

32. NANOMEDICINE AS THE FUTURE OF MEDICINE

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Introduction. Every day we face health problems, especially with chronic diseases and their damage to people and the health system. That's why it is important and necessary to find a solution for them and nanomedicine can be this solution.

Aim of study. The objective of this research is to evaluate the role of nanomedicine in our health system and how nanoparticles work at different levels of our bodies.

Methods and materials. Were analysed PubMed articles published from 2012 to 2022, on the subject of nanomedicine and nanoparticles used in medicine. It is obvious that their number increases every year.

Results. The result of the study confirm that nanomedicine presents revolutionary opportunities in different types of cancer (recent progress in physics, chemistry and science of materials have provided nanomaterials that are expected to improve the treatment of many tumors resistant to current therapies), neurodegenerative and cardiovascular diseases, infections and other pathologies, with the help of miniature devices and nanoparticles. Nanotechnology is used as a tool to explore the darkest paths of medicine through imaging, targeted medication, delivery of gene systems and implants. The countries with the highest percentages of articles about nanomedicine were Europe (36%) and the United States (39%). In the rapidly growing nanomedicine market, an increasing number of items whose therapeutic efficacy has been enhanced by their nanoscale dimensions are already accessible. Furthermore, hundreds of nano based products are in various phases of preclinical and clinical research. The United States Food and Drug Administration has authorized over 20 nanomedicine products in the last 22 years. Despite the large number of papers and studies on nanoformulation of drugs, only a limited number of such nanosystems have advanced to market-related assessment, and an even smaller number have achieved final approval. According to some statistics, less than 10% of scientific findings get translated into clinical applications.

Conclusion. Nanomedicine offers us the capacity to prevent diseases, to find an early diagnosis and to treat pathologies at the molecular level. So, nanomedicine may change the current methods of diagnosis, treatment and will lead to new solutions and directions in research.