USE OF THE ELECTRONIC BURN CHART IN THE ASSESSMENT OF MISCALCULATIONS OF BURN SIZE (177)

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Introduction: Statistical data says that more than 500.000 people suffer from burns annually in Russia, 175.000 of them are children under 18 years of age. Burn injury outcome mainly depends on prehospital care. Ambulance team has to calculate body surface area affected by a burn and define fluid replacement volume and make a decision upon patient's hospitalizing based on this calculation. An admitting physician examines the patient again (including BSA assessment) and prescribes a treatment for the next day. Different prognostic indexes that take into account the size of burn provide decision support in choosing treatment approach. Miscalculations of BSA and as a consequence incorrect fluid resuscitation lead to aggravation of symptoms. An electronic burn chart called "e-skitsa" was developed by authors to provide automatic calculation of BSA. The program was checked for reliability and repeatability. There is limited data concerning quality of assistance provided by different health workers to pediatric patients in Russia.

Methods: A prospective analysis of data on 92 children with burn injury (average age 16 months) which were admitted to Speranskii Pediatric Clinical Hospital was performed. Data was collected from Healthcare information system used in the Burn Unit. For each patient we picked up data on burn size estimated by ambulance team, admitting physician and burn injury specialist. BSA calculated by "e-skitsa" was regarded as the reference standard. For statistical analysis we used Kolmogorov-Smirnov test, Mann-Whitney U test and Spearman's rank correlation coefficient calculated by means of IBM SPSS Statistics.

Results: BSA burned that was estimated by health workers was compared with BSA calculated by "e-skitsa". Average error rate for ambulance team, admitting physician and burn injury specialist was 4,8%, 3,4% and 2,4% respectively. We found major mistakes (above 5% of BSA) in estimations made by the ambulance team in more than 40% of cases. In more than 50% of cases BSA estimation was off by 1-5%. Correlation analysis revealed that the value of a mistake was the greatest among patients with major burns.

Conclusion: An accurate assessment of burn size among children is crucial for outcome but still difficult. Incorrect estimations of burned BSA are quite frequent in clinical practice. Use of electronic burn chart helps to avoid a significant number of BSA miscalculations.