Table III. Treatment of High Risk Group

High Risk Studies	Treatment		EFS
POG 8725 (1987-92, 183 pts)	4 MOPP/4ABVD	CR ⇨ +None ⇨ +LDTNI	82% 87%
CCG 5942 (1995-98, 826 pts)	COPP/ABV+CHOP+Ara-C/VP-16	⇨ +None ⇨ +LDIFRT	81% 90%
POG 9425 (1997-2001, 219 pts)	3 ABVE-PC LDIFRT	RER ⇨ +LDIFRT SER ⇨ +2ABVE-PC+	88% 82%
CCG 59704 (1999-2002, 99 pts)	4 BEACOPP/ABVD +4BEACOP+LDIFRT	RER (F) ⇨ +4 COPP/ABV RER (M)⇨+2ABVD+ LDIFRT SER ⇨	94%
COG AHOD0831 (2009-2012, 166)	2ABVE-PC PC+LDIFRT PC+IV+LDIFRT	RER ⇨ +2ABVE- SER ⇨ +2ABVE-	84% 73%
GPOH-HD2002 (2013-2020, 77pts)	2 OEPA/OPPA+4COPP/COPADC +SDIFRT		87%

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Sp04

LATE EFFECTS OF CHILDHOOD CANCER: THE FOUNDATION FOR RISK-STRATIFIED PEDIATRIC CANCER CARE LONG TERM

Melissa M. Hudson

Progress in biology and therapy for pediatric cancers has produced a growing population of long-term (exceeding 5 years) cancer survivors who are at increased risk for morbidity and premature mortality related directly to the cancer itself, to pre- and co-existing comorbidities, and to exposure to cancer treatment modalities. Consequently, cancer survivors represent an important group that may benefit from risk assessment, disease prevention services, and health promotion counseling. Risk-based survivor care that includes tailored screening, surveillance, and prevention based on the previous cancer, cancer therapy, genetic predispositions, lifestyle behaviors, and co-morbid health conditions is recommended for all survivors. To optimize risk-based survivor care, several groups have organized health screening guidelines based on evidence from the literature linking specific therapeutic interventions with late treatment complications.

In addition to evidence-based guidelines, optimal survivorship care requires a comprehensive, multidisciplinary care infrastructure or model of care. A variety of models of survivorship care have been described across practice settings including academic models, community practice models, and shared-care models. The shared-care model, which features co-management of survivors by oncology and primary care providers, has been promoted for its facilitation of survivor access to cancer- and non–cancer-related preventive services. A risk-stratified approach has been recommended in defining the ideal model of follow-up care for specific survivors. Risk factors typically considered in these models include treatment intensity, risk of recurrence, persistence of moderate to severe toxicity of therapy, risk of serious physical late effects, and psychosocial status.

To facilitate care coordination among oncologists and community providers, the use of a written treatment summary and care plan is recommended to communicate the survivor's health status, provide a care roadmap to ensure survivor-appropriate services, and clearly delineate provider roles. However, adherence to this recommendation by oncology providers remains suboptimal because of the significant time and resource barriers involved in organizing survivorship care plans. Identification of the essential components of survivorship care plans, which may vary across health care settings, is important to facilitate their widespread adoption. The integration of automated, programmable applications within existing electronic health record systems may expedite the development of care plan summaries in the future. To enhance awareness of survivorship health issues, educational efforts must be expanded to target not only oncology providers, but also practicing clinicians, graduate medical trainees, and survivors.

Continued follow-up during adulthood is essential to accurately characterize very late cancer-related sequelae and determine if complications resulting from cancer therapy will be exacerbated by the organ dysfunction associated with aging. In this way, late health outcomes research plays a critical role in refining screening/surveillance recommendations and guiding the development of preventive and remedial interventions to preserve health.

This presentation will review the scope of long-term health effects after pediatric cancer, the challenges in coordinating long-term survivor care, health screening guideline resources available to facilitate survivor care, and the impact of late health outcomes research among adults treated for childhood cancer.

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Sp05

UPDATE ON FERTILITY PRESERVATION

Murat Sönmezer

Over the past 50 years, there has been a remarkable improvement in the cancer survival rates due to significant progress in the diagnosis and treatment. However, multi–agent chemotherapy regimens and/or radiotherapy, and hematopoietic stem cell treatments are associated with significant long–term sequels such as growth disorders, cardiovascular problems, neurocognitive abnormalities, secondary malignant tumors, and reproductive failure. Cytotoxic therapy has also been used in some non-malignant hematologic, immunologic, and genetic diseases, which are resistant to standard treatment modalities. Moreover, gonadal surgery for benign gynecological lesions including endometriomas may be associated with decreased ovarian reserve, even can result in a permanent ovarian failure especially if the disease is bilateral. It was projected that in 2020, there would be approximately 90.000 new cancer cases in adolescents and young adults, on the other hand overall cancer mortality declined by 1% annually, from 2008 to 2017 among all age and sex groups [1]. As a result of the increasing number of cancer survivors, a strong focus has been placed on the delayed effects of cancer treatments which can all affect future quality of life of the patients.

When selecting the most optimal option to preserve fertility one should analyze all possible confounding factors such as age of the patient, available time before cancer treatment, ovarian reserve, the type and duration of chemotherapy and/or radiotherapy, and couple status. There are currently various established and non-established techniques for fertility preservation performed worldwide. Embryo cryopreservation has long been practiced with high success rates which is quite similar to outcomes using fresh embryo transfer. Likewise, with the advent of modern freezing technologies including vitrification, the success rates with oocyte freezing have also remarkably increased. Before oocyte or embryo cryopreservation at least 2 weeks is required for ovarian stimulation before oocyte retrieval. For estrogen sensitive tumors including breast and endometrial cancers, safer ovarian stimulation protocols incorporating letrozole were defined with high success rates. Patients undergoing pelvic radiotherapy laparoscopic ovarian transposition can be performed, however the success rates vary between 16-90%. Ovarian tissue cryopreservation and transplantation is among one of the key components of available fertility preservation techniques with more than 200 reported livebirths worldwide. Transplantation of frozen thawed ovarian tissue is not only a viable option to achieve pregnancy, but it also enables resumption of reproductive functions by producing hormones that has a substantial impact on the quality of life of the patients suffering premature ovarian failure. One of the most important advantages of ovarian tissue freezing is that there is no need to delay cancer treatment since ovarian stimulation is not required. Although various methodologies have been tested in many animal and human studies for ovarian tissue freezing, until recently, this procedure has been classified as “experimental” as the precise methodology has not yet been established. However, with increased clinical success together with increasing number of healthy live births in recent years, ovarian tissue freezing is now considered as an "acceptable" method for fertility preservation. The feasibility of autologous hematopoietic stem cell transplantation to improve pregnancy rates in patients with poor ovarian reserve has also been investigated with reported success rates in limited number of recent studies.

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Sp06

PRINCIPLES OF TRANSFUSION IN CHILDREN WITH CANCER

Dilek Gürlek Gökçebay

Transfusion therapy has an important role for pediatric cancer patients. A multicenter retrospective study of 4766 children with cancer demonstrated that 39.3% of the patients were given a transfusion. Red blood cells (RBCs) and platelets were the most commonly transfused components. Patients between 1 to <6 years of age were most likely to be transfused and HSCT, acute myeloid leukemia, and aplastic anemia were most often associated with transfusion.

Anemia occurs due to the suppression or dysfunction of erythropoiesis secondary to the underlying disease, as well as a consequence of bleeding in children with cancer. National audits of pediatric RBC transfusions in the United Kingdom have reported that more than half of pediatric transfusions were given to hematology/oncology patients. The balance between the tolerance to anemia and the need for transfusion may be different from other patients, because of underlying disease, the presence of comorbidities that influence the tolerance to anemia, and complications of multiple previous transfusions. In children with cancer undergoing hematopoietic stem cell transplantation (HSCT) who are at risk for critical illness and hemodynamically stable, suggested Hb value is 7 to 8 g/dL for the threshold of RBC transfusion. RBC transfusions are usually dosed as 10 to 15 mL/kg. However,the decision to transfuse should not be driven by the hemoglobin concentration, the patient’s clinical status should also be taken into consideration. Leukoreduction is one of the most common modifications to cellular blood components with universal leukoreduction being accepted increasingly as a standard. Cellular blood components including viable lymphocytes should also need to be irradiated in children with cancer. The gamma irradiation prevents T-lymphocytes from proliferating and reduces the risk of transfusion-associated