

Problems of introduction of automated external defibrillators for application in Ukraine. Defibrillator is one of the most advanced radio electronic medical devices allowing considerable reduction of deaths caused by ventricular defibrillation

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Abstract - In this paper problems of introduction of automated external defibrillators for application in Ukraine are considered by the author.

Key words - AED, cardiac defibrillator, fibrillation, bipolar pulse

INTRODUCTION

There is an unambiguous need in Ukraine for AEDs which shall be of low cost, simple and easy to use.

MAIN PART

Key problems in introduction of automated external defibrillators in Ukraine are as follows:

1. Design and production of low-cost AED in conformity with IEC 60601-2-4 «Medical Electrical Equipment Part 2-4: Particular Requirements for the Safety of Cardiac Defibrillators».
2. Development of standards regulating protocol for automated defibrillation.
3. Training of individuals.

Research Institute REMA together with OJSC Lviv Factory REMA have already developed and are now in the process of launching into production of AEDs in conformity with international standards at OJSC Lviv Factory REMA.

Fig.1 illustrates shape of a pulse produced by a defibrillator.

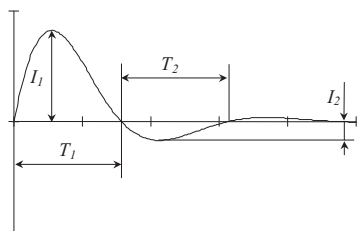


Fig. 1. Bipolar pulse produced by a defibrillator

I_1 - Maximum peak value - first half-cycle

I_2 - Maximum peak value - second half-cycle

Developed AED provides for the following:

- Efficiency of the first charge 98 %;
- Full-time availability for use;
- Unlimited application of a defibrillator in extreme and emergency situations;

- Automated selection of charge voltage with maximum efficient and maximum safe charge to be delivered to the patient's heart;
- Device is able to provide fully automated self-guided defibrillation;
- Effective and less traumatic defibrillation;
- Simplicity of usage;
- Voice help for personnel guidance;
- Delivery of personified efficient "hands free" defibrillation;
- Non-polarized electrodes;
- All data in digital format;
- Unsanctioned charge is impossible to produce.

OJSC Lviv Manufactory REMA have worked out technical requirements IEC 60601-2-4 «Medical Electrical Equipment Part 2-4: Particular Requirements for the Safety of Cardiac Defibrillators» [1], the document is in the process of approval, acceptance and introduction.

Key differences for AEDs result from frequency of usage and qualification of users. All AEDs developed and offered by OJSC Lviv Manufactory REMA cover all three areas of application.

Ministry of Health Care of Ukraine shall complete a database of typical fibrillations and standardize this database in compliance with probative medical treatment practice [2]. As of now this problem is not being solved.

Proper training with a constant systematic approach is required. It is also required to develop teaching methods.

CONCLUSION

In this paper problems of introduction of automated external defibrillators for application in Ukraine are considered by the author.

REFERENCES

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- [2] V.I.Denysyuk, O.V.Denysyuk, "Probative internal medical treatment: Secrets, diagnosis standards and treatment", Vinnytsya: 2006. – p.704.