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William Krivit, M.D.

Krivit

November 28, 1925 - December 8, 2005
Memorial Celebration on Saturday, January 21, 2006

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William Krivit, M.D., Ph.D., is a Professor (Active Emeritus) of Pediatrics at the University of Minnesota. Dr. Krivit received his M.D. Degree from Tulane University in 1948 and his Ph.D. at the University of Minnesota in 1958 where he has been on staff since 1951. He is board certified in Pediatrics and Pediatric Hematology/Oncology. Over the years, Dr. Krivit has trained over 75 fellows and many represent some of the most influential people in their fields. He has also published over 400 manuscripts.

Dr. Krivit's early career centered on improving the outcome for children with malignant diseases. In 1974 Dr. Krivit, along with Drs. Mark Nesbit and John Kersey developed the University of Minnesota Blood and Marrow Pediatric Transplant Program - one of the first pediatric transplant programs in the country.

Subsequently, Dr. Krivit pioneered the use of allogeneic BMT in the treatment of mucopolysaccharidosis, including Hurler syndrome (MPS I-H); Maroteaux Lamy (MPS VI) and Sly syndrome (MPS VII) and leukodystrophies, including globoid cell leukodystrophy (Krabbe), metachromatic leukodystrophy and adrenoleukodystrophy. Other related diseases include, the sphinglolipidosis (Gaucher disease type III and Sandhoff disease) and the glycoproteinosis, (mannosidosis, fucosidosis and aspartylglucosaminuria), as well as, Wolman disease (acid lipase deficiency). The idea is that allogeneic stem cells and their progeny can adequately transfer the missing enzyme.

Awards and Honors

- 2002 Recipient, Leroy E. Hoeck Distinguished Scholar Award, 16th Annual Advances in Pediatrics Educational and Scientific Forum, Children's Hospital, Washington, DC
- 2003 Recipient, Distinguished Career Award from the American Society of Pediatric Hematology/Oncology
- 2004 WORLD Organization for Lysosomal Storage Disease Outstanding Achievement

Other "FIRSTS" include:

1956 Association of leukemia with Down Syndrome
1960 Use of heparinized blood for infant exchange transfusions
1960 Overwhelming infection after splenectomy
1962 Coagulation abnormalities after open heart surgery
1963 Cholestyramine for intrahepatic biliary atresia

1964 Use of Vinblastine in the treatment of Langerhans cell histiocytosis
1964 Transient myeloproliferative disease in infants with Down Syndrome
1968 Randomized trial of cyclic vs. sequential maintenance therapy for Acute Lymphocytic Leukemia
1968 Single vs. multiple dose Actinomycin D for Wilms' tumor
1969 ?-1 antitrypsin deficiency
1970 Enzyme replacement in Fabry disease
1972 Correction of some inborn errors by renal transplantation
1973 In utero diagnosis of inborn error of metabolism
1977 Coagulation disorders after L'Asparaginase treatment
1979 Use of VP-16 in childhood cancers
1979 Virally Associated Hemophagocytic Syndrome

1979 Virally Associated Hemophagocytic Syndrome
1980 BMT for osteopetrosis
1981 Association of Shwachman syndrome and leukemia
1984 BMT for mucopolysaccharidoses (with long term follow-up)
1987 Use of Carboplatin in childhood cancer
1990 BMT for leukodystrophy
1992 Neuropsychological outcomes in metachromatic leukodystrophy
1994 Scoring method for Brain MRI abnormalities in adrenoleukodystrophy

Research Interests

1. Transplantation of hematopoietic stem cells in the treatment of mucopolysaccharidosis, leukodystrophies. sphinglolipidosis , glycoproteinosis and Wolman disease.
    - Long term effects on neuropsychometric function
    - comparative studies with non-transplant strategy
2. Infusing mesenchymal stem cells to enhance enzyme replacement after allogeneic hematopoietic stem cell transplantation.

Selected Recent Publications

Krivit W, Shapiro E, Kennedy W, Lipton M, Lockman L, Smith S, Summers GC, Wenger DA, Tsai MM, Ramsay NKC, Kersey JH, Yao JK, Kaye E: Effective Treatment of Late Infantile Metachromatic Leukodystrophy by Bone Marrow Transplantation. N Eng J Med 3321:28-32, 1990.

Loes DJ, Stillman AE, Hite S, Shapiro E, Lockman L, Latchaw RE, Moser H, **Krivit W**: Childhood cerebral form of adrenoleukodystrophy: Short-term effect of bone marrow transplantation on brain MR observations. Am J Neuro Radiol 15(9)1767-1771, 1994.

Peters C, Balthazor M, Shapiro EG, King RJ, Kollman C, Hegland JD, Henslee-Downey J, Trigg ME, Cowan MJ, Sanders J, Bunin N, Weinstein H, Lenarsky C, Falk P, Harris R, Bowen T, Williams TE, Grayson GH, Warkentin P, Sender L, Cool VA, Crittenden M, Whitley CB, Packman S, Kaplan P, Lockman LA, Anderson J, **Krivit W**, Dusenbery K, Wagner J: Outcome of unrelated donor bone marrow transplantation in forty children with Hurler syndrome. Blood 87(11):4894-4902, 1996.

Peters C, Shapiro EG, Anderson J, Henslee-Downey PJ, Klemperer MR, Cowan MJ, Saunders EF, deAlarcon PA, Twist C, Nachman JB, Hale GA, Harris RE, Rozans MK, Kurtzberg J, Grayson GH, Lenarsky C, Wagner JE, **Krivit W**, and the members of The Storage Disease Collaborative Study Group: Hurler Syndrome: II. Outcome of HLA-genotypically identical sibling and HLA-haploidentical related donor bone marrow transplantation in fifty-four children with Hurler syndrome. Blood 91(7):2601-2608, 1998.

Krivit W, Peters C, Shapiro E. Bone marrow transplantation as effective treatment of central nervous system disease in globoid cell leukodystrophy, metachromatic leukodystrophy, adrenoleukodystrophy, mannosidosis, fucosidosis, aspartylglucosaminuria, Hurler, Maroteaux-Lamy, and Sly syndromes, and Gaucher disease type III. Curr Opin Neurol 12(2):167-176, 1999.

Koc O, Peters C, Aubourg P, Raghavan S, Dyhouse S, DeGasperi R, Kolodny EH, BenYoseph Y, Gerson SL, Lazarus HM, Caplan AI, Watkins PA, **Krivit W**. Bone marrow derived mesenchymal stem cells remain host derived despite successful hematopoietic engraftment after allogeneic transplantation in patients with lysosomal and peroxisomal storage diseases. Exp Hematol 27(11):1675-1681, 1999.

Shapiro E, **Krivit W**, Lockman L, Jambaque I, Peters C, Cowan M, Harris R, Blanche S, Bordigoni P, Loes D, Ziegler R, Crittenden M, Ris D, Berg B, Cox C, Moser H, Fischer A, Aubourg P. Long-term effect of bone-marrow transplantation for childhood- onset cerebral X-linked adrenoleukodystrophy. Lancet 356:713-718, 2000.

Koc ON, Day J, Nieder M, Gerson SL, Lazarus HM, **Krivit W**. Allogeneic mesenchymal stem cell infusion for treatment of metachromatic leukodystrophy (MLD) and Hurler syndrome (MPS-1H). Bone Marrow Transplant 30(4):215-222, 2002.

Krivit W. Stem cell bone marrow transplantation in patients with metabolic storage diseases. In: Advances in Pediatrics, eds. Barness LA, DeVivo DC, Kaback MM, Morrow G III, Rudolph AM, Tunnessen WW, Jr. Mosby, Inc. Volume 49, Chapter 13, pp. 359-378, 2002.

Grewal S, Shapiro E, Braunlin E, Charnas L, **Krivit W**, Orchard P, Peters C. Continued neurocognitive development and prevention of cardiopulmonary complications after successful BMT for I-cell disease: a long-term follow-up report. Bone Marrow Transplant 32:957-960, 2003.

Peters C, Shapiro EG, DeFor TE, Tan Y, Ziegler RS, **Krivit W**, Grewal SS, Orchard PJ, Abel SL, Lockman LA, Charnas LR, Ramsay NKC, Dusenbery KE, Goldman AI, Loes DJ, Aubourg PR, Shunichi K, Moser HW. Cerebral X-linked adreno-leukodystrophy: The international hematopoietic cell transplantation experience from 1982 to 1999. Blood 104(3):881-888, 2004.