A COMPARATIVE STUDY OF BURNS TREATED WITH TOPICAL HEPARIN AND WITHOUT HEPARIN

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SUMMARY. Following reports of heparin use in burn treatment, an ethics-committee-approved prospective randomized study with controls compared results obtained using traditional usual burn treatment without heparin with results in similar patients similarly treated with heparin added topically. The subjects were 100 consecutive burn patients (age, 15-35 yr) with second-degree superficial and deep burns of 5-45% TBSA size. Two largely similar cohort groups, i.e. a control group (C) and a heparin group (H) with 50 subjects per group, were randomly treated, the main difference between the groups being that 13 C patients had burns of 35-45% extent vs. only one such patient in H ($p < 0.01$). The 50 C patients received traditional routine treatment, including topical antimicrobial cream, debridement, and, when needed, skin grafts in the early post-burn period. The 50 H patients, without topical cream, were additionally treated, starting on day 1 post-burn, with 200 IU/ml sodium aqueous heparin solution USP (heparin) dripped on the burn surfaces and inserted into the blisters 2-4 times a day for 1-2 days, and then only on burn surfaces for a total of 5-7 days, prior to skin grafting, when needed. Thereafter, C and H treatment was similar. It was found that the H patients complained of less pain and received less pain medicine than the C patients. H needed fewer dressings and oral antibiotics than C. Significantly less intravenous fluid was infused in H: 33.5 litres in 39 H patients vs. 65 litres in 41 C patients, i.e. nearly 50% less ($p < 0.04$). The 50 H patients had four skin graftings (8%), while the 50 C patients had 10 (20%). Five C patients died (mortality, 10%). No H patients died. The number of days in hospital for H vs. C was significantly less (overall, $p < 0.0001$): 58% of H were discharged within 10 days vs. 6% of C; 82% of H were out in 20 days vs. 14% of C; 98% of H vs. 44% of C were out in 30 days; and while 100% of H were discharged by day 40, 56% of C required up to another 10 days. The burns in H patients healed on average in 15 days (maximum period 37 days) vs. an average of 25 days (maximum > 48 days) in C ($p < 0.0006$). Procedures and costs in H were much reduced compared with C. Photographs of the differences between H and C are presented for the sake of comparison. It is concluded that heparin applied topically for 5-7 days improved burn treatment: it reduced pain, pain medicine, dressings, and use of antibiotics; it significantly reduced IV fluids ($p < 0.04$), days in hospital ($p < 0.0001$), and healing time ($p < 0.0006$); and it reduced skin grafts, mortality, and costs.

Introduction

Our 1200-bed Indira Gandhi Government General Hospital and Post-graduate Institute, Pondicherry, India, admits a total number of 50,000 patients a year, of whom an average of 1.5 patients per day are admitted to the burns unit. Approximately 50% of the burn patients die because they are suicide cases with severe second- and third-degree burns covering from 60 to nearly 100% of the total body surface area (TBSA). As survival is bleak and treatment costs prohibitively high and economically un-supportable, these dire situation patients are generally given narcotics to lessen their suffering until the burn pathology inevitably terminates in death.

Another nearly 50% of the patients admitted have second- and third-degree severity burns in less than 50% TBSA. Some 60% of these patients are aged 15-35 years. In the three years prior to this study, of the 1344 such patients admitted, 430 died, with a mortality rate of 31.9%. The treatment of burn patients has been onerous and difficult, and needs improvement. Measures and means that might produce new burns therapies have been explored.

Heparin has been reported to be of value.$^{1-16}$ The routes of heparin administration described are topical, intravenous, subcutaneous, inhalation, and in membranes. The studies report consistent relief of burn pain, enhanced healing in less time at reduced costs, and lower mortality with minimal scars and contractures. The largest and longest use of heparin was by topical application. The present study was therefore designed to evaluate whether the addition of heparin, administered only topically for a limited time and prior to any surgery, could improve burn treatment and reduce burn morbidity and mortality in our hospitalized patients. The Ethics Committee approved the study plan and the use of heparin by protocol.$^{16}$

Method

Subjects: selection, characteristics, and distribution

In the six months between October 2004 and March 2005, 226 patients were admitted to our burns unit. The subjects in this study were the first consecutive 100 patients aged 15-35 yr whose superficial and deep second-degree severity burns were below 50% TBSA size (range,
50-45%). Fifty of these randomly selected patients were designated to be the control group (C). C patients received the traditional routine treatment without the addition of heparin. C treatment included pain medications, intravenous resuscitation fluids, oral antibiotics, topical antimicrobial sulphur-base cream, water baths, debridement, tissue-releasing incisions, blood transfusions, and skin grafts. The other fifty randomly selected patients were assigned to the heparin-treated group (H). H patients received the same treatment but without the use of topical antimicrobial creams, so that sodium aqueous heparin solution USP from a bovine intestinal mucosa source (heparin) could be applied topically for the first 5-7 days of treatment, and before skin grafting.

**Contraindications**

Burn patients with a contraindication to the use of heparin were not treated with it. Patients with liver disease, renal disorders, a blood coagulating diathesis, an allergy to heparin, an active peptic ulcer, a thrombocytopenia, or active or potential bleeding due to trauma were excluded from the study. None of the 100 subjects had a contraindication.

**Procedures**

The initial evaluation and procedures on admission to the burn unit were the same in all 100 patients. Urgent life-threatening respiratory and/or cardiac emergency were managed first. Vital signs were measured and charted. Intravenous catheters were inserted, blood for laboratory tests was drawn, and intravenous resuscitation fluids were started. TBSA and the severity of the burn areas were determined by clinical assessment. No biopsies for histological determination of burn depth were performed. Patients with burns of more than 40% TBSA had a urinary catheter inserted in order to observe and measure urine in the collecting bag. Personal and family medical histories were recorded. A physical examination was carried out. Bathing or cleaning of contaminated or dirty burns was performed if needed, but not routinely. Fluid intake and output volumes were charted and evaluated, as also laboratory tests. The initial routine laboratory tests were: urinalysis; complete blood count and platelet count; BUN and creatinine; blood bleeding and clotting time, prothrombin time, and partial thromboplastin time. Also, patients received an injection of tetanus toxoid.

- **Pain medicine.** Pain medication was administered when needed. A parenteral injection of pentozocine and promethazine was used to relieve pain in the first two or three days, after which oral non-steroid anti-inflammatory drugs were used. The frequency of doses is presented in Table I.

- **Antibiotics.** Penicillins were administered orally as the primary antibiotics for all patients and, in some patients, a third-generation cephalosporin, oral cefotaxine sodium, was added. Amikacin and Metrogyl injections were used when indicated. In C patients, an antimicrobial sulphur-base cream was applied topically after water-with-antimicrobial baths...
and debridement of necrotic tissue had been performed. In H, water baths were not routine, and no topical sulphur-base creams were applied, because heparin was being administered topically.

- **Heparin administration.** 20.8 ml of 5000 IU/ml (International Units per ml) of heparin solution were added to 500 ml of physiological normal saline solution in an intravenous fluid bottle to make a total 520.8 ml of 200 IU/ml concentration heparin sodium solution (heparin). Standard intravenous tubing was connected to the bottle and a small gauge (#28 or 30) needle was attached. This 200 IU/ml heparin solution, in an intravenous set-up, was administered only topically, dripped on the burn surfaces, and inserted into the burn blisters. This heparin was administered topically on post-burn day 1 a total of three or four times. The total day-1 topically administered heparin dose was 100,000 IU (1 lakh, in India) of heparin per each 15% of burn surface size - i.e., the dose advocated in the heparin-in-burns protocol in use in burns centres in 13 other countries. 

Burn surfaces were treated with heparin first. Approximately 50% or more of the heparin estimated to be needed on day 1 was initially dripped on the burn surfaces repeatedly in the first 10-15 min of heparin treatment, until the patient reported that the burn pain was relieved and the initial burn erythema, if present, was blanched. Then the burn blisters were treated. A hypodermic needle on a syringe filled with 200 IU/ml heparin was introduced into a blister and a small hole was made, out of which the blister fluid spontaneously drained by gravity. Then heparin was inserted through the needle into the blister. The blister was slowly rinsed with heparin three or four times, and then the needle was withdrawn, leaving a residual volume of heparin within the blister. The blister cover was permitted to settle onto the blister’s inner surface. Blisters were not debrided or removed. After the initial treatment of blisters, the burn surfaces were then retreated with heparin at 5-10 min intervals for half an hour. On day 1 the burn surfaces were retreated two or three more times using the remaining amount of the day 1 dose. In the first 24-36 h the few blisters that refilled with burn fluid were retreated a second and rarely a third time with less heparin solution. On post-burn days 2-7, heparin in diminishing doses was dripped on the surface of the burns three or four times a day. During this time no surgery was performed. After day 1 or 2, revascularization of ischaemic areas and the development of granulation tissue were observed, and these signs of healing were utilized to monitor the dose of topically administered heparin. Some blood clotting times were also taken in order to monitor heparin doses. Thus, the clinical signs and laboratory values that were used to determine and monitor the dose and adequacy of heparin applied topically were: relief of burn pain, blanching of burn erythema, reduced swelling and oedema, decreasing burn size, drier burns, revascularization, progressive healing, and blood clotting times in the normal range and up to three times normal [see Discussion].

The total amount of heparin administered to each patient varied because the nature of the burns and the condition of each patient varied (**Table II**). Between heparin applications, H patients were treated with dressings soaked with physiological normal saline. All C patients were treated with topical applications of a sulphur-base antimicrobial cream. No sulphur-base cream was used in H patients.

- **Photographs.** Serial photographs were taken of the patients’ burns (**Figs. 1-6**).
- **Statistical evaluation.** The study data were statistically analysed to evaluate the differences between the C and the H group. Student’s t test and the chi square test derived in Epi Info-6 software were used. Values of \( p \) < 0.05 or less were considered to be statistically significant (designated S, or statistically not significant, designated NS).
Results

The number of patients was the same in the two groups C and H. The ages were not significantly different (Table III). There were nine more males and nine fewer females in H compared with C ($p < 0.07$, NS) (Table IV). The majority of the scald and fire mode burns were accidental (75% in C and 80% in H); the difference was NS (Table V). The smaller number of burns that were suicidal (14 in C and 9 in H) and the single cases of homicide each of C and H were NS (Table V).

All 100 patients had burn pain, which was relieved by pain medicine in both C and H. Pain medicine was administered once or at most twice a day to all H patients and to 30% of C patients. Seventy per cent of C patients and essentially no H patients received pain medicine as often as 3-4 times a day ($p$ not calculable) (Table I). In H patients, the burn surface pain was relieved within 10 to 15 min by topical application of heparin [see Discussion]. In H patients recurrent less intense burn surface pain was similarly relieved by another topical application of a smaller quantity of heparin solution. Burn erythema, when present, was blanched by heparin. H patients had less tissue swelling than C patients.

All 50 C and all 50 H patients had superficial and deep second-degree burns in less than 50% TBSA (range, 5-45%). However, there was a probably important significant difference in the number of C patients (13, or 26%) who had burns in the 36-45% TBSA range, compared with only one H patient (2%) ($p < 0.01$, S) [see Discussion] (Table VI). Also, C included six more deep second-degree burns than H, i.e. 46 or 92% of C, versus 40 or 80% of H ($p < 0.08$ NS), a difference of possible importance [see Discussion] (Table VII). The number of H patients who had fire flame burns (95%) compared with C (80%) was NS, but of possible importance [see Discussion] (Table VIII).

The time interval between the burn injury event and the time the patient arrived at the burns unit and commencement of treatment ranged from 1 to 8 h. Twenty-eight H patients (56%) presented 5-8 h post-burn, compared with 7 C patients (14%) ($p < 0.0001$, S). Although the time of presentation was longer or delayed in H compared with C (Table IX), mortality was lower in H than in C. Five C patients died (mortality rate, 10%). No H patient died (Table X).

There was no difference between the number of patients in C (41/50, 82%) and in H (39/50, 78%) who received intravenous resuscitation fluids. There was a significantly higher volume of intravenous fluids infused in C (65 litres) compared with H (39 litres) ($p < 0.04$, S) (Table XI). Four patients in H required skin grafting compared with 10 patients in C (Table XII).

The number of days of hospitalization was significantly greater in C than in H. Twenty-nine H patients (56%) were discharged from hospital in 10 days or less compared with three patients (6%) in C ($p < 0.0001$, S). Forty-one of the 50 H patients (82%) were discharged in less than three weeks compared with seven C patients (14%) ($p < 0.0001$, S). Forty-eight out of the total number of 50 H patients (96%) were out of hospital in 30 days, vs. 12 patients (24%) in C in the same period ($p < 0.0001$, S). When all 50 H patients were out of hospital, in 40 days, fewer than half the C patients (22, or 44%) had been discharged ($p < 0.0001$, S). The remaining 56% of C patients required a variable additional 10 days to be discharged, with a non-calculable $p$ value because zero H patients remained in hospital (Table XIII).

The overall mortality of the 100 consecutive randomly selected patients in this study was a relatively low 5% compared with previous years. The five deaths were in the 50 patients in C (10%). It is of interest and important that all five C deaths were in the 35-45% TBSA size [see Discussion]. None of the 50 H patients died, meaning that $p$ and S values were not calculable (Table X). Mortality was determined on a broader scale. Of the 226 patients admitted to the Burns Unit within the six months’ duration of the study, from whom the 100 patients were selected, 54 died (12 males and 42 females; mortality rate, 23.8% (Table XIV) [see Discussion]. The reduction in the mortality rate
from 31.9% (430 deaths in 1344 patients) in the previous three years to 23.9% (54 deaths in the 226 patients in this study) represents a significant difference \((p < 0.01)\). Mortality increased with increasing burn size. The distribution of mortality on the basis of burn size showed that 28.6% of the deaths (i.e. 123 of the 430 deaths in the total number of 1344 patients) occurred in patients with a TBSA of less than 50%, compared with a mortality rate of 71.4% (307 deaths) in patients with more than 50% TBSA burns (Tables XV-XVII).

The patients treated at the Indira Gandhi Government General Hospital and Postgraduate Institute, including our Burns Unit, receive totally free treatment without any cost to the patients. In this study the average cost to the hospital for IV fluids, analgesics, antibiotics, and other items for the C patients was 1754.8 Indian rupees (INR), significantly more than the average cost of 558.8 INR for H patients, with a 68.2% cost benefit reduction \((p < 0.05)\) (Table XVIII). The total amount of heparin (in lakhs) administered and the average cost (in rupees) of the heparin used in treating H patients increased progressively with the increase in TBSA (Table II). An amount of one lakh is equivalent to 100,000 IU of heparin.

None of the C patients and none of the H patients had a bleeding problem. Except for mortality, there were no other serious complications. Topical use of heparin was safe in this study.

**Discussion**

Heparin administered topically for a limited time in these burn patients clearly improved treatment. This ethics-committee-approved study was conducted in a uniformly controlled manner without any bias in the initial selection of patients and without any deviation in performance. The duration of the study was half a year. The same doctors, nurses, and ancillary staff treated all the C and H patients in the same burns unit, using the same facilities. During the test period a total number of 226 patients were admitted to the unit. The subjects in the study were the first 100 consecutively admitted burn patients out of the 226 patients who had the same parameters and characteristics as regards age (15-35 yr) and presentation of scald or fire mode burns in less than 50% TBSA, as in the previous three years 60% of burn mortality occurred in this age group; second-degree superficial and deep was chosen as the degree of severity because historically survival rates were higher in this group. The 100 patients with these parameters were prospectively randomized without bias into two similar 50-patient cohorts, a control group labelled C and a test-variable group labelled H.

In H, the two principal test variables were use of heparin topically and no use of topical antimicrobial sulphur-based creams. The numbers, ages, gender of the patients,
as also the mode of burn was similar overall and not significant different (Tables III-V, VIII). The majority of burns were accidental (70% in C and 80% in H). An appreciable number of patients were suicidal (28% in C and 18% in H), which is not unusual as our region has the highest suicide rate in India.

The dilution of 5000 IU/ml heparin to 200 IU/ml heparin was performed in order to provide a larger volume of less concentrated heparin solution, in view of the fact that Pondicherry, in India, is near the equator - the weather is hot and humid and fluids evaporate quickly.

Although burns are medical emergencies and prompt care is important, the time between the burn event and the arrival of patients at our burns unit was as long as 8 h. The delay was due partly to patients being sent from as far distant as 150 km and partly to mandatory medical legal formalities at the referring general hospital. Even though the time of presentation was delayed and significantly longer in H (28 patients, i.e. 56%, presented at 5-6 h compared with 7, i.e. 14%, of C; \( p < 0.0001 \), S), the outcomes were not adverse in H compared with C. Also, mortality in H was zero, compared with five deaths in C (10%).

The pain, erythema, swelling, and heat signs characteristically associated with inflammation were reduced in patients who received heparin (Figs. 1-6). Thus, in this study, anti-inflammatory effects were evident with heparin, as reported in previous studies.

One assumption is that heparin’s anti-inflammatory effects are dose-related and dose-dependent. This assumption is supported by the finding in this study that there was a direct relationship between the increasing size of burns of similar severity and the increasing amount of heparin required to produce an equal degree of healing (Table II). The reduced use of pain medicine and the reduced side effects due to pain medicine enabled H patients, who were more alert and cheerful, to breathe, eat, move, and participate in their burn treatment more easily than C patients. The overall quantity of analgesics used and the frequency of administration were less in H (Table I). A statistical analysis was not possible because of the nil number (nearly zero) of H patients who needed or received pain medicine more than once or at most twice per day.

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heparin, the areas to be skin-grafted were prepared early, with heparin in H patients (Figs. 1, 3, 6). Using heparin, the capillary endothelial cells were stimulated to migrate into ischaemic tissues, where they multiplied and formed new capillary blood vessel systems which, on perfusion with blood, restored blood flow into the ischaemic tissues.

Clinically, without determination of quantity, there was a reduction in burn surface infections in H patients compared with C. One explanation may be that orally administered antibiotics were able to reach the burns from within the body via the increase in blood flow mediated by the enhanced neoangiogenic-revascularization of the ischaemic burns, which was consistently evident in H patients, and at earlier times in H than in C, as also reported in previous studies.3-7,19-21

A reduction in intestinal bacterial translocation and sepsis found in one research study22 may be another partial explanation for the burn infection reduction observed in this study. In mice subjected to deep third-degree 25% and 35% burns, parenterally administered heparin to one cohort group was found to significantly preserve the intestinal lining and to significantly reduce the translocation of bacteria from the intestinal tract into the abdomen (sepsis), compared with the other cohort control group that received no heparin.22 This assumption is supported by another study of severely burned children that found that the use of heparin significantly reduced sepsis and mortality.23

Some blood clotting times were performed in order to monitor heparin doses. As previously reported,3-7,9-18 laboratory determinations of blood clotting times in this study found that heparin applied topically did not increase systemic blood clotting times. No bleeding problems or other serious complications occurred in H patients in this study, and the topical use of heparin was therefore safe.

There were fewer skin grafting procedures in H than in C. Mortality in H was lower than in C. However, the importance of these results is not clear, and the possible misleading ambiguity appears to be the result of an unintentional and unpredictable bias inherent in the initial randomized selection. Regarding the differences, it may be important to note that a significantly higher number of C patients than H patients had TBSA burns in the 36-45% range, i.e. 13 patients (26%) in C vs. one patient (2%) in H (p < 0.01, S). Also, all the deaths in C patients were related to this 36-45% range. There were more suicidal patients in C, and attempted suicide burns tended to be more severe. It may also be important to note in regard to mortality that six more C patients in C than in H had burns that were deep second-degree in severity, i.e. 46 patients (92%) in C vs. 40 patients (80%) in H (p < 0.08, NS but nearly S). However, in support of the findings in this study,
five more patients in H had fire-flame mode burns than in C, i.e. 45 patients (90%) in H vs. 40 patients (80%) in C (p < 0.07, NS but possibly important). Fire-flame burns are historically known to be more severe and more difficult to treat than scald burns of equal size.21 Therefore, all factors considered, it is not clear that the favourable findings of fewer skin grafts and lower mortality can be assumed to have been due to the topical use of heparin for the limited duration of this study.

The limited 5-7 days’ initial post-burn topical use of heparin in this study was different from that in prior studies with continued topical use of heparin until final healing.12,6,7,11-10 The acceptable appearance of the new skin was generally better in H than in C patients in this study, but less smooth than that reported in prior studies in which heparin was used in the final epithelializing phases.12,6,7,11-18 Heparin mechanisms discovered in prior studies may be partially the reason. The finding of the effect of heparin on collagen production and deposition in granulation tissue may be a reason.24,25 Heparin initially accelerated collagen production and deposition, and in the second phase decelerated and reabsorbed collagen, which would tend to inhibit fibrin accumulation and scar formation. The effects of heparin that increased the number of dermal fibroblasts and aligned the intracytoplasmic fibrils in the fibroblasts into a regular parallel pattern26 may be a reason. The effects of heparin that increased the number of smooth muscle fibroblast cells25 may be a partial reason for the reduced number of contractures in H compared to those in C, as reported in prior studies.

The number of days of hospital stay was significantly less in H than in C, and H patients were discharged from hospital earlier than C patients (Table XIII). The shorter stay reduced the bed occupancy rate and permitted more new patients to obtain cost-effective treatment.

Evidence of a relationship between burn size and severity and the heparin dose required in therapy is of interest. In this regard there was a correlation between burn size and the quantity of heparin used until healing (Table II). Patients with less severe burns required less heparin (Table II).

The findings related to mortality are also of interest. During the study period of six months, among the total number of 226 admissions of patients from whom the 100 patients were selected, there were 54 deaths (12 males and 42 females), corresponding to a mortality rate of 23.8%. In comparison, during the previous three years, 430 out of 1344 similar patients admitted died, with a significantly higher mortality rate of 31.9% (p < 0.01, S). The significantly larger number of females (42) than males (12) who died out of the total number of 226 patients may be attributable to the fact that more females than males commit suicide in India (Table II).

Conclusions

Clearly, in similarly treated equal numbers of statistically similar patients with similar burns, the addition of heparin administered only topically in the initial week significantly reduced the amount of IV fluids (p < 0.04), days in hospital (p < 0.0001), and the time before healing (p < 0.0006) in patients treated with heparin compared with a control group of patients not treated with heparin. Equally clearly, patients treated with heparin suffered less pain and required less pain medicine and fewer antibiotics, dressings, and procedures; costs were also lower than in the control cohorts. The lower mortality and the fewer grafts in heparin-treated patients than in non-heparin-treated patients observed in this study were not clearly found to be heparin-related. Further studies are planned.
cette des patients T (en tout, \( p < 0.0001 \)): 58% des patients H ont laissé l'hôpital avant 10 jours contre 6% des patients T; 82% des patients H sont rentrés à la maison avant 20 jours contre 14% des patients T; 98% des patients H contre 44% des patients T sont rentrés à la maison avant 30 jours; et, tandis que 100% des patients H ont laissé l'hôpital avant le 40ème jour, 56% des patients T ont eu besoin d'une période ultérieure de 10 jours. Les brûlures des patients H guérissaient en moyenne dans 15 jours (maximum, 37 jours) contre une période moyenne de 25 jours (maximum > 48 jours) dans le groupe T (\( p < 0.0006 \)). Les procédures et les coûts étaient également réduits par rapport aux patients T. Les différences entre H et T sont indiquées dans les photographies, qui sont présentées pour faciliter la comparaison. Les auteurs concluent que l'héparine appliquée topiquement pour 5-7 jours améliorait le traitement des brûlures: elle réduisait la douleur, la médecine antidouleur, les pansements et l'emploi des antibiotiques; elle réduisait en manière significative les liquides intraveineux (\( p < 0.04 \)), l'hospitalisation (\( p < 0.0001 \)) et les temps de guérison (\( p < 0.0006 \)); en outre, elle réduisait les greffes cutanées, la mortalité et les coûts.

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G. WHITAKER INTERNATIONAL BURNS PRIZE-PALERMO (Italy)
Under the patronage of the Authorities of the Sicilian Region for 2009

By law n. 57 of June 14th 1983 the Sicilian Regional Assembly authorized the President of the Region to grant the Giuseppe Whitaker Foundation, a non profit-making organization under the patronage of the Accademia dei Lincei with seat in Palermo, a contribution for the establishment of the annual G. Whitaker International Burns Prize aimed at recognizing the activity of the most qualified experts from all countries in the field of burns pathology and treatment.

Law n. 23 of December 2002 establishes that the prize becomes biannual.

The next prize will be awarded in 2009 in Palermo at the seat of the G. Whitaker Foundation.

The amount of the prize is fixed at Euro 20,660.00.

The Adjudicating Committee is composed of the President of the Foundation, the President of the Sicilian Region, the Representative of the National Lincei Academy within the G. Whitaker Foundation, the Dean of the Faculty of Medicine and Surgery of Palermo University or his nominee, a Representative of the Italian Society of Plastic Surgery, three experts in the field of prevention, pathology, therapy and functional recovery of burns, the winner of the prize awarded in the previous year, and a legal expert nominated in agreement with the President of the Region as a guarantee of the respect for the scientific purpose which the legislators intended to achieve when establishing the prize.

Anyone who considers himself to be qualified to compete for the award may send by January 31st 2009 his detailed curriculum vitae to: Michele Masellis M.D., Secretary-Member of the Scientific Committee, G. Whitaker Foundation, Via Dante 167, 90141 Palermo, Italy.