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*T. Michalski, F. Chmelizek, E. Miller, S. Edtinger,
A. Franz, E. Frauenschuh, S. Seidl, G. Wechselberger,
H. Trampitsch*

EARLY DEFIBRILLATION: A 6 YEAR RETROSPECT, RESULTS DISTRICT SALZBURG, AUSTRIA

Department of Anesthesiology and Emergency Medicine, Paracelsus University Salzburg, St. Johann Hospital (Salzburg, Austria)

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Each year in Austria 15000 people die from a sudden cardiac failure, for the most part caused by malignant cardiac arrhythmias like ventricular fibrillation [4]. The use of a semiautomatic defibrillator to avoid sudden cardiac death is undisputed [10, 11], but until only a few years ago this equipment was not available to the rescue workers in Austria. The evaluation of the data of all defibrillated patients will demonstrate what experience with the AED in the county of Salzburg has shown.

MATERIAL AND METHODS

7 paramedic teams with an emergency physician are stationed in the county of Salzburg, which has about 522.000 inhabitants. In addition Salzburg has 26 Red Cross first aid posts [5, 6]. During daytime in the winter

season an additional 3 emergency helicopters are operated with a physician and a paramedic on board.

More then 2000 Red Cross workers have been trained and certified in the use of the semiautomatic defibrillator (Fig. 1). The monophasic semiautomatic external defibrillator FRED VI by Brucker-Medical company has been used uniformly throughout the district. In the case of ventricular fibrillation the standard Joule delivery is 200—360—360; all further shocks are applied at 360 Joules (Fig. 2). All patients who were defibrillated at least once have been accounted for in this retrospective study.

RESULTS

From February 2000 until April 2006 206 cases of semiautomatic defibrillation were analysed. Initially 71 patients survived, 41 of them could leave the hospital, 20 of them without neurological deficit (Fig. 3).

The average time for the rescue teams to arrive at the emergency site was 5 minutes in the city of Salzburg and 7 minutes in the rural districts. The time until the first shock after the arrival of the ambulance team averaged 118 seconds (Fig. 4). At least one shock was applied, a maximum of 11 defibrillations took place. The average age of the patients was 67 years.

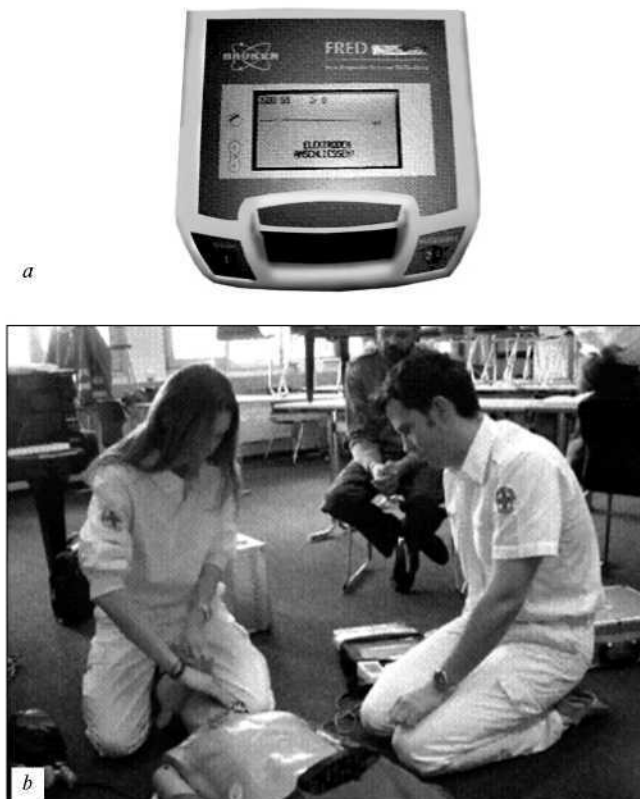


Fig. 1. AED Type Fred (a), training AED (b).

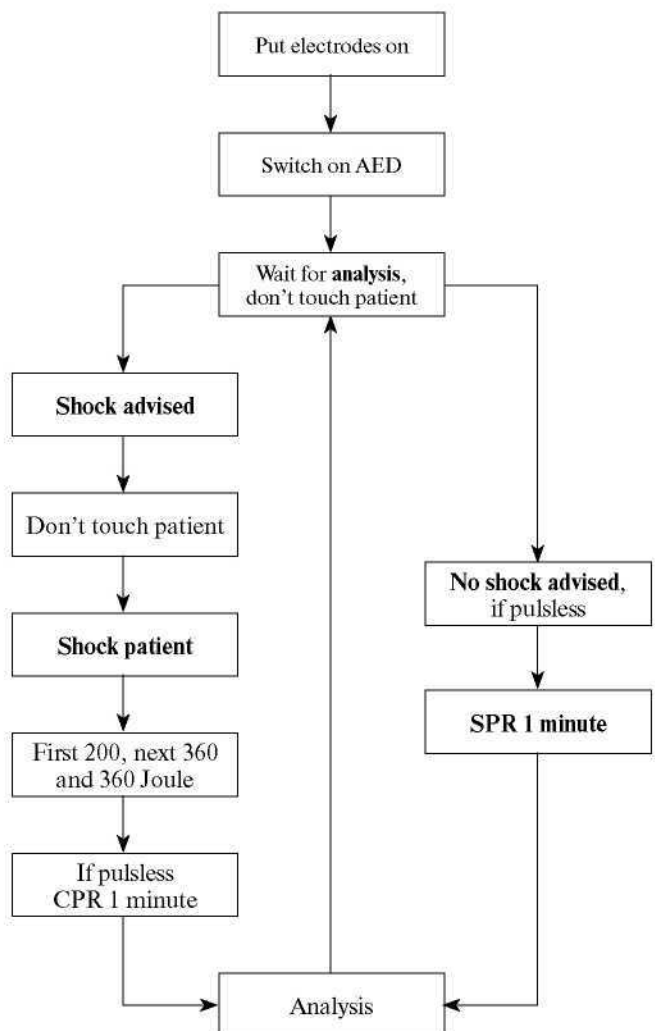


Fig. 2. Algorithm AED, type FRED.

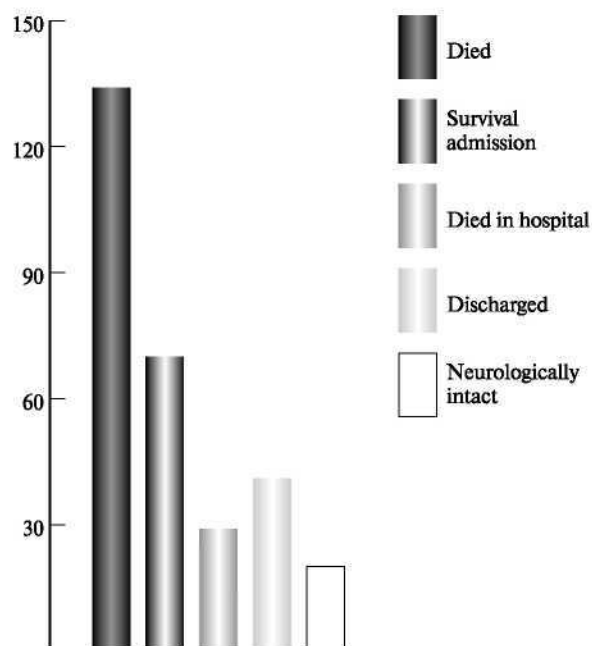


Fig. 3. Results, total number of patients 206.

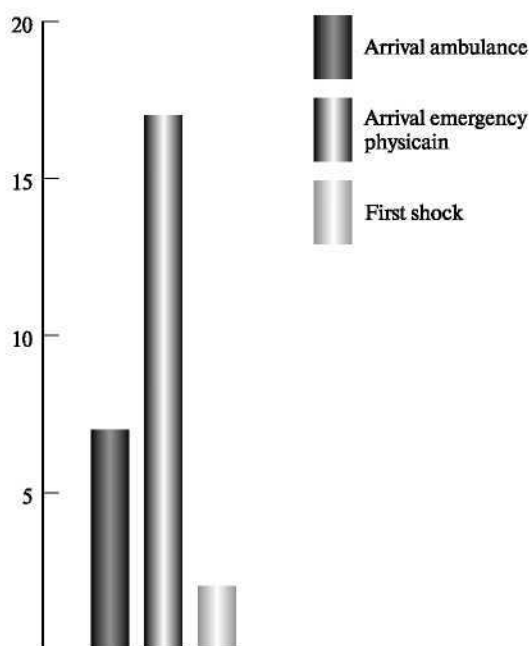


Fig. 4. Average time of arrival rescue teams, 1st after arrival in min.

DISCUSSION

The results of studies on early defibrillation vary greatly [3, 8]. Only recently an American study was published in NEJM stating that 72% of the patients treated with AED could be admitted to the hospital [2]. Generally results from American urban areas are not to be compared with the situation in an Austrian county. It certainly emphasises though the importance of AED also for economical reasons. Bunch and White showed that 65% of those treated who were under 65 years of age were able to return to their work.

A study from Aachen presents roughly the same results as we do when neurological outcome is evaluated (10% of the patients neurologically intact) [7, 9]. In that study only 22 patients were enrolled and the time until arrival of the rescue team was 4.5 minutes in the city. Furthermore it has to be kept in mind that every newly introduced method requires a learning period, which is demonstrated in the shorter time until defibrillation (min 24 seconds). The effect of changing standards in resuscitation and the use of biphasic defibrillators has yet to be investigated [1, 5].

CONCLUSION

The use of semiautomatic defibrillators in case of ventricular fibrillation outside the hospital certainly improves the chance of survival [10]. Metaanalysis of the existing studies is necessary to get a clear view on the outcome of early defibrillation [9, 11].

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РАННЯЯ ДЕФИБРИЛЛЯЦИЯ: 6-летний ОПЫТ

Т. Мичальски, Ф. Чмелизек, Е. Миллер, С. Эттингер, А. Франц, Е. Францух, С. Седл, Г. Вешельбергер, Х. Трамптш
Департамент анестезиологии и неотложной медицины, Университет Парацельса, Больница Св. Иоанна (Зальцбург, Австрия)

Ежегодно в Австрии от внезапной остановки и фибрилляции желудочков сердца умирают около 15 тыс. человек. В статье описан полуавтоматический дефибриллятор, который используется системой paramedicинской службы района Зальцберга (Австрия). За 6 лет работы неспециалистами вне стен медицинских учреждений было проведено 206 дефибрилляций, которые в 70 случаях (34%) оказались успешными, 134 человека (66%) умерли. Впоследствии 41 пациент был выписан из стационара, а 29 умерли в клинике. У 20 человек остались неврологические нарушения. Делается вывод о необходимости широкого внедрения полуавтоматической дефибрилляции в систему paramedicинской службы в стране.

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