

3D MODELLING OF INDIVIDUAL DENTAL IMPLANTS

A.G. Mamalis¹, A.N. Chuiko², I.J. Vakulenko³, R.O. Yakymenko³,
S.N. Lavrynenko⁴

¹ *National Technical University of Athens, Greece;* ² *State University of Food and Trade, Kharkov, Ukraine;* ³ *Stomatological Centre of the Kharkov National Medical University, Ukraine;* ⁴ *National Technical University "KhPI", Kharkov, Ukraine*

The computer tomography (CT) is not only one of major methods of diagnostics in medicine but also paved basis in the construction of three-dimensional (3D) images of the explored objects. The programmatic systems of SimPlant, Implant-assistant, 3D-DOCTOR, MIMICS (Materialise) and other which allow from 2D computers cuts to pass to 3D objects with possibility of structural analysis of the system depending on the closeness of bone are presently widely advertised. The features are expounded some different approach being based on possibilities of computer tomography and modern technical systems of solid design on the example of subperiosteal implants was considered [1, 2].

The certainly-element design and analysis in medicine get new practically unlimited possibilities, if it is built on the base of computer tomography, because possibility to build not canonical or idealized models but models maximally close to the concrete patient appears, both on geometry and on properties of soft and bones fabrics.

As it applies to the ground of construction of subperiosteal implants, the process of computer design of fragment of toothless jaw is considered with subsequent development, both construction of implants and casting molds on the example of stomatological templates.

We are considering the possibilities of this technology on more difficult clinical case – dental row of mandible with a defect requiring the options of bridge prosthetic appliance.

The offered system of CT/CAD/CAE/CAM can be used by maxillofacial surgeons, orthopedists-stomatologies, implahtologies, ortodontis, in the orthopedics of spine and joints, etc., allowing to design any elements of reconstruction, not unsealing preliminary the operating field.

REFERENCES: 1. Chuiko A. About possibilities of biomechanics analysis with the use of modern computers technologies. // DentalJug, Krasnodar, 2009, №6, c.50-55. 2. Chuiko A.N., Surov O.N., Alymbaev R.S. About the features of constructing, fixing and stabilizing of subperiosteal implants from positions of biomechanics. // DentalJug, Krasnodar, 2009, №8, c.46-51, №9, c.60-67.