

Management Of A Major Incident Involving Burned Casualties

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Abstract

INTRODUCTION

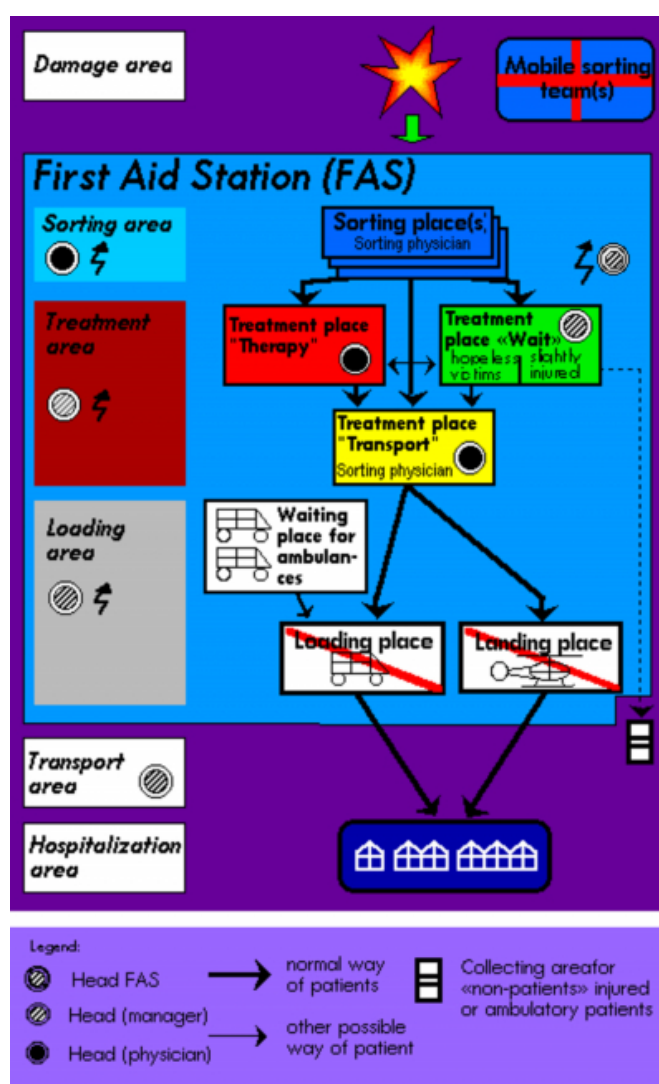
To understand details of the management of burned patients in Lower Austria, I would like to give you some facts.

- This county has an area of 20.000 square kilometers and houses 1.5 Mio people. In comparison to middle Europe, it is a rather sparsely populated area. People tend to live near the main routes. The distances between hospitals are about 30 km.
- There are 3 helicopters in the area for patient transportation, which operate from sunrise to sunset. 27 emergency physicians are the basis of the management concept.
- The logistics work is done by Bruno Hersche and his Risk Management Company. Concerning fire disasters we have decided to activate our plan when there are 10 or more burn casualties. The first emergency physician starts with the organization of the triage.

CONCEPT OF FIRST AID STATION FAS

- To learn more about the First Aid Station FAS please click [here](#).
- Following the first examining the patient is transferred to treatment place No 1 (Therapy), where the vital functions are restored.

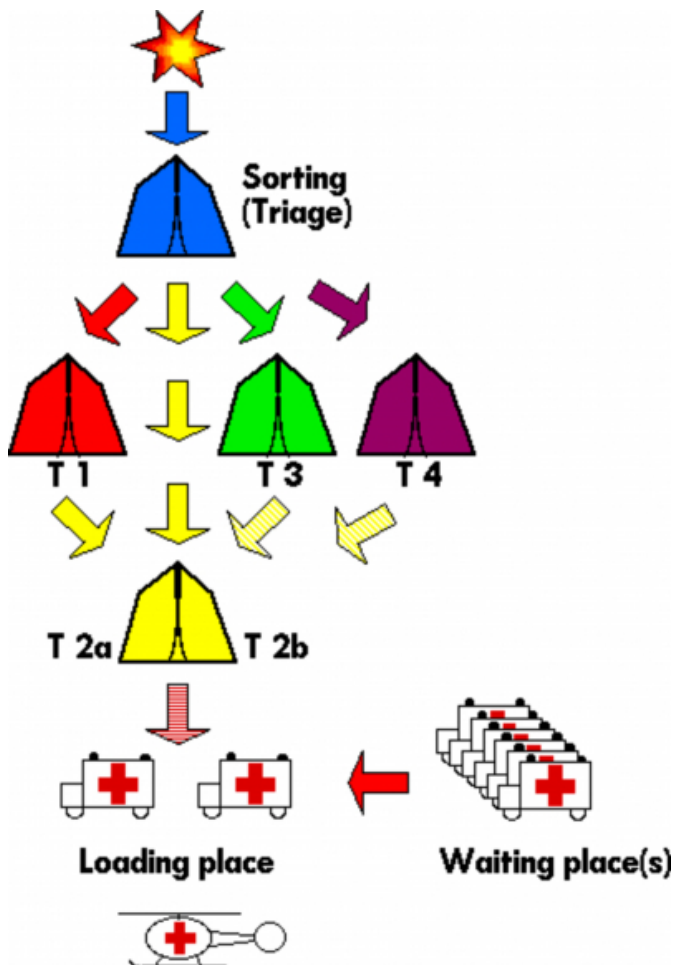
Figure 1



- If no therapy is required, the victim will be taken directly to treatment place No 2 (Transport) where the patients are prioritized as described below:

2a - needing a definitive treatment within 6 hours

Figure 2



2b - needing treatment within 12 hours (such as burns to the face, circular burns, inhalation trauma)

- Not seriously injured patients are taken into treatment place No.3 (Wait) and the mortally injured are moved to treatment place No.4 (Wait) where only physical relief may be given. This is only permissible if there is a substantial difference between materials needed and materials available. It should be noted, that just because bodies could be completely black in color, it does not necessarily mean that they are 100% burned. Therefore, such patients may not be deadly injured. Cleaning and exact diagnosis has to be performed before final judgement.
- In order to make a reasonable plan for delivering patients to other hospitals, the total number of injured persons has to be known. The more patients, the more hospitals will be involved. This

will increase the distances between the various treatment centers. Subsequently, patients may have to be transported to hospitals further away.

MANAGEMENT OF BURN VICTIMS IN LOWER AUSTRIA

- The hospitals in Lower Austria are divided into different capabilities and they must be able to take a certain amount of patients within 12 hours. Austria has only limited capacity for definitive burn treatment.
- The following steps depend on the fact, that the patient must reach his/her definitive burn unit within 48 hours. The basis of the treatment is:
 1. Primary cold water treatment, i.v. liquid substitution and pain relief at the site of the accident
 2. Delivery to the local hospitals using a spiral system
 3. Continuation of i.v. liquid substitution according to the Baxter-Parkland formula.
 4. Giving an initial statement of degree and extent of burns to the emergency hospitals.
 5. Evaluation of the burn index and sending a fax message to the headquarters of the Red Cross to organize.
 6. Secondary transportation within 12 hours
 7. Secondary transportation to central hospitals for final treatment in Austria, or if required within Middle Europe
- To establish this system we required:
 - The foundation of a burn headquarter of the Red Cross in the city of Moedling.
 - Information on the hospitals in Lower Austria to determine the coordination and stock keeping in case of emergencies.
 - Check lists which must be distributed to the emergency physicians with details on adults and children.

- Close contact to all the burn units within Austria, Germany, Czechia and Slovenia.
- An agreement of each department to accept a number of pre-selected patients by fax advice.
- An additional agreement with the head of the burn center of the University hospital of Vienna to send 1 or 2 qualified surgeons for medical decisions to the Red Cross headquarter in case of emergency.
- The emergency physicians will have been briefed with the following orders:
 - preservation of vital functions
 - i.v. access
 - pain relief
 - local cold water treatment
 - sterile dressings and aluminum sheets
 - no ointments, no plasma expanders, no protein solutions, no antibiotics,
 - no systemic corticoids and no oral nutrition.
- Every hospital in Lower Austria should always keep the following, according to their capabilities:
 - Fax paper
 - Baxter formula sheets
 - Infusions (14 liters lactated Ringer solution, i.v. set and cannula)
 - For children preserve per patient : 6 liters NaCl 0.9%, 6 liters Glucose 5%, 12x5ml NaHC³ ml NaCl, 160m Val K+, infusion set cannula
 - First Aid material for burns and changes of dressing.
 - Infusions stock for delivery with auto-infusion capabilities. Knowledge regarding sterilization and the preparation of materials.
 - Provision of burn sets including silver nitrate for tannin treatment, if required.
- For definitive treatment 30-40 minutes will be required by the hospitals for preparation.
- The replenishing of items requires 180 minutes, which is also possible during the treatment. We have sufficient sets (6) to treat one patient each hour.
- In our opinion it is not possible to handle more than 1 patient per hour.
- All patients that require further treatment should arrive in the burn unit for definite treatment within 48 hours.
- Because of the relative close distances between hospitals in Austria, transportation by car is preferred. This means transport does not depend upon weather and daylight. If there are distances that cannot be covered within 4 hours, the patient will be transported by air: i.v. infusion, urinary catheter are necessary for transport.
- We take 4 liter drip bags and connect the patients to it, auto-infusion is maintained and will be regulated by a dripping tube. (personnel is not allowed to change infusions!)
- With this infusion type the patient is independent from all facilities not available during the transport. The 4 liter infusion is sufficient to enable the patient to reach the designated hospital. Additional pain medication can be administered through the i.v. infusion. A sterile dressing or topical dressing will be applied beforehand.
- In the meantime, information will be given to the burn units to allow them to prepare in advance upon basis of the information received by fax.
- In Austria we can manage 26/9 patients (adults/children). If there are many more persons injured, and assistance within Middle Europe is not sufficient, we can then treat the patients with silvernitrat. This could gain us up to 3 weeks grace.
- This solution is easy to prepare and is not expensive (ATS 700,--): Take 50 g silver nitrate powder and mix it in 500ml Aqua dest and stir it. This makes a solution of 10% silvernitrat.
- Please be advised that this treatment can be painful

and causes blackening of all the surroundings.

- May I emphasize that this treatment should only be utilized in emergencies, when no other specialized burn treatments are available, as they could undoubtedly achieve better results.

CONCLUSION

Concluding the above, we hope we never have to instigate our plan, but the preparation for hospitals is inexpensive. However, the most important factor, is the ongoing supervision and instruction to all the staff, who will be required to work with this plan.

References

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