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# COVID-19 and burns: Lessons learned?

With great interest we have read the recent publications on “COVID-19” in the Journal BURNS [1–7]; no topic has concerned us as much in 2020, and will continue to do so in the near future. After the initial lock-down and the gradual start-up back to a “new” normality, it is now crucial to draw conclusions from this crisis.

For this purpose, burn experts from Germany, Austria and Switzerland “met” in a web meeting and discussed the topic “COVID-19 and burns: lessons learned”.

You will find some of these lessons learned in this letter.

Lessons learned:

- Conversion of burns centers and its infrastructure in the event of a pandemic requiring isolation,
- Triage and Optimal Care of burn patients in case of a pandemic,
- Triage and Optimal Care of mass burn casualties in case of a pandemic,
- Securing material delivery, stocking/warehousing during pandemic lockdown,
- International exchange, ensuring cross-border communication.

Profound structural and process changes have been made in preparation for COVID-19 in all 3 countries; special COVID areas have been created and from one day to the next, only emergency operations were possible in order to create capacities (normal ward beds, ICU beds, . . . ) for the treatment of COVID-pos. patients. All elective operations have been canceled and all elective outpatient visits too.

At no time in any of the 3 countries was the care of the severely burned patients restricted. Nevertheless, all experts agreed that a mass burn casualty in case of a pandemic, a supply shortage could have occurred relatively easily since a transfer of severely burned patients to neighboring countries due to the COVID restrictions was very likely, to be much more difficult than in non-pandemic times or even not possible. Even within a country, the transfer of COVID patients was not always easy. Therefore, we believe it is important to define corresponding transfer guidelines (within the country and with other countries) for burn patients especially in pandemic times.

However, all experts were of the opinion that the triage of serious burn injuries has to be independently of “COVID time” and should be performed always only by burn experts and mainly based on the existing burn scores (e.g. ABSI, Baux, . . . ); COVID positivity would have been included in the assessment only as an additional risk factor.

Occasional delivery bottlenecks were observed in all German-speaking countries during the COVID crisis: e.g. drugs like antibiotics and medical devices including PPEs. For this reason, the recommendation was also developed during the virtual meeting that supply-related products should probably be in stock for a longer period than before COVID. In addition to the supply bottlenecks, any surgical resource

restrictions that may arise were also discussed. Particular attention should be paid to the use of materials and techniques, which increase the reduction in the frequency of operations and dressing changes, increase the flexibility in terms of time and ensure patient safety in the event of burn injuries. This fact has already been discussed in a previous letter [6].

Personnel resources were also discussed during this virtual meeting; alternative duty roster concepts were used in some of the centers and have to be considered in future too. Another point that was brought to our attention again was and is the importance of a regular exchange of information and experiences. Many experts were in regular contact and exchange through web meetings and later also webinars. The benefits of telemedicine and telecommunications were also recognized in the COVID crisis [7]. Many follow-up checks and initial assessments could be carried out in this way and personal contacts reduced. Based on this, we believe that the burn centers worldwide should network even better and learn from and with each other.

Above all, the COVID period clearly showed us how important a functioning health system with sufficient resources is and that despite COVID, adequate care for burn injuries was or should be possible in the German-speaking countries; but it also showed us that we have to learn from this crisis in order to be prepared for the future.

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## Conflict of interest

According to the requirements of the Journal Burns, the authors declare that there is no conflict of interest.

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## Concerns regarding self-treatment of burns during COVID-19 lockdown



Dear Sir,

It has come to our attention that there are readily available burns treatments that may indirectly lead to patient harm. One such example is Burnaid<sup>®</sup> (Mundicare<sup>™</sup>, Sydney) which is available in spray, gel, or impregnated gauze. Burnaid<sup>®</sup> is marketed to cool, soothe, and relieve pain in minor burns, scalds and sunburn. The packaging helpfully explains how to apply the gel and dressings in ‘small spot burns’ and ‘larger minor burns’. There is a concern here regarding patient safety as the perceived assumption is that a lay person would be able to differentiate different burn depths. The risk here is that patients may opt to self-treat a deeper burn causing a significant delay in presentation and greatly increase their risk of avoidable adverse outcomes such as infection and hypertrophic scarring.

Superficial burns will heal expeditiously without intervention, whereas deeper burns heal by the formation of granulation tissue leading to increased pain and suffering, higher risk of contractures and scarring. Hypertrophic scars are classically described as raised, erythematous lesions that grow within the confines of the original injury [1]. Hypertrophic scarring (HTS) has been described by Finnerty et al. as being ‘the greatest unmet challenge following burn injury’ [2]. Raising awareness of this potential issue is vital, as burn surgeons already have to compete against various home remedies and old wives tales used as excuses for delays in presentation. This is particularly true now, during the COVID-19 pandemic, as patients may prefer to self-treat at home rather than present to hospital.

The sequelae of a delay in presentation is more relevant in burn wounds, as we know there is a greatly increased risk of hypertrophic scarring if healing does not occur within three weeks [1]. The prolonged inflammatory and proliferative phases of wound healing result in an increase in activity

and duration of fibrogenic cytokines leading to fibroproliferative disorders. Increased fibrogenic growth factors released in these disorders such as TGF- $\beta$  and PDGF promote the development of a hypertrophic scar.

Superficial and superficial partial thickness burns usually heal within one to two weeks [3]. For these burns, washing with soap and water and appropriate non-adhesive dressings are entirely appropriate. The problem arises with intermediate thickness burns and areas of mixed depth that may require excision and skin grafting. The decisions involved in these situations are complex even for experienced burn surgeons and expecting a lay person to know the difference is inappropriate. Clinically, depth would be determined by serial visual and tactile examination of the wound, including pinprick examination. The window for treatment may have passed by the time the patient realises that their burn is not healing, potentially resulting in a symptomatic hypertrophic scar needing years of ongoing treatment. Furthermore, in children, a delay in presentation is one of the indications of possible non-accidental injury, and the excuse of having tried this product first may blur the boundaries and make it harder to identify potential safeguarding issues. There is also a significant danger that when a small burn in a child is treated at home, parents are not given the usual advice they would receive in burn units and be less vigilant in looking out for serious complications like toxic shock syndrome.

Hypertrophic scar treatments do exist and include compression bandaging, laser therapy, intralesional steroids, silicone therapy, autologous fat transfer and surgical excision amongst others. The varying efficacy of these treatments mean that many