively stimulating lifesaving circulation. Victims of burns, such as those drenched by LOX (liquid oxygen), shake violently in an effort to increase pain-easing blood flow. The researchers suspected that augmenting the body's own burn defenses could act to arrest burn damage and pain, and promote the regeneration of new tissue without resorting to surgery.

As early as 1940, a cadre of investigators began to focus on the potential for using the common anticoagulant heparin as a medical treatment to assist the body in healing burns. Heparin is an unpatented biochemical produced in our own bodies and those of animals. With the approval of the Food and Drug Administration, it is commonly used to prevent blood from clotting. The work of Dr. Saliba and his colleagues, first with animals and then on humans, has revealed the precise mechanisms through which heparin works to help the blood arrest burn damage, ease pain, and grow healthy, unscarred new skin. The process works painlessly from the inside out with the old, burnt skin finally being sloughed off, shed like that of a snake.

"Poor Boy" with burns over 65% of his body. He underwent conventional, surgically-based treatment for over three months, at a cost of over $1 million.



"Poor Boy" after his surgical treatment. He has permanent scars and has lost parts of his face, nose, and ears.

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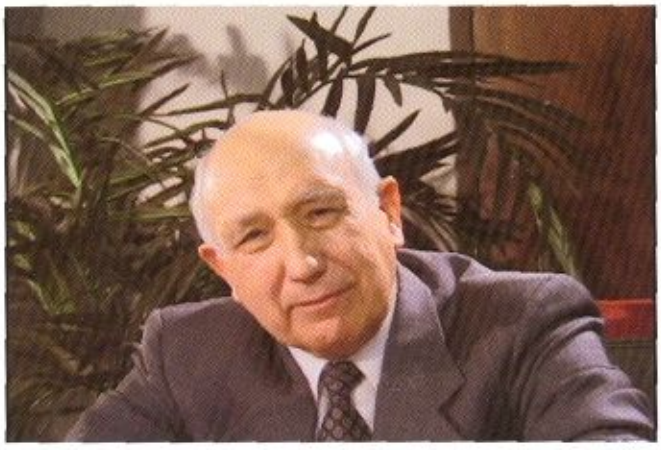
Being a layman, I first had to understand the pathogenesis of burn injuries, whether caused by fire, steam, water, sub-zero freezing, electricity, radiation, caustics, or explosions. Depending on the temperatures, duration, and areas exposed, burns destroy increasingly deeper and larger groups of cells through blood clotting and inflammation. Inhalation of hot, smoky air attacks the lungs. Electrical charges enter and exit the body leaving an erratic trail of damage. The toxins left by dead cells after the initial thermal onslaught, and blood clots, may play a part in affecting muscles, nerves, and initiating gangrene. The resulting chain reactions can eventually overcome vital organs and lead to death. To prevent this scenario the standard treatment has been to excise burned tissues wherever possible. While repairs can be made through grafting and reconstructive surgery, amputation may be the ultimate recourse in the case of burned extremities, as frequently occurs in electrical accidents. Surgical intervention typically creates a risk of infection, requires blood for transfusions, immobilizes the patient, and requires long-term sedation. Lack of mobility prevents the body's own ability to protect and heal itself. Even after release, the patient will take home a lifetime of scars, horrific memories, and a crushing hospital debt. It is for these reasons that Dr. Saliba and his associates have evolved a better way to heal most burn injuries. Dr. Saliba explains "We found that by using heparin, the destructive effects of burns were limited. The burns did not increase in size or depth, as untreated burns in our control studies had. The initial size was the maximum size. With heparin, swelling, redness, and heat were reduced. The result was that pain was controlled. We gave our patients no pain medicine at all. With less fluids given and with less swelling, the need for surgical procedures was less. We observed that blood was restored to both burned and non-burned areas. Healing was enhanced. *The most amazing and unexpected result was that the new skin was smooth, comfortable, and without the shortening in length we call contractures, which limit movement and interfere with function."* [emphasis added]



Michael J. Saliba, Director
Saliba Burns Institute, San Diego, California.

Surgery's inherent pain, need for blood transfusions, and ever-present risk of infection are essentially avoided, along with its reliance on morphine and prolonged hospitalization. Dr. Saliba continued "In medical school I hated burns, and swore I would never treat them. Well, not only have I treated a great many, but it seems we have improved our results through the addition of heparin. The deep satisfaction we doctors feel in seeing our patient's pain abate and scars and amputations minimized is beyond description, and reward beyond imagining. But I still hate burns!"

Aerosolized heparin is unique in its ability to treat inhalation injuries, which are especially intractable to other forms of therapy and are the leading cause of death from fires. Heparin has recently been proven effective in healing deep injuries caused by electricity, even those which might ordinarily have required amputation. That heparin is also inexpensive and reduces the need for highly technical facilities and lengthy hospitalization is a bonus not to be discounted. Cost has become a factor even in the United States where current burn expenses per patient average in the many hundreds of thousands of dollars. The cost of burn care with heparin added has been a tenth, or less, of that of other methods. It is affordable to all.

As controlled studies with animals, and conclusive clinical trials with humans have been published in respected, peer-reviewed medical journals, an increasing number of burn specialists around the world have recognized the benefits of using heparin in treating their own patients. However, merely reading the scientific literature was not in itself sufficient to convince these skeptical professionals. Surgeons all, they have had to be shown for themselves through actual practice. Giving unstintingly of himself, Dr. Saliba has traveled throughout the world to personally mentor dubious investigators willing to test heparin in their own burn clinics. In all cases, the overwhelmingly positive results have led to further dissemination of Dr. Saliba's protocol. New articles continue to be published in professional journals, many of which Dr. Saliba has written himself, or has co-authored with others. To date, an impressive bibliography of articles on the effects of heparin in the treatment of burns have appeared in prestigious publications such as the *Journal of the American Medical Association, Burns, Aerospace Medicine, Surgery, American Journal of Cardiology,* the *Journal of Burn Care Rehabilitation*, and in papers delivered at international burn symposia. Those held in Las Vegas, San Diego, and El Salvador were sponsored in large part by Dr. Saliba himself. I myself have heard Respiratory Technician Ron Mlcek, from Galveston, Texas, report on how heparin has reduced the mortality rate for inhalation injuries in his hospital "...to 12%, probably the lowest in the world!"

Dr. K.M. Ramakrishnan, from Madras, India, where self-immolation is practiced by new widows, reports the successful treatment of hundreds of seriously burned patients, with heparin. In one case a hopelessly burned woman was saved from certain death by a massive infusion of heparin, far beyond the dosage previously recognized.

In Mexico, Dr. Alberto Reyes has recently saved several victims of electrical burns from customary amputation through a timely application of heparin therapy. Similar breakthroughs continue to be reported as doctors throughout the world apply heparin in the treatment of their patients. Nurses have responded enthusiastically to heparin's pain relieving, patient-friendly characteristics which ease their

caregiving tasks. Pediatricians, especially, appreciate the fact that they can treat their terrified little patients with soothing heparin, rather than with the nightmarish regimens of surgery. Burn specialists from diverse backgrounds have found their initial skepticism swept away by witnessing heparin's convincing benefits for themselves. When contraindications have been respected and proper guidelines

platelets (a thrombocytopenia), or a true allergy to heparin. Burned patients should not receive large doses of heparin intravenously if the burn occurred more than two days before the start of treatment. Naturally, trained personnel need to supervise the application of heparin, and doctors must monitor its parenteral use at all times. Timing is especially significant: while surgical intervention may incur a delay in

"Lucky," with burns larger than 65% of his body. He was treated with heparin, avoiding surgery. He was out of the hospital in a month, at a cost one tenth of that for "Poor Boy."

"Lucky" fully recovered, without scars or contractures.

followed, there have been no valid scientific objections raised against the use of heparin in the treatment of burns.

Sister Maria Brenner, "Mother Antonia," who ministers to burn patients at the Catholic Hospital in Tijuana, Mexico, prays that the benefits of heparin can be extended to all sufferers: "My Sisters and I have seen Dr. Saliba's work, and to see the pain leave their bodies and see that they are left without scars is just...a miracle!"

Largely through Dr. Saliba's efforts and travels, heparin is now being used as an accepted treatment for burns by leading specialists in major burn centers in eleven countries: India, Russia, Bulgaria, Brazil, El Salvador, China, Mexico, Canada, Haiti, Korea and Oman. It has been scientifically validated and clinically proven. It is an obvious candidate for application in regions where funds are limited, where there is no debriding equipment for removing burned skin, and where expensive isolation wards are unavailable. Because heparin works best the sooner it is applied, it is an ideal first aid resource for use by firemen, paramedics, and trauma care personnel (provided, of course, that they have been properly trained to recognize and deal with contraindications). Heparin may not be used in all burn patients. The contraindications are well known: bleeding, insufficient platelets, and allergy being the principal ones. Therefore, heparin cannot be used if there is active bleeding, trauma in which bleeding is likely, a personal or family history of bleeding problems, a history of an active intestinal or stomach ulcer, a low number of

transporting the patient to a distant burn facility, heparin therapy can commence anywhere, and the sooner the better.

The day may come when large scale thermal disasters, with their overwhelming caseloads, will be quickly and efficiently managed on site through the immediate application of Dr. Saliba's heparin protocol, relieving the pain, initiating therapy, and reducing mortality. Which underscores the military importance of being able to expedite the return of burned personnel to their duty stations in remote battlefields, on board ships, and where aircraft disasters have swept flight decks. Sooner, rather than later, minimizing surgical procedures in favor of heparin's benign use is a win-win proposition for everyone.

Dr. Saliba's superior burn treatment represents progress; if it is so good, why isn't it being universally used? Heparin treatment is still relatively unknown, despite Dr. Saliba's missionary travels. Since no pharmaceutical house holds a profitable patent on heparin, there has been no commercial impetus to market its use in burn care. Hospital administrators, HMOs, insurance companies, and foundations who support burn clinics all defer to the professional advice of their burn specialists who are – surprise! – surgeons. Dr. Saliba knows, because he has appealed to many of them. When it has come up for discussion at the international symposia I have attended, there has been no scientific evidence presented to contradict the valid case for the appropriate utilization of heparin in the treatment of burns.

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If the objective medical community, not those who are "burn specialists" steeped in surgery, were to open-mindedly review the case for heparin they, too, would become converts. The public, once it becomes aware of this better alternative, will begin to question their medical providers and to demand more humane burn treatment. It falls on the medical teaching schools and hospitals to revisit their burn curricula, adding a unit on the administration of heparin. Surgery may be unavoidable in some cases, but heparin should become a preferred option in the treatment of most burn injuries. The protocol has been well established and is easily mastered; it should become a standard component in every burn unit. Each year, millions of dollars are being awarded as grants from charitable foundations and the Government to support research in antibiotics, pain suppression, artificial skin culture, intravenous feeding, and similar facets of surgically-focused burn treatment. Hospitals and clinics with expensive burn wards expend precious resources to maintain staffs and facilities required for long-term care of surgically treated burn victims. Without compromising the quality of care, they might find it worthwhile to reaudit their burn department's budget.

The patient "Poor Boy" had the misfortune of undergoing an agonizing, expensive, and permanently disfiguring therapy for his burns. On the other hand, patient "Lucky" could become the posterboy for a movement to change the way in which burns are treated in this country. Scientifically-based and clinically proven, the only 'miracle' connected with this humane advance in burn care is the obscurity in which it has languished. The solution lies in communication. Let it begin by bringing this to the attention of your own doctors, and asking them about it. The better mousetrap is here; now we need to welcome it!

For further information visit the Saliba Burns Institute website www.salibaburnsinstitute.org

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