ONE BURN ONE STANDARD - BURNS REGISTRATION AND DOCUMENTATION: WHICH MODEL SHOULD WE USE? (206)

*Haller H.1, Giretzlehner M.2, Thumfart S.2, Wurzer P.3, Lumenta D. B.4, Kamolz L. P.4, Katzensteiner K.1, Branski L. K.3, Herndon D. N.3

1 UKH Linz, UKH Linz der AUVA, Linz, Austria
2 Risc Software GmbH of Kepler University Linz, Medical Informatics, Hagenberg, Austria
3 University of Texas Medical Branch and Shriners Hospitals for Children, Galveston, Texas, United States
4 Medizinische Universität Graz, Klinik für Plastische und Rekonstruktive Chirurgie, Graz, Austria

Introduction: The development of usable electronic burn surface area calculators shows the necessity of a generally accepted standard. There is a tendency to develop into two different directions: two dimensional or three dimensional models and systems showing clearly different results. The existing rather error prone methods for total body surface area (TBSA) calculations with a mixture of non-electronic and electronic calculations will further not improve the poor level of comparability in studies, quality, workload and cost controls.

The chosen model should be useful for diagnose finding; documentation of weight, sex, height and body shape, surgical and other therapeutic and care procedures throughout the healing processes. Above, the model should enable observation and documentation of scars over years so being able to do quality comparison. It should enable automated code generation of diagnostic and operational codes, tele medicine where there can be drawn on the model and send to a central database combined with photos.

Methods: Our study describes different two- and three dimensional systems and looked at them in relation to the commonly used methods. Based on our literature research and own investigations we demonstrated that the reduction of three dimensional patients to two dimensional models has serious shortcomings for both, for wound documentation as well as for accuracy of the estimations.

Results: By planimetry this effect can be calculated showing that the true area is reduced to 1/11th in the lateral parts by projection. Simple planimetry in a 2D model does not work. Errors from planimetric calculations are compared to rule based systems like Lund Browder Chart or rule of nines and model based systems like Burncase 3D and total 3d body scans.

Discussion: Each of this models and methods has its limits regarding feasibility, accuracy and sufficiency. After all, only a three-dimensional model that can be adapted to the patient’s real body is able to fulfill the criteria needed for a sufficient and accurate burn care and research.