



REVIEW

from

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Under the procedure for competition for obtaining the scientific degree "Doctor of Medical Sciences" at "General and Clinical Pathology, Forensic Medicine, Deontology and Dermatovenereology", Thrakia University of Stara Zagora

The project-dissertation entitled "Structural and functional adaptation of the epidermal barrier after birth and during childhood" is written on 102 standard pages in A4 format. It is illustrated with 34 tables and 15 figures. The bibliography includes 170 literature sources.

Adaptation to the extrauterine environment of the skin continues after birth. The candidate presents data from the literature review on the adjustment of children's skin after birth. The literature review is presented on 25 pages with 170 literature sources, most of the last 5 years. The data are presented synthetically and the candidate's ability to interpret the results is evident.

The barrier functions of the skin are a major health problem, characterized by large individual variations and risk situations in personal, social and economic terms. Their violation is triggered by many endogenous and exogenous factors of the socio-ecological system. Economic losses are estimated at millions of leva per year. Impaired barrier function facilitates the penetration of irritants, contact allergens and creates the possibility of diseases not only of the skin but also of the whole organism.

The problem has gained modernity in connection with the growing importance of

environmental factors, as well as greater opportunities to study the epidermal barrier in particular - the active participation of corneocytes in immune processes, their proinflammatory cytokines and protective structures. The set goal and eight tasks are in accordance with the missing literature data on the adaptation of the skin barrier after birth, they are set clearly and systematically.

In the section "Own studies" the author presents data from three experimental studies, focusing on the adaptation of physiological parameters of the skin (pH, TEVZ, hydration of the stratum corneum). For the first time in this age group, data from Raman spectroscopic profiles of the water content in the stratum corneum and the concentration of the natural moisturizing factor are presented. A score for the electron microscopic maturation of the stratum corneum in childhood has been developed and validated. Data on the three-dimensional organization of the epidermis and corneodesmosomes in childhood are presented, the results of which were published in 2019 in J Invest Dermatol. The materials and methods are methodologically correctly developed, on sufficient material, with appropriate control groups and statistical verification. The graphic illustration of the results makes a good impression. The results are presented synthetically, illustrated accurately, statistically confirmed, with control groups and reference methods.

The "Discussion" section discusses the data from our own research analytically and systematically. Impressive is the proposed concept for three phases of development of skin physiology, related to the mechanical stability of the skin.

The conclusions are in accordance with the set goal and tasks. In terms of precision. I recommend reducing the number of conclusions to 10.

The contributions are divided into scientific-theoretical and practical and reflect the considered own research on the dissertation. It is desirable that the contributions be reduced and consolidated. To specify which are valid for our country and which are generally valid.

In conclusion, I believe that the presented dissertation and related publications, the result of the independent work of the dissertation fully meet the requirements for scientific and educational degree "Doctor of Science". The critical remarks made do not reduce the value of the work and the indicated contributions. The work is methodologically properly developed, at a high technological level, a priority both for the country and in some respects abroad, relevant in its content and interpretations. Elements of compilation, interference and plagiarism - none. The attached illustrative material is a qualitative addition to the digital data. The outstanding merits give me a reason to recommend the presented work for positive evaluation among the members of the scientific jury.

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