

Feasibility of Home and Outpatient Chemotherapy in Pediatric Leukemia and Solid Tumors

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Introduction

The management of pediatric cancer traditionally relies on inpatient hospital settings due to the complexity and risks associated with chemotherapy. However, recent advances in care coordination, drug administration safety and supportive therapies have opened new pathways for delivering chemotherapy in alternative environments. Notably, the feasibility of administering treatment at home or in outpatient settings has gained considerable attention, particularly in cases of pediatric leukemia and solid tumors. These alternative models not only aim to reduce healthcare system burden but also strive to improve the psychological and emotional well-being of young patients and their families. Home and outpatient chemotherapy delivery models emphasize patient-centered care by reducing hospital stays, minimizing disruptions to daily life and enhancing family involvement. As evidence accumulates from various pilot programs and clinical studies, these approaches are being recognized as both safe and effective for select pediatric oncology populations [1].

Description

One of the most compelling examples of home-based chemotherapy feasibility is highlighted in the study by De Zen et al. (2021), which examined the safety and family satisfaction associated with a home-delivered chemotherapy program for children with cancer in Italy. The findings revealed that home chemotherapy was not only safe with no severe adverse events linked to the home setting but also received high approval ratings from families, who appreciated the reduced psychological stress and logistical challenges associated with hospital visits. The program was carefully designed with strict eligibility criteria, specialized nursing support and continuous communication with oncology specialists. Importantly, this model improved overall treatment adherence and continuity of care. For children undergoing repeated cycles of chemotherapy for solid tumors, being treated at home created a more stable and familiar environment, which contributed to reduced anxiety and better coping mechanisms during the course of treatment.

In parallel, the outpatient administration of chemotherapy, particularly in pediatric leukemia, has shown similarly promising results. The study by Bojilova-Dor et al. (2021) investigated the use of blinatumomab a continuous infusion therapy in an outpatient setting for children with acute lymphoblastic leukemia (ALL). Despite the complexity of the drug regimen, the study demonstrated that outpatient administration was not only successful but also clinically manageable with appropriate protocols in place. Children tolerated the treatment well and no significant increase in adverse events was noted compared to inpatient delivery. The success of this outpatient model was

attributed to thorough patient monitoring, well-trained clinical staff and the integration of caregiver education. These findings suggest that with the right infrastructure and patient selection, even advanced therapies like immunotherapy can be safely administered outside the hospital, enabling a shift toward more flexible and family-friendly treatment models in pediatric oncology [2].

Conclusion

The growing body of evidence underscores the feasibility and benefits of home and outpatient chemotherapy for pediatric leukemia and solid tumors. These models have shown to be both clinically safe and emotionally supportive for young patients and their families. By reducing hospital dependency, they help improve quality of life, enhance family satisfaction and potentially reduce healthcare costs. Moving forward, expanding access to such models will require investment in training, monitoring systems and patient selection protocols, but the long-term rewards promise a more humane and efficient approach to pediatric cancer care.

Acknowledgement

None.

Conflict of Interest

None.

References

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