

1) wounded with soft tissue damage (61.3%); 2) with soft tissue and bone structures damage (25.8%); and 3) with posttraumatic osteomyelitis (12.9%). Wound flora were cultured three times to determine the amount of bacteria in 1 gram of wound detritus, and were tested to antibiotics. The cultures were made on the third and fifth days from the beginning of treatment, and on the tenth day after the end of the treatment. Ultrasound preparation of the wounds was carried out daily for 10 days before the scheduled surgical operation using local anaesthetics and antiseptics. Another 240 (89.6%) patients not treated with ultrasound equipment before the surgical operation were included into the control group. Wounded and noncombat patients from both control and analysed groups were treated during the preoperative period, using traditional antibiotic therapy.

Results: After carrying out bacteriological analyses in the wound detritus of hospitalised patients, the following data were discovered: *Staphylococcus aureus* in 102 patients (37.6%), *Staphylococcus epidermalis* in 59 (21.8%), *Pseudomonas aeruginosa* in 21 (7.7%) and *Proteus vulgaris* in 10 (3.7%) cases. Microbe associations were found in 79 (29.2%) patients. In 168 (62%) patients, the amount of bacteria in 1 gram of tissue was not more than 10⁶, but 79 (29.1%) and in 24 (8.9%) of wounded the number exceeded 10⁷ and 10⁸ respectively.

The results of ultrasound wound dissection were defined as follows: 1) good effect included absence of microbes flora in control culture of wound detritus, disappearance of pus, healing of the surface of the wound area drastically (by two times), and clinical symptoms of osteomyelitis were stopped; 2) satisfactory effect included on the fifth day from the beginning of the treatment, the exciter still could be cultured, however, the number of microbes in 1 gram of tissue became less—from 10⁸ to 10⁶, healing of the surface of wound area was also stated, but not more than by two times with stable little amount of wound detritus; 3) an unsatisfactory effect was defined as the absence of effects previously mentioned. Good results were obtained in 25 (80.6%) patients, satisfactory in 5 (16.2%) and unsatisfactory in 1 (3.2%) wounded patient, respectively. An indirect proof of the described treatment efficiency is the reduction of the amount of postoperative complications (suppuration of wound) to 3.2% in the analysed group compared to the control group, in which the number of complications was still 6.5%.

Conclusion: Hence, the usage of low frequency ultrasound equipment in significant damages of soft tissue and bone structures treatment has been shown to be a highly effective and prospective method. The method makes it possible to speed up preoperative wound preparation, reduce the amount of postoperative complications, and, as a result, improve the outcome of microsurgical treatment in general.

Keywords: antibiotic; bone; dissection; soft tissue; surgery; ultrasound; war; wounds

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3.2. Poster Presentations

Modularization Study for Disaster Medical Supplies

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Emergency medical assistance during catastrophic natural disasters such as earthquakes or floods, is essential. Medical supplies are a critical element for disaster rescue; and we ensure adequate amounts of medical supplies only by planning for a medical reserve in advance of any catastrophic event.

Natural disasters are unpredictable and varied and thus can result in considerable variation in the quantity and severity of the casualties. A medical reserve must be flexible and adaptable. The aim of the study is to provide the basis and methods for the modular management of disaster medical supplies by: 1) analyzing the characteristics of the medicine required for disaster rescue; and 2) designing basic modular units and the way to assemble them according to the demand rule and casualties ratio on type.

To establish a new method in modular management of disaster medical supplies, we determined how to define and assemble the basic modules by the analysis of the rules of type and distribution of injuries and diseases caused by the event. Next, we used cluster analysis and decision-making analysis methods to confirm the function, range, and degree of each module, on which we can rely to create and assemble the medical supply modules. Finally, according to the morbidity data of earthquake and floods rescues, we ascertained the kinds and quantity of medicine for three disaster relief modules.

Keywords: casualties; data; disaster; medical; modular; planning; relief; reserves; supplies; medical; severity
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Emergency Response to the Crash of SQ006: The Role of Medical Services

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Flight SQ006 with 179 persons on board, crashed at CKS airport, Taipei, ROC on 31 October 2000. This is the second aircraft-related disaster in the last 3 years that affected Singapore. Although the crash of Silkair MI185 in 1997 had no survivors, the SQ006 crash resulted in many survivors with severe burns.

A medical team from Singapore, comprised of an emergency physician and nurses, intensivists, and burn specialists, was dispatched within 18 hours to perform an evaluation of the medical needs of these victims. This subsequently led to the repatriation of 3 severely burnt casualties requiring critical care transport and aeromedical evacuation.

The following lessons learnt will be presented: 1) team mission and preparation; 2) health needs assessment; 3)