

Prognostic scales ISS-RTS-TRISS and APACHE II in Decision support of treatment children with trauma

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Introduction

Prognostic scales ISS-RTS-TRISS^{1,2} and APACHE II³ are widely used in modern traumatology for evaluation of heaviness of state and probability of death outcome. However the application of these scales in children is not yet studied in sufficient.

Goal

Study the perspectives of using prognostic scales for decision support in treatment of trauma of children and integration the methodology in Hospital Information System.

Material and methods

The study included 399 patients (mean age $9 \pm 5,0$ years), 26 (6,5 %) patients died, The probability of death was determined using ISS-RTS-TRISS and APACHE II scales on the bases of anamnesis, initial examination, parameters of physiological and neurological status collected in the first day of admission. The used prognostic scales were integrated into HIS environment. For evaluation of the discrimination ability of prognostic scales the ROC-curve was used together with calculation of the threshold for optimal ratio for sensitivity and specificity.

Results

Probability distribution of death outcome did not follow the normal law. The main contribution for the probability of death outcome was between 0 and 30%. The study proved the high discrimination ability for ISS-RTS-TRISS scale (ROC area $0,908 \pm 0,029$) and satisfactory prognostic properties of APACHE II (ROC area $0,875 \pm 0,038$).

Conclusion

It was proved that ISS-RTS-TRISS and APACHE II scales are useful for assessment of outcome of children with trauma. The automation of calculation scales parameters in HIS provides quick and operative instrument for clinical decision support aimed at reducing children trauma death.

References

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