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EDITORIAL

Globalization of treatment strategies in leukemia: challenges and responsibilities

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Worldwide, more than 10 million people are diagnosed with cancer each year and the majority succumbs to their illness.[1] Approximately half of this global cancer burden is shared by low income countries where the impact on mortality is even higher because of limited access to effective therapy. Both negative (for example, tobacco use and the HIV AIDS epidemic) and positive (for example, improved life expectancy) consequences of globalization have contributed to the increase in the cancer-prone population pool in developing regions. The World Health Organization (WHO) is acutely aware of the situation at hand and has been engaged in developing a comprehensive approach to the problem that includes programs for cancer prevention, screening and diagnosis.[2] However, more needs to be done in terms of therapeutic operations including clinical trial development, drug access and establishing specific treatment guidelines that are applicable to countries with lesser economic resources.

Treatment advances in cancer usually originate in the West but their worldwide application is impeded by both financial and infrastructure constraints. This harsh reality is, however, all too often forgotten and rarely addressed in a controlled setting. This is why we applaud the efforts from Karachunskij *et al.*[3] from Russia, who in the current issue of *Leukemia* describe a randomized study in pediatric acute lymphoblastic leukemia in which a resource-adapted treatment strategy relying mostly on oral and intramuscular drugs performed as well as a more intensive schedule that included highly myelosuppressive intravenous chemotherapy.[3] Not surprisingly, the former approach was less toxic and required fewer inpatient days. Obviously, a certain degree of caution is necessary in the overall interpretation of these data, but the broader implication of the authors' effort cannot be ignored.

Considering the fact that modern therapy has the potential to cure leukemia in a substantial proportion of both children and adults with the disease, it is urgent that one addresses the problem of limited access to treatment in less affluent societies. In some instances, such as in acute promyelocytic leukemia, resource-adapted treatment strategies are not only less intense (for example, in terms of toxicity, cost and utilization of other resources) but might end up being superior to 'conventional' chemotherapy.[4–6] However, the problem of limited access is not always tied to treatment complexity but also drug cost. For example, oral imatinib mesylate, which has now replaced allogeneic stem cell transplantation as the initial treatment of choice in chronic myelogenous leukemia, might not be necessarily cost-effective for an economically challenged health care system.[7] Certain countries like India are trying to address the problem by manufacturing the drug locally, a practice that is being legally contested by the drug's multinational manufacturer.[8] The increasing cost of brand-name prescription drugs is also affecting patients in 'developed' countries who are actively, and in Europe systematically, seeking generic alternatives. Similarly, 'low-income families' in some developed countries are increasingly reporting importation of drugs that are being manufactured in 'less developed' countries.[9]

Another important discussion point in cancer management is the fact that complex or expensive treatment approaches do not always translate into meaningful health outcome. For example, intensive combination chemotherapy for high-risk acute leukemia is mostly palliative and usually does not improve survival. Similarly, in elderly patients with chronic lymphocytic leukemia, there is no convincing evidence that the use of new drugs has conferred a survival advantage over the more affordable older drugs. In such instances, therefore, economic endpoints become highly relevant and treatment costs must be carefully balanced against true patient benefits. Here, the onus is on 'disease experts' who carry the moral duty of being highly objective in their treatment recommendations, especially in the context of scarce resources. In this regard, we would like to cite a recent elegant editorial in *Leukemia*,[10] where the author cautioned against the use of 'cosmetic' endpoints as valid surrogates for overall therapeutic value of new drugs. Regardless, one reasonable approach to deal with the cost challenge faced by low-income countries would be to adopt a 'minimum standard of care' with incremental complexity that is based on resource-sensitive treatment interventions.[11]

The underprivileged deserve to share the benefits of progress in cancer therapy. To accomplish this noble mission, a broad coalition is needed among governmental and nongovernmental agencies, charitable foundations, international institutions such as the WHO and the private sector. Long-term success requires grassroots level intercontinental partnerships between universities and medical centers, immediate attention to the extreme shortage of healthcare professionals and physical facilities, creation of multidisciplinary local expertize and promotion of a 'culture of maintenance and sustainability'.[12] Additionally, pharmaceutical companies should display global responsibility by facilitating access to life-saving drugs. In this regard, patient assistance programs are not always adequate and should be complemented with alternative action plans such as differential pricing of brand-name drugs and offering voluntary drug manufacturing licenses to poor countries.[8] We fully realize that we are asking for sacrifices to be made, but, as Martin Luther King, Jr once reminded us all, '*Of all the forms of inequality, injustice in health care is the most shocking and inhumane.*'

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