Appendix Table D1. List of recently published studies

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| **Research Gap** | **Study** | **Study Objective** | **Research Design** | **Sample Size;**  **Years;**  **Followup** | **Treatment(s)** | **Outcomes** | **Summary Results** |
| **MEDULOBLASTOMA** | Aihara Y, Tsuruta T, Kawamata T, Kanno H. Double high-dose chemotherapy followed by autologous peripheral blood stem cell transplantation for primary disseminated medulloblastoma: a report of 3 cases. J Pediatr Hematol Oncol 2010 32(2):e70-4. | To describe the toxic and tumor response of 3 pediatric medulloblastoma cases after undergoing double HDCT. | Case report | 3 cases  FU: 9, 40, and 41 mo | Resection of main tumor mass, craniospinal radiation therapy, 4-5 course conventional therapy with 2 courses of HDCT with PBSCT. | Response, toxicity | 2 patients were in complete remission 40 and 41 months after second HDCT. 1 patient relapsed after 9 months after second HDCT.  Hepatic veno-occlusive disease in case 2 after second HDCT. |
| **MEDULOBLASTOMA** | Johnston DL, Keene D, Bartels U, Carret A-S. Medulloblastoma in children under the age of three years: A retrospective Canadian review. J. Neuro-Oncol. 2009 94(1):51-56. | To review the outcome of children less than 36 months of age diagnosed with medulloblastoma. | Retrospective review | 96 cases of medulloblastoma. 12 received HDCT with stem cell transplant  1990-2005 (stem cell transplant occurred in 2 patients 1995-2000, and 10 cases in 2000-2005) | 12 patients received HDCT with stem cell transplantation. Retrospective review does not provide further treatment details for these patients | OS | Of the 12 patients that received stem cell transplant 7 were alive at last follow up. This compared with 74 patients who did not receive stem cell transplant with 27 alive at last follow up (p=.15). |

| Appendix Table D1. List of recently published studies (continued) | | | | | | | |
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| **Research Gap** | **Study** | **Study Objective** | **Research Design** | **Sample Size;**  **Years;**  **Followup** | **Treatment(s)** | **Outcomes** | **Summary Results** |
| **NEUROBLASTOMA** | Sung KW, Ahn HS, Cho B, Choi YM, Ch. Efficacy of tandem high-dose chemotherapy and autologous stem cell rescue in patients over 1 year of age with stage 4 neuroblastoma: the Korean Society of Pediatric Hematology-Oncology experience over 6 years (2000-2005). J Korean Med Sci 2010 25(5):691-7. | To determine the efficacy of tandem HDCT/ASCR in patients with newly diagnosed stage 4 neuroblastoma compared with single HDCT/ASCR. | Prospective cohort study | 141 patients, 71 single, 71 tandem  6/2000-12/2005  FU: median 56 months (24-88 months) | Maximal tumor resection when possible followed by local radiotherapy, induction chemotherapy, HDCT/ASCR | EFS, RFS | 10 TRM were reported in the single group and 8 in the tandem group.  The probability of 5-yr EFS after diagnosis was higher in the tandem group than in the single group (51.2%±12.4% vs. 31.3%±11.5%, P=0.030). When the analysis was confined to 123 patients who proceeded to HDCT/ASCR as assigned at diagnosis, the probability of 5-yr RFS after the first HDCT was higher in the tandem group than in the single group with borderline significance (59.7±13.5% vs. 41.6±14.5%, P=0.099). (C) However, the difference became significant when the analysis was confined to only patients who were not in CR prior to the first HDCT (55.7±17.0% vs. 0%, P=0.012).  Multivariate analyses including the prognostic factors at diagnosis for EFS revealed that tandem HDCT /ASCR treatment was the only independent favorable prognostic factor associated with the EFS (hazard ratio 0.16, 95% confidence interval 0.03-0.91, P=0.039) |
| **CENTRAL NERVOUS SYSTEM TUMORS** | Sands SA, Oberg JA, Gardner SL, Whiteley J. Neuropsychological functioning of children treated with intensive chemotherapy followed by myeloablative consolidation chemotherapy and autologous hematopoietic cell rescue for newly diagnosed CNS tumors: An analysis of the head start II survivors. Pediatr. Blood Cancer 2010 54(3):429-436. | To evaluate the neuropsychological late effects among survivors treated on the Head Start II protocol (included medulloblastoma, sPNET, ependymoma, pineoblastoma, glioblastoma multiforme, AT/RT/, Glioma, astrocytoma, choroid plexus tumor | Prospective cohort | 51 patients with malignant brain tumor who underwent ASCT had baseline testing, 26 survivors received post-testing at 2-years  1997-2003  FU: post test at 2 years from baseline assessment | Maximum safe resection of primary tumor, multiple cycles of induction chemotherapy, myeloablative chemotherapy with ASCT. | Neuropsychological assessment in domains of: intelligence, perceptual-motor and receptive vocabulary, academic achievement, learning and memory, social-emotional and behavioral functioning | The mean interval between T1 and T2 testing was 2.75 years (SD=1.4). Comparison of mean MDI, FSIQ, VIQ, and PIQ change scores remained stable over the followup period (P=0.76,d=0.07; P=.95, d=0.01; P=0.20, d=0.35, respectively). Specifically, the mean Overall Intelligence (MDI or FSIQ) changed score increased 1.05 points, while mean VIQ change score declined 0.38 points. Although not statistically significant, PIQ was negatively impacted (mean change score loss of 5.5 IQ points over 3 years). Comparison of social-emotional and behavioral change scores were within normal limits and not statistically significant for either internalizing (P=0.22, d=0.17) or externalizing behaviors (P=0.14, d=0.99); however, both scores increased (internalizing=+3.20; externalizing=+7.80). |
| **RETINOBLASTOMA** | Dimaras H, Heon E, Budning A, Doyle JJ. Retinoblastoma CSF metastasis cured by multimodality chemotherapy without radiation. Ophthalmic Genet 2009 30(3):121-6. | To reported a patient retinoblastoma with CSF metastasis who was cured by consolidation therapy and ASCR. | Case-report | 1 patient  FU: 7.8 years post transplant | 7-cycle high-dose chemotherapy with autologous cord blood stem cell transplant | Survival | Patient is in remission 8.3 years after diagnosis and 7.8 years post-transplant |
| **RETINOBLASTOMA** | Dunkel IJ, Chan HS, Jubran R, Chantada. High-dose chemotherapy with autologous hematopoietic stem cell rescue for stage 4B retinoblastoma. Pediatr Blood Cancer 2010 55(1):149-52. | To determine if HDCT with ASCR might be associated with a better chance of survival than conventional therapy. | Case series | 8 pediatric patients with metastatic unilateral or bilateral retinoblastoma  10/2000-1/2006  FU: 3-101 mo | Induction chemotherapy followed by HDCT/ASCR. 2/3 patients received RT post-ASCR | EFS | 1 patient died of toxicity at 3 months follow up. 5 patients were DOD at 5-21 months follow up, and 2 patients had EFS of 40 and 101 months. |
| **RETINOBLASTOMA** | Dunkel IJ, Khakoo Y, Kernan NA,Gershon. Intensive multimodality therapy for patients with stage 4a metastatic retinoblastoma. Pediatr Blood Cancer 2010 55(1):55-9. | To determine the survival outcomes of stage 4a retinoblastoma patients following treatment with HDCT/ASCR | Case series | 15 pediatric patients with stage 4a retinoblastoma  2/1993-12/2006  FU 103 months median (24-202 months) | Induction chemotherapy followed by HDCT in 13/15 patients, AHSCR, and post-AHSCR radio therapy in 7/15 patients | Retinoblastoma-free survival | 10 patients remain free of retinoblastoma in first remission. 5- year RBFS is 67% (38-85%, 95% CI) 5 year EFS is 59% (31-79%, 95% CI) |
| **RETINOBLASTOMA** | Dunkel IJ, Jubran RF, Gururangan S, Cha. Trilateral retinoblastoma: potentially curable with intensive chemotherapy. Pediatr Blood Cancer 2010 54(3):384-7. | To determine the role of high-dose chemotherapy for patients with trilateral retinoblastoma which has been lethal in virtually all reported cases. | Multi-center retrospective review | 13 pediatric patients with trilateral retinoblastoma  5/1997-10/2005  FU: median of 77 months (36-104 months) | Induction chemotherapy, 9 patients received HDCT followed by ASCR, 4 patients had post-ASCR radiotherapy | OS  EFS | Median overall survival was 19 months. 5 patients were alive at last follow up (104 months). The 5-year overall survival was 38% (14-63%, 95% CI). The 5- year EFS for patients with M-0 disease was 57% (17-84%, 95% CI) and in M-1+ patients was 17% (1—52%, 95% CI). Four of the seven patients who received a high-dose thiotepa-based regimen are event-free survivors versus one of the three who received a high-dose melphalan-based regimen. |
| **RETINOBLASTOMA** | Chantada GL, Fandino AC, Guitter MR. Results of a prospective study for the treatment of unilateral retinoblastoma. Pediatr Blood Cancer 2010 55(1):60-6. | To improve the outcome of patients with metastatic disease at diagnosis or relapse by the introduction of consolidation with high-dose chemotherapy and autologous stem-cell rescue. | Prospective non-randomized study | 4 treatment groups: ASCR group for overt extraocular disease N=2  January 2002-June 2008  FU: 5 year | Neoadjuvant therapy followed by surgery and HDCT/ASCR | EFS | For patients with overt extraocular disease both patients died of progressive disease. One patient was only given palliative treatment and the other patient was DOD at 5 mo. |
| **EWING TUMOR** | Burdach S, Thiel U, Schoniger M, Haase R. Total body MRI-governed involved compartment irradiation combined with high-dose chemotherapy and stem cell rescue improves long-term survival in Ewing tumor patients with multiple primary bone metastases. Bone Marrow Transplant 2010 45(3):483-9. | To examine the role of total body magnetic resonance imaging (TB-MRI), involved compartment irradiation (ICI), and high dose chemotherapy (HDCT) followed by stem cell rescue (SCR) in patients with high-risk Ewing tumors with multiple primary bone metastases. | Case-series | 11 patients with HSCT and 26 historic control patients without TB-MRI, ICI, and HSCT with SCR  1995-2000  FU: .5-14 years | Induction chemotherapy followed by local intensification with ICI, and HDCT with SCR. | OS | The overall survival of these 11 pediatric patients was 6 months to 14 years with a median OS of 6 months. Three patients were dead from complication. Two of these patients had treatment related secondary-malignancies, and one liposarcoma. At 5 years, the survival of the 11 treatment patients was 45% compared with 8% in the historic controls. |
| **EWING TUMOR** | Diaz MA, Lassaletta A, Perez A, Sevilla. High-dose busulfan and melphalan as conditioning regimen for autologous peripheral blood progenitor cell transplantation in high-risk ewing sarcoma patients: a long-term followup single-center study. Pediatr Hematol Oncol 2010 27(4):272-82. | To analyze the outcome and identify risk factors associated to progression free survival. | Retrospective case-series | 46  1995 – 2009  FU: median fu of 2 years (2 months – 7 years) | HDCT with SCR | PFS  TRM  Univariate/ multivariate analysis of risk factors | The best response at 3 months posttransplant was complete remission in 33 patients (70%), partial remission in 1 patient (2%) and stable disease in 13 patients (28%).  The PFS was 56% ± 4 with a median follow up of 92 months for survivors (6-168 months). Female gender, higher Lansky score, localized disease at diagnosis, CR status at time of transplant , and CR after transplant were associated with higher PFS.  3 patients died of transplant-related complications (1 engraftment syndrome, 1 septic shock with multiorgan failure, and 1 fungal infection). Probability of TRM was 6%±3% at 1 year. |
| **EWING TUMOR** | Ilari I, De Ioris MA, Milano GM, Pessolano. Toxicity of high-dose chemotherapy with etoposide, thiotepa and CY in treating poor-prognosis Ewing's sarcoma family tumors: The experience of the Bambino Ges Children's Hospital. Bone Marrow Transplant. 2010 45(8):1274-1280. | To describe the experience with HDCT in poor-prognosis ESFT treated in a single pediatric hospital in Italy. | Retrospective case-series | 26  1998 – 2007  FU: median 37 months (13 – 129 months) | HDCT and SCT with or without surgery and radiotherapy | OS  EFS  Toxicity | The 7-year OS and EFS were 59% (35-76%, 95% CI) and 49% (26-69%, 95% CI) respectively.  Relapse occurred in nine (38%) of patients.  No toxic deaths occurred in HSCT patients. |
| **EWING TUMOR** | Ladenstein R, Potschger U, Le Deley, MC, W. Primary disseminated multifocal Ewing sarcoma: results of the Euro-EWING 99 trial. J Clin Oncol 2010 28(20):3284-91. | To improve the prognosis of patients with primary disseminated multifocal Ewing sarcomas with a dose-intense treatment concept. | Randomized phase III trial | 281 patients (.4 – 49 years)  1999 – 2005  FU: median 3.8 years | Patients treated with or without PBSCR, radiation therapy, and or surgery | EFS  OS  TRM  Multivariate analysis of risk factors | The 3-year EFS was 27%±3% and OS was 34%±4%. Median survival time was 1.6 years for all patients.  Three patients died within the first 100 days after HDCT. 1 patient died of acute respiratory distress syndrome and two as a result of severe VOD and septicemia. 3 patients died of digestive tract late radiation toxicity 1 to 1.5 years after HDCT. 1 patient died as a result of post-allograft toxicity which was performed by clinician choice.  Age ≥14, ≥ single lesion, bone marrow metastases, primary tumor volume ≥ 200ml, and lung metastases were significantly associated with an increased hazard ratio in a multivariate model. |

**Abbreviations:** AHSCR: Autologous hematopoietic stem cell rescue; AHSCT: Autologous hematopoietic stem cell treatment; ASCR: Autologous stem cell rescue; CR: Complete remission; CSF: Cerebrospinal fluid; DOD: Dead of disease; EFS: Event-free survival; FU: Follow up; HDCT: High-dose chemotherapy; HSCT: Hematopoietic stem cell treatment;   
OS: Overall survival; PBSCT: Peripheral blood stem cell treatment; RBFS: Retinoblastoma free survival; RFS: Relapse free survival; SCT: Stem cell treatment; TRM: Treatment-related mortality