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Short Commentary

Challenges of Pediatric Oncology: Prospects and Pitfalls

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1. Short Commentary

While infectious diseases are a child health concern, there is a decline in communicable diseases in developing countries while cancer causes a large and growing proportion of childhood mortality[1]. Almost 90% of the world's populations of children live in low- and middle-income countries (LMIC) and this is where 84% of childhood cancers occur[2].

It is estimated that 80%-85% ofpediatric cancer cases occur in the developing world, wherethe 5-year survival can be less than 10% (in contrast to theUS and western European countries, where it is approximately70%)[3].

This serious problem is further compounded by multiple aggravating factors which are present in the LMIC region. One such factor is the often late diagnosis of pediatric cancer coupled with the lack of population based cancer registries in many developing countries, thus limiting our knowledge of the extent of the prevalence of this disease[4].

Poor cancer outcomes in LMICs can also be partially explained by treatment abandonment, a major cause of therapeutic failure in the developing world. Treatment abandonment is defined as treatment that is initiated but not completed[5]. Of the new cancer cases that occur yearly in children aged 0-14, 15% were found to abandon treatment[6]. The reasons for abandonment of therapy in developing countries are numerous and vary greatly among countries and individuals. Many of these reasons are based upon limited financial and medical resources, and lack of social support[5].

Malnutrition is also an important factor to consider in the discussion of negative outcomes in developing countries. In countries with limited resources, it is believed that malnutrition is present in 50% of children with cancer[7]. Nutritional status is tightly linked to therapeutic outcome as it can greatly affect the response to treatment, to control the problem of the malnutrition with particular reference to LMICs, arm anthropometry is the most accurate, inexpensive and easily available tool that can be used.

A lack of supportive care resources in LMICs also plays a role in the poorer outcomes witnessed in the developing world. With a lack of resources in LMICs comes poorer infection control andcorrespondingly higher rates of infection in neutropenic patients[4]. This underlines the importance of controlling nosocomial infections in LMICs. A lack of transfusion support is also detrimental to therapeutic outcomes in pediatric cancer. LMICs, which contain about 85% of the population, only collect half of the global blood donations[8].

There are several strategies and multiple opportunities to successfully overcome this problem. One such measure includes "Twinning," the pairing of a pediatric oncology unit in a developed country

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with a hospital in a developing country,has proven to be an extremely effective way to build pediatri-concology programs in developing countries. In addition primary care infrastructure must be improved and primarycare providers must be educated so that they can recognizepediatric malignancies and provide appropriate referrals[9]. Another area that appears to be lacking is formal researchtraining for physicians providing pediatric oncology care innewly developed pediatric oncology units. Although someinformal clinical and research training undoubtedly occursthrough physician interaction in the context of twinningprograms that currently exist, fellowship training programsin academic pediatrics should consider additional clinicaland research experiences that will expand expertise in designingand conducting research to monitor and improvepatient outcomes[10].

Telecare is emerging as an important tool for expanding therange of diseases that can be treated by newly established pediatriconcology units. Usually consisting of a video conferencingsystem with technology for sharing medical imagingor pathology slides, Telecare makes remote consultations possible[11].

Last but not the least,the immediate implementation of national cancer registry along with risk stratification system which allow for the optimization of treatment by matching the disease risk to treatment intensity to prevent over or under-treatment will be extremely useful to meet this challenge.

We conclude by saying that effective implementation of the above mentioned measures with adequate resource allocation and mass awareness program regarding cancer prevention will be the next step in achieving breakthrough in meeting the challenge of pediatric oncology in near future.

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