

The Importance of Early Diagnosis in Pediatric Cancer

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Introduction

Pediatric cancer is a devastating diagnosis that affects thousands of children worldwide each year. Unlike in adults, the nature of cancer in children is often different both in its biology and its clinical presentation. This makes the early diagnosis of pediatric cancer a critical factor in improving outcomes and ensuring a better quality of life for the child and their family. Early diagnosis means detecting cancer at its earliest possible stage, when the disease is still localized, and treatment options are often more effective. The importance of early diagnosis cannot be overstated, as it directly influences prognosis, treatment options, and the overall success of therapy. It can be the difference between life and death for a child, and early intervention often results in fewer complications, less aggressive treatment, and higher chances of long-term survival.

Pediatric cancers, while rare, include a wide variety of diseases such as leukemia, brain tumors, lymphoma, neuroblastoma, and Wilms tumor, among others. Although the incidence of cancer in children is low compared to adults, with approximately 1 in 285 children being diagnosed with cancer before the age of 20, the impact on families is profound. The average age at diagnosis varies by type of cancer, but many of these cancers are most commonly diagnosed during childhood or adolescence. Despite the overall low incidence, cancer remains the second leading cause of death in children, behind only accidents. Therefore, improving survival rates through early detection is essential.

Description

The significance of early diagnosis in pediatric cancer lies in the nature of these diseases. Cancer in children often behaves more aggressively than in adults, and its symptoms can be vague and nonspecific. Symptoms like fatigue, unexplained pain, fever, weight loss, and swelling can often be attributed to other more common childhood illnesses, delaying a proper diagnosis. For example, a persistent fever or unexplained weight loss might be overlooked as symptoms of a viral infection, delaying the start of cancer treatment. The challenge here is that early-stage cancers may not present with obvious symptoms, and tumors in children can grow and spread more quickly than in adults, making the time between diagnosis and treatment crucial.

One of the most pressing issues with pediatric cancer is that there is no universal screening program for children, unlike in adults, where screening for cancers such as breast or prostate cancer is part of routine care for those at higher risk. As a result, many childhood cancers are diagnosed only after symptoms have become pronounced enough to warrant medical attention. This emphasizes the need for heightened awareness among both parents

and healthcare professionals about the signs and symptoms of cancer, as early recognition and prompt referral to specialists can significantly improve outcomes. Early diagnosis allows for a more targeted approach to treatment. In some pediatric cancers, such as leukemia, the disease may be treated effectively with chemotherapy, and early intervention can lead to a much higher rate of remission. In other types of cancer, like solid tumors (e.g., brain tumors or neuroblastoma), early detection may allow for surgical resection of the tumor, which can lead to better outcomes and fewer long-term effects [1].

A key factor in the success of early diagnosis is the advancement of medical technology and imaging. Modern diagnostic tools, such as Magnetic Resonance Imaging (MRI), Computed Tomography (CT), and Positron Emission Tomography (PET), have greatly improved the accuracy and speed with which doctors can detect abnormalities in the body. Blood tests, such as complete blood counts and other markers, can also provide early clues that point to a potential cancer diagnosis. The combination of advanced technology and clinical expertise enables doctors to identify suspicious signs earlier, often before the cancer has spread, thus making treatment more effective. Another aspect of early diagnosis is the psychological impact it can have on both the child and their family. A late diagnosis of cancer can often be accompanied by feelings of uncertainty, fear, and anxiety. Children and their families may undergo more invasive treatments, and the longer treatment lasts, the more challenging it can become for the child's mental and emotional well-being. By diagnosing cancer early, parents and healthcare providers can begin to develop a treatment plan with a clear course of action, reducing stress and allowing for a greater sense of control during an otherwise uncertain time [2,3].

The importance of early diagnosis extends beyond just the medical and emotional well-being of the child; it also impacts the economic burden of childhood cancer. Cancer treatment, especially for advanced-stage cancer, is costly and often requires prolonged hospitalization, surgical interventions, radiation, and chemotherapy. The longer a child goes without a proper diagnosis, the higher the likelihood of needing more intensive treatments, which can be financially draining for families and the healthcare system. Moreover, advanced cancers often require more complex and expensive therapies, including clinical trials and experimental treatments that may not always be covered by insurance. Early detection helps reduce these financial pressures by decreasing the need for aggressive treatment and allowing for shorter hospital stays and fewer complications.

In addition to the medical community's role, public awareness plays a vital part in the early diagnosis of pediatric cancer. Parents must be educated about the warning signs of cancer in children. Although rare, pediatric cancers share certain early warning signs such as unusual lumps or swelling, unexplained weight loss, persistent pain, headaches, and vision problems. Pediatricians should be vigilant in noticing these red flags and referring children for further evaluation when necessary. Education campaigns aimed at both healthcare providers and parents can improve early recognition, which could lead to more diagnoses at earlier stages when treatment is more effective. The importance of early diagnosis also highlights the role of research in advancing medical knowledge. As scientists continue to study the genetics of pediatric cancers, they are uncovering potential biomarkers that could be used for earlier diagnosis. Through advancements in genomics and precision medicine, it is becoming increasingly possible to identify specific genetic mutations that could indicate a higher risk of certain cancers. Identifying children at higher risk, even before symptoms arise, could help doctors monitor them more closely and catch potential cancers earlier [4,5].

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Conclusion

In conclusion, early diagnosis in pediatric cancer is not just important—it is essential for saving lives and reducing the impact of the disease on children and their families. Early detection allows for more effective treatments, better outcomes, and fewer long-term side effects. It also helps alleviate the psychological and financial burdens that come with prolonged illness and extensive treatments. With advances in medical technology, greater awareness among the public, and continued research into genetic markers and new treatments, the hope is that more children will be diagnosed early, leading to higher survival rates and better overall health outcomes. Early diagnosis is the key to making pediatric cancer not just a condition that can be treated, but one that can be conquered.

References

1. Siegel, Rebecca L., Kimberly D. Miller and Ahmedin Jemal. "Cancer statistics, 2018." *CA Cancer J Clin* 68 (2018): 7-30.
2. Falk, B., F. Haddad, P. Klenrou and W. Ward, et al. "Differential sclerostin and parathyroid hormone response to exercise in boys and men." *Osteoporos Int* 27 (2016): 1245-1249.
3. Sanderson, Malcolm, Brandon J. McKinlay, Alexandros Theocharidis and Rozalia Kouvelioti, et al. "Changes in inflammatory cytokines and irisin in response to high intensity swimming in adolescent versus adult male swimmers." *Sports* 8 (2020): 157.
4. Van Hees, Vincent T., Séverine Sabia, Kirstie N. Anderson and Sarah J. Denton, et al. "A novel, open access method to assess sleep duration using a wrist-worn accelerometer." *PLoS One* 10 (2015): e0142533.
5. Bieglmayer, Christian and S. Kudlacek. "The bone marker plot: An innovative method to assess bone turnover in women." *Eur J Clin Invest* 39 (2009): 230-238.

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