16. THE ROLE OF 3D-PRINTING TECHNOLOGIES IN ONCOLOGY - A COMPREHENSIVE STUDY AMONG MEDICAL STUDENTS

Author: Valic Eugeniu; **Co-author:** Valic Vladimir

Scientific advisor: Mereuță Ion, MD, PhD, Professor, Department of Oncology, *Nicolae Testemitanu* State University of Medicine and Pharmacy, Chisinau, Republic of Moldova

Introduction. The 3D-printing technologies (3D-PT) are considered as a game-changing way of manufacturing a variety of objects and products with a computer-guided precision. They are used nowadays in various domains, especially in the oncology field. With the development of new diagnostic and treatment methods in oncology, 3D-PT have proved their role in different areas of cancer management, being an innovative way of modeling and creating personalized applicators, prostheses and interactive 3D-printed models of patients' tumors for both educational and treatment purposes.

Aim of study. Assessment of the level of knowledge and attitudes among medical students who have already completed an oncology module about the role of 3D-printing technologies (3D-PT) in oncology and their implementation in the studying process.

Methods and materials. A descriptive cross-sectional study was conducted in the period of May 2023- September 2023 with the participation of 158 students, including 140 students of the Vth year from Medicine nr.1 faculty of *Nicolae Testemitanu* SUMPh who have already completed Oncology module during the year of study 2022-2023 and 18 students from 12 countries (Azerbaijan, Bulgaria, Croatia, Georgia, Germany, Latvia, Northern Macedonia, Pakistan, Poland, România, Turkey and Ukraine)- participants of ESO-ESSO-ESTRO-SIOPE Multidisciplinary Course in Oncology for Medical Students 2023 in Poznan, Poland, who have already completed Oncology module as of September 2023. The respondents were invited to fill in an online questionnaire to collect data about their knowledge and attitudes related to the role of 3D-printing technologies in oncology.

Results. Of the total number of participants (N=158), 119 were female (75,3%) and 39 were male (24,7%), median age- 24,5 years. The majority of the students (147 students, 93%) have heard about 3D-PT, 103 of them (65,2%) appreciated their knowledge about them as low and 48 (30,4%) as moderate. Only 29 students (18%) used a 3D-printed object. 110 students (70% of respondents) considered the use of 3D-PT in oncology as highly necessary. The possible management of cancer types with 3D-PT were bone (34,2%), breast (26,6%) and lung (17%) cancers. Of the possible directions for the implementation of 3D-PT in oncology, 22,1% responded for diagnosis, 25,3% preoperative management, 29,7% postoperative management, 36,7% educational, and 34,8% research. A majority of 98% considered the possibility of exposing the data from imaging investigations in the 3D-printed version as highly necessary and necessary. Moreover, 82% stated that 3D-PT would have a high impact in improving the quality of studies with the introduction of them in the studying process at the Oncology module.

Conclusion. The majority of the students who responded considered that 3D-PT would have an important role in the improvement of the studying process at Oncology module as well as a potential role in the development of personalized treatment of cancer patients.