Childhood malignancies: Implication for millennium development goals

About eleven million children die each year worldwide;[1] majority of these preventable childhood death occurs in the developing countries.[2] A child in a developing country is 30 times more likely to die by his or her fifth birthday than a child in Western Europe; this outlook is worse in sub-Saharan Africa with the highest mortality rates.[2] The developing world is struggling with the burden of infectious diseases, hunger, poverty and conflict.[3,4]

In September of 2000, the largest gathering of world leaders in human history took place for the Millennium Summit at United Nations headquarters in New York, during which representatives from 189 Member States of the United Nations met to reflect on their common destiny. World leaders had declared the Millennium Development Goals (MDG) to close the developmental gaps that exist between the developed and the developing countries. These agenda include end to poverty and hunger, universal education, gender equality, child health, maternal health, combat HIV/AIDS, environmental sustainability, and global partnership.[1,2] On 25th September 2008 World leaders again came together in New York to renew commitments to achieving the Millennium Development Goals by 2015 and to set out concrete plans and practical steps for action.

One of the targets of MDGs is to reduce child mortality by two-thirds, from 93 children of every 1,000 dying before age five in 1990 to 31 of every 1,000 in 2015.[1] Presently efforts to achieve this goal have largely been directed at diarrhoea, malaria, neonatal infection, pneumonia, measles, tetanus, conflict and HIV/AIDS. Childhood cancer, malnutrition and the lack of safe water and sanitation which contribute to half of all these children's deaths have not received the attention they deserve. The current failure of the MDGs' fourth agendum (promoting child health) to happen as scheduled, calls for the need to also look more broadly at non-infectious disease.

Cancer remains an important cause of childhood morbidity and mortality in developing countries.[3,5,6] Only about 2% of all cancers in western industrialised nations occur in children with an annual incidence of 150 new cases per one million children in the United States, yet it accounts for 10 percent of childhood deaths and is second only to accidents as a cause of death in US children.[7] Outcomes for children with cancer in the developing countries have remained gloomy largely because they are compromised by the difficulties for patients in accessing health services and by competition for resources between oncological services and the many other health problems of emerging nations. A key characteristic of cancer in developing countries is late presentation.[3,6,8] Cancer survival is related to early diagnosis and intervention. According to Rogers *et al.*,[3] the cultural and socio-economic situations of patients in Africa make early diagnosis and referral difficult.

In the developing world, the notion that most childhood deaths are due to preventable causes have led to the shift of health priorities by government agencies to strengthen the base of primary and preventive medicine and to increase the access of previously disadvantaged communities to such care. The result is neglect of the so-called sophisticated tertiary care which is believed to be expensive and serves only a small number of patients, arguably those with an already guarded prognosis. Although the resources and skills required to deliver modern oncological services exist in some few developing nations, a critical appraisal of patient outcomes would soon justify the need for continued expansion of these services.

Uba *et al*.[6] reported that children with cancer in a developing country are faced with advanced disease, limited availability of cytotoxic drugs and frequent interruptions in treatment and inadequate follow-up. For instance, Wilms' tumour is one of the commonest childhood solid tumours which has an excellent outlook with 5-year overall survival exceeding 90% in the developed world.[8] In one series on nephroblastoma from Africa,[9] 85% of children presented with advanced diseases. Approximately one quarter of these patients received little or no induction chemotherapy due to unavailability of drugs, while less than 3% received the prescribed maintenance treatment with the remainder receiving erratic or no treatment. Overall, only 35%

remained disease-free two years from the time of diagnosis. This is in contrast with the 3rd National Wilms' Tumor Study from North America where 69% of children presented with early disease (stage I and II) and for whom the four year post-nephrectomy survival was more than 85% for stage I-III disease with favourable histology.[10]

In the developed world, the present outcome for children with cancer is significantly better than it was some years ago.[11] These impressive outcomes of children with cancers stem from collaboration on treatment of, and research on, paediatric cancer by paediatric oncology consortia. As a result of this collaborative approach, the overall survival rate for children with cancer has increased from 28% in the early 1960s to more than 70% in the 1990s in the developed countries.[3]

Research and experience show that millions of children who die each year could be saved by low-tech, evidence-based, cost-effective measures such as vaccines, antibiotics, micronutrient supplementation, rollback malaria programmes like provision of insecticide-treated bed nets and improved family care and breastfeeding practices, but little is being done to stem the high tides of childhood cancer-related deaths which is unacceptably high in the developing world at the moment.

To actualize the lofty dreams of the MDGs on child survival in developing countries, all stakeholders-families, governments at all levels, religious organisations, communities, well spirited local, national and international organisations have a role to play. Governments must deliberately and adequately support and fund cancer researches, empower parents, provide necessary facilities (including affordable and accessible anti-cancer drugs) and undertake in-depth manpower/personnel training/development through relevant collaborations for cancer treatment in children. Interest groups like the UNICEF could help in children's survival through concerted collaborations with allies and via offices in the field - and well-travelled staff -in the developing world. Expert initiatives aimed at increasing awareness of the symptoms of childhood cancer through public campaign at the primary health care level to facilitate early diagnosis and improved response to treatment will go a long way to improve outcomes of childhood cancer in developing nations. Finally, outcome for children with cancer in developing countries will be significantly enhanced if paediatric oncology consortia in developing world begin an era of collaboration on the treatment of and research on paediatric cancer with their counterparts in established centres.

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