The changing landscape of Oncology

José Luis Passos-Coelho
Medical Oncology, LuzSaude.
passoscoelho@sapo.pt

Abstract

The incidence of cancer and the proportion of deaths due to cancer will increase in the next decades. These changes do not reflect loss of understanding of the biology of the disease or lack of treatment advances in the field. Instead, these epidemiologic changes are a consequence of the increase in life expectancy and cancer is a disease of aging.

To add on this expected increase in cancer incidence, improvements on the comprehension of cancer biology and better treatment results, have also lead to increase in cancer survival. Cancer is increasingly a chronic disease with prolonged survival, if not curable at diagnosis. According to the American Cancer Society between 1987-1989 the 5-year overall survival of cancer at all sites was 55% and improved to 68% in the years 2004-2010. Thus the number of cancer survivors and patients living with cancer is also increasing, accounting for 14 million people in the USA.

Major challenges have happened in the field of Oncology both in drug development and patient care. Patient physician relationship has changed with an increasing involvement and dependency on technology. New imaging modalities, EMR (electronic medical records), remote outpatient medical consultations and clinical data collection away from medical facilities and sent electronically are some examples. In the area of drug development, drugs are now designed to fit and modulate a specific biologic target with new drugs requiring testing in clinical trials coming at a faster speed than patient recruitment into clinical trials is possible. Clinical trial design moving from large disease-specific studies, to small "basket trials" designed to recruit a limited number of patients with different cancer types but that share a common biologic handicap. Enormous amounts of genomic and proteomic data to be analyzed impacting on clinical decisions before thorough clinical trial validation. Germline genetic fingerprint within easy reach and at low cost without clear knowledge of the contribution of each genetic change to disease/cancer risk with difficult ethical implications. Need for validation of large but limited clinical trial data in enormous general population data bases. Incorporation of PROMs (Patient Related Outcome Measures), stressing patient's quality of life, into the more objective and traditional measures of cancer treatment efficacy based on tumor shrinkage and prolongation of patient survival. These are some of the challenges we are already dealing with in Oncology

for which improvements in technology are critical to consolidate the advances in cancer biology and treatment.