healthbook TIMES ONCOLOGY HEMATOLOGY

The Power of Precision: Why Precision Medicine is the Future of Cancer Treatment and How it Implies in Elderly Cancer Patients

DOI: 10.36000/hbT.OH.2022.14.094
Vetter M. The Power of Precision: Why Precision Medicine is the Future of Cancer Treatment and How it Implies in Elderly Cancer Patients. *healthbook TIMES Onco Hema.* 2022;14(4):8-9.

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In the past few years, there has been an explosion of interest in the field of precision medicine. The basic concept of this approach is simple: instead of treating all patients with cancer the same way, new technologies can be used to tailor treatments to the individual's needs, with the potential to greatly improve clinical outcomes and reduce drug side effects. There are several reasons why precision medicine is considered the future of cancer treatment. First, we significantly deepened our understanding of cancer genetics, which has allowed us to develop targeted therapies that can specifically kill cancer cells while sparing normal cells. Second, we are advancing imaging technologies to detect early signs of cancer and track the progress of the disease. Finally, we are starting to collect large amounts of data from patients that can be used to develop more effective treatments.

Precision medicine is still in its early stages, but it holds great promise for the future of cancer care. Cancer is a complex disease that requires individualized treatment plans and by tailoring treatments to each patient, we can improve clinical outcomes and quality of life for those affected by this disease. The biggest challenge that precision medicine is currently facing is the lack of data. Indeed, to develop effective treatments, we need large amounts of data from patients with different types of cancer. These data also need to be correctly interpreted, well organized and accessible so that researchers around the world can use it. In Switzerland, several national programs are ongoing based on industry and public funding. For example, the Tumor Profiler Study on integrated, multi-omics, functional tumor profiling for clinical decision support showed very interesting results for patients with ovarian cancer, melanoma and other cancers.[1] Furthermore, the National Data Streams, multidisciplinary consortia research platforms involving a national network of clinical and science/engineering partner, aims to examine several cohorts of patients and will bring further insight into each patient's individual disease characterisitics.[2]

Another challenge is the cost of precision medicine. Developing personalized treatments can be expensive and not all patients will thus have access to these therapies. There is also a risk that insurance companies may not cover precision medicine therapies, as they are often experimental and not approved by local regulatory agencies. In Switzerland, we have a possibility to gain access to unapproved drugs in cancer care based on Article 71 (KVV).[3] This law opens the off-label use for doctors and patients after critical review by the insurance company. Nevertheless, precision medicine may lower health care costs in the long run, due to improved health outcomes with potentially fewer side effects of treatment that require further care.

Because of the demographic change in our society, the steadily increasing number of elderly cancer patients will become a huge challenge in the future, mainly due to the lack of data on optimal treatment of these patients. Precision medicine has the potential to improve cancer care for the elderly not only by assessing the specific tumor characteristics for selecting an effective therapy but also addressing the patient's needs. Age is associated with frailty and generally worse outcomes in cancer medicine. Patients with organ function impairment, falls, cognitive impairment or depression need to be treated carefully and in a tailored way. The accurate initial assessment is very important and further research in the field of geriatric oncology and precision oncology is necessary.

While precision medicine has the potential to improve cancer care for elderly patients, clinical data is insufficient for optimal implementation of the concept in this setting. Large clinical trials and trials with smarter design have to confirm the efficacy of precision medicine in elderly cancer patients; however, these can be expensive and often difficult to carry out. Additionally, government and private funding organizations can support research projects that focus on this population. There is also a lack of awareness among the public about precision medicine and its potential benefits for elderly cancer patients and as such, advocacy groups can help to inform on the need for more research in this field.

Despite all the challenges, precision medicine has the potential to transform cancer care. By focusing on each patient's unique disease, we can develop treatments that are more effective in improving clinical outcomes. This approach can have clinically relevant implications also for elderly patients but further research, alongside large clinical trials, is needed to confirm the efficacy of precision medicine in this patient population and to successfully implement it in this setting. To this end, we need support from government and funding agencies, as well as cooperation from insurance and pharmaceutical companies.

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