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Dr. George Atweh

DIVISION OF HEMATOLOGY & MEDICAL ONCOLOGY



DR. GEORGE ATWEH

George Atweh, MD, is a renowned hematologist who served at Mount Sinai as Chief of the former Division of Hematology before it was united with the former Division of Neoplastic Diseases. In 2006 Dr. Atweh was once again appointed Chief—this time, of the combined Division of Hematology and Medical Oncology.

Dr. Atweh is working closely with Paul Klotman, MD, Chairman of Medicine, and Dennis Charney, MD, Dean of Mount Sinai School of Medicine, to recruit new faculty to enhance Mount Sinai's cancer treatment programs. These efforts are positioning Mount Sinai to compete for a Comprehensive Cancer Center designation from the National Cancer Institute.

Saving Lives through Research & Innovation

More than 85 faculty members comprise the Division of Hematology and Medical Oncology, with more being actively recruited nationwide and abroad.

About his vision for the future, Dr. Atweh comments, "We are recruiting—and retaining—superb researchers and clinicians with fine records of accomplishment in their areas of interest. Working at the outer edges of medicine in many cases, the Division is mounting a full-frontal attack on hematologic and neoplastic diseases."

Bleeding Disorders

Among the Division's highly regarded programs is the multidisciplinary, federally-funded Mount Sinai Regional Comprehensive Hemophilia Treatment Center (HTC). The Mount Sinai HTC is recognized as an International Hemophilia Training Center, one of only a handful in the United States.

Christopher Walsh, MD, PhD, who is internationally renowned as a leader in the study of gene therapy for blood diseases, was recruited to run the HTC in 2003. Dr. Walsh's earlier work in Fanconi anemia included the first clinical trial in which retroviral vectors were used for gene therapy of patients with Fanconi anemia group C. Dr. Walsh is also actively developing gene therapies for hemophilia types A and B.

Current research in the HTC includes studies into the epidemiology of inherited bleeding disorders, evaluation of new therapeutic interventions for these disorders, and studies aimed at understanding, treating, and preventing the complications of bleeding disorders.

Bone Marrow Transplantation

The technique of bone marrow transplantation—which normally has a high mortality rate—received significant refinement through the innovative work of Luis Isola, MD, Associate Professor of Medicine. Dr. Isola refined a new technique of bone marrow transplantation known as "mini-bone marrow transplantation." This new approach has proved safe and effective for older patients and for those who have relapsed or failed to respond to previous treatments, including stem cell transplantation.

While cautioning that the procedure still has risks, Dr. Isola noted that the new regimen is well tolerated by very ill patients, and often results in a successful "take" of the transplant.

Sickle Cell Disease

The Mount Sinai Medical Center is located in a diverse section of New York City that includes a large African American population. As such, the Division's strong focus on sickle cell disease is vital to meeting Mount Sinai's self-imposed mandate of providing top-quality care to our local community.

The Sickle Cell Disease and Hemoglobinopathies Program has been funded by NIH for many years as part of the Manhattan Comprehensive Sickle Cell Center. This program brings together—within the same institution—clinical and basic research projects along with clinical and psychosocial services to meet the needs of patients.



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An NIH-funded study, with Dr. Atweh as principal investigator, was initiated in 2005. The purpose of this study is to improve on the benefits derived from treatment with hydroxyurea in patients with sickle cell disease who achieve only a partial response by adding arginine butyrate to their treatment regimen.

Paul Frenette, MD, Associate Professor of Medicine, is conducting studies of mouse models of sickle cell disease which have suggested that intravenous gamma globulins may abort vaso-occlusive crises in sickle cell disease. Based on these laboratory studies, Patricia Shi, MD, Professor of Medicine, and Dr. Frenette received approval from the FDA to test this innovative treatment approach in patients with sickle cell disease.

Leading 21st Century Research

The Genetic Approach to Treatment

Members of the Division of Hematology and Medical Oncology are developing novel and highly effective treatments for hematological and neoplastic diseases. Current research is focused on effective ways to treat patients suffering from genetic and acquired hematological diseases and malignancies including the thalassemias, bleeding disorders, leukemia, and malignant tumors.

The Division began a partnership in 2005 with the Division of Liver Diseases and Mount Sinai's Recanati/Miller Transplantation Institute to identify new molecular pathways of hepatocellular carcinoma with the goal of developing more effective treatments for the disease.

Max W. Sung, MD, Associate Professor of Medicine, has been conducting clinical trials of immunotherapy in patients with advanced colorectal and breast cancers using gene transfer therapy that was developed by colleagues in the Department of Gene and Cell Medicine at Mount Sinai.

Dr. Sung is also involved in clinical trials of "suicide gene" therapy and differentiation therapies for colorectal cancer, also developed at Mount Sinai. A promising avenue of investigation is Dr. Sung's work on anti-angiogenesis therapy for hepatocellular carcinoma.

Tony E. Godfrey, PhD, Associate Professor of Medicine, was recruited to the Division in 2004. Dr. Godfrey is recognized as a premier researcher in the detection of micrometastasis from malignant diseases. The thrust of his work is to identify new oncogenes involved in breast, bladder, and colorectal carcinomas. Currently, he is working on identifying molecular markers for detection of lymph node metastasis. This work was funded

DEVELOPMENT OF BLOOD TRANSFUSION TECHNIQUE

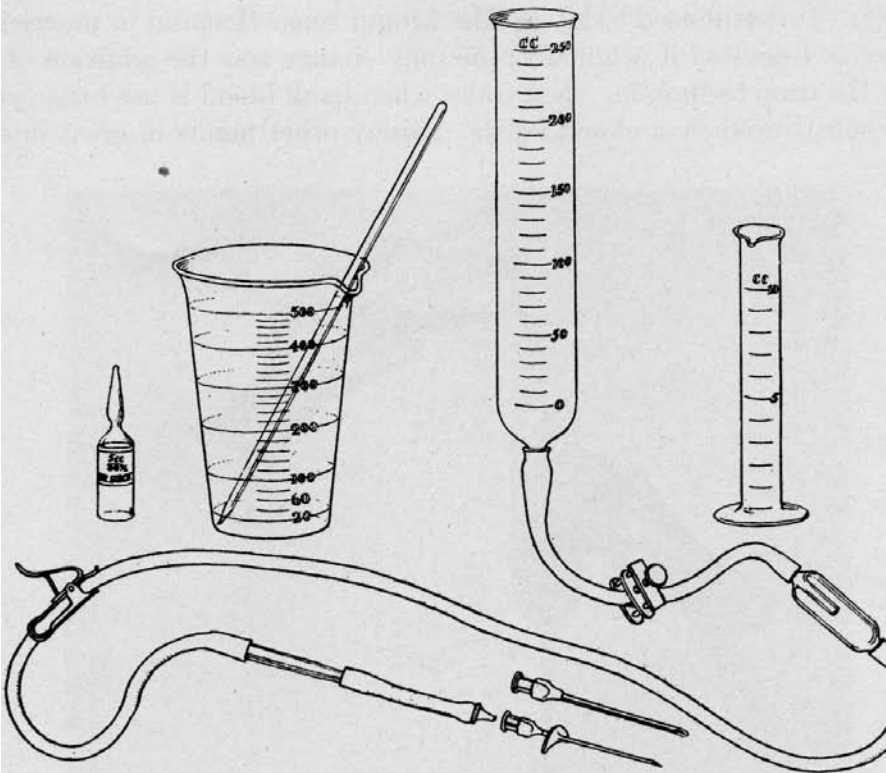
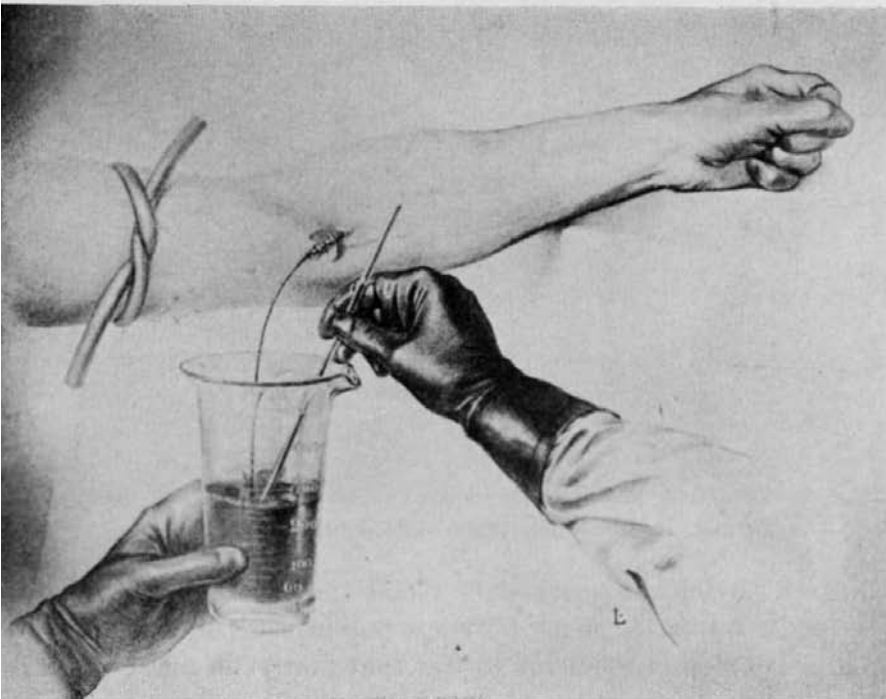


FIG. 2. Complete outfit for transfusion of citrated blood



Two vital contributions to the managements of blood transfusions came from Mount Sinai in 1915. Lester Unger introduced a new stopcock that allowed the operator to withdraw blood from the donor, mix it with citrate solution and inject it into the patient in one smooth operation. Richard Lewisohn made indirect transfusion possible by describing the minimum amount of citrate required to prevent blood from clotting.

by a Sponsored Research Grant from Cepheid of Sunnyvale, California. He is also currently working under a research grant received from the NIH to study methods of molecular detection of occult disease in non-small cell lung cancer.

In 2006 Vladimir Bogdanov, PhD, Assistant Professor of Medicine, was awarded the prize for the Best Article by Young Investigators less than 35 years of age by the *Journal of Thrombosis and Haemostasis*. This is the official journal of the International Society for Thrombosis and Haemostasis¹. Dr. Bogdanov studies biology of tissue factor, a molecule essential for blood coagulation.

Stem Cell Research

The Stem Cell Transplant Program is in the vanguard of treatment for hematological malignancies and cancers. After more than a decade of successfully treating a variety of diseases, the Program has emerged from being perceived as experimental to having become a model of standard treatment for specific diseases. The Program, says Dr. Atweh, is committed to finding new ways of improving the length and quality of life for patients.

In 2005 the Mount Sinai School of Medicine received a major gift from New York financier Leon D. Black to establish the Black Family Stem Cell Institute. Several members of the Division are also members of the Institute, which integrates embryonic stem cell research, developmental biology, and adult stem cell biology.

Margaret H. Baron, MD, PhD, Irene and Dr. Arthur M. Fishberg Professor of Medicine and a member of the Institute, is the editor of the textbook, *Developmental Hematopoiesis: Methods & Protocol (2004)*, which has been described by reviewers as “a valuable addition to the field of developmental hematopoiesis.”

Among Dr. Baron’s promising recent work is the study of the function of the “hedgehog” family of signaling protein molecules during embryonic development². Her work suggests that these molecules are essential to formation of blood

and endothelial cells, and may have implications in uncovering other regulatory mechanisms for hematopoiesis and vascular development.

Dr. Baron’s methodology for using hedgehog proteins to modulate hematopoiesis and vascular growth received a US patent in 2004.

Training Initiatives

To maintain such a high level of excellence in research and clinical care, the Division’s combined Fellowship Training Program in Hematology and Medical Oncology has been completely redesigned during the past five years to allow fellows to take advantage of the expertise of the many clinicians and researchers at Mount Sinai.

Reflecting the Medical Center’s initiative to produce superb physicians and scientists, the Division strives to develop new generations of outstanding academic hematologists and oncologists who will assume positions of responsibility in the future, both at Mount Sinai and at other major research and treatment centers around the world.

Each year, following a long and cherished tradition, the most promising graduating fellows—Mount Sinai’s “best and brightest”—are recruited to faculty positions.

Most recently, the Division of Hematology and Medical Oncology welcomed fellowship graduates Drs. Gabrielle Goldberg, Elaine Chiang, and Sebastian Mayer to its faculty.

¹J Thromb Haemost. 2006 Jan; 4(1):158-167.

²Hematother Stem Cell Res. 2001 Oct;10(5):587-94.

TEACHING THE PROS

The Annual Chemotherapy Foundation Symposium on Innovative Cancer Therapy for Tomorrow is the second largest oncology meeting in the United States and one of the largest in the world.

Jointly presented by the Chemotherapy Foundation and the Page and William Black Post-Graduate School of the Mount Sinai School of Medicine, the Symposium explores the significance of new developments in oncology and the challenge of broadening the therapeutic armamentarium for management of cancer patients.

DR. LUIS ISOLA pioneered mini-bone marrow transplantation. This new approach offers the procedure to those formerly thought to be too old or too ill to undergo transplantation.

