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New Drug Breakthrough For Sickle Cell Anemia

Development of a new drug that potentially represents a major breakthrough in the treatment of sickle cell anemia based on an idea conceived by Dr. Sunday O. Fadulu, professor of microbiology at Texas Southern University, was announced recently.

Disclosure of the yet un-named drug was made during a press conference at TSU attended by the three university researchers who developed the drug. They are: Drs. Fadulu, A.J. Weinheimer, acting dean, College of Pharmacy, University of Houston; and Sundershan K. Sanduja of the University of Texas Medical School—Houston.

TSU microbiologist Fadulu and UH medicinal chemist Weinheimer say the drug is only available for research use at this time. They believe it will be at least one year before it is available outside the United States and some time later before it will be available in the U.S. following Food and Drug Administration approval.

The drug originally was developed from a plant source, commonly known as a "chewing stick" in Nigeria. The process involved extraction of the plant's material followed by isolation of the active compound from the extract that possessed in vitro anti-sickling properties. A synthetic derivative has been developed with the same efficacy.

In 1970 Dr. Fadulu, who is a native of Ibadan, Nigeria, and who is project director for sickle cell research at TSU's Research Center for Minorities, observed that the extract was capable of reversing the sickling of the red blood cells of patients with sickle cell disease.

His work confirmed the common speculation from folklore medicine that the "chewing stick" used for oral hygiene purposes also could provide protection from sickle cell disease.

In 1978 Dr. Weinheimer, chairman and professor of medicinal chemistry and pharmacognosy and iterim dean of pharmacy at the University of Houston, joined Fadulu in the search for the active principle of this extract.

In 1983 Omex International, Inc., a Houston-based firm headed by Shantha Murthy, provided contract support to the University of Houston for isolation studies to synthesize the active ingredients in the compound. Drs. Weinheimer and Fadulu were appointed co-investigators and Dr. Sanduja, now a research associate in the Department of Hematology and Oncology at the University of Texas Medical School, was appointed UH research scientist.

Clinical trial tests have been conducted since 1984 on 25 patients in Gabon, Panama and Nigeria, using both the synthetic and the natural extracts. Test results proved extremely positive with all patients showing some level of improvement.

No side effects or toxicity were observed. The patients experienced a marked reduction in pain and length of hospital stay during sickling "crises." Other symptoms alleviated were enlarged livers and stunted growth and weight. This new drug is the first ever to pass all in vitro test identified by sickle cell scientists as prerequisites for a useful drug treatment.

The patent for international commercialization has been filed as well as the U.S. patent.

Studies conducted by the World Health Organization estimate that 40% or 40 million Nigerians either carry the sickle cell genetic trait or are at risk for the disease. Consequently, the desire to stop the effects of this disease has become the number one priority in many African nations, Fadulu says.

In addition, studies by Burrington Associates of America estimate that approximately 60,000 Black Americans and up to four million Central and South American citizens are afflicted by this disease.

Dr. Sunday O. Fadulu, Professor of Microbiology at Texas Southern University, will be speaking at the Portland Sickle Cell Anemia's Annual Sickle Cell Seminar, September 18th, at the Viscount.

Sickle Cell Screening in Public School System This Fall?

Al Williams, General Manager of the Portland Observer, gives a check to Marcia Taylor, Executive Director of the Portland Sickle Cell Anemia Foundation, Inc. The check is the proceeds of a joint fundraiser with the Portland Observer and Mary's Place that was held Sunday. Photo by Richard J. Brown

The Foundation plans to implement major sickle screening in the public school system this Fall. Screening is necessary to identify carriers of the Sickle Cell gene and inform the individuals. The follow-up counseling is a major part of the screening program to avert psycho-social handicaps and facilitate well-informed family planning decisions in later years because when both parents carrying the gene for sickle pass these genes on to their siblings, the child is then born with the disease. When one inherits only one gene, the individual is said to have the trait and cannot later develop sickle cell anemia disease. Carriers are as healthy as non-carriers and rarely have health problems related to the trait.

Because 10% of the Black population carry the gene for sickle cell, the disease is misinterpreted as a Black man's disease. The National Institute of Health now encourages everyone to be tested regardless of race for related blood disorders. Dr. Doris Wethers of NIH said, "People may not know everything about their ancestry and what genes they may have." The Institute concluded pain and suffering from the disease could be reduced with early preventive treatment.

An estimated 150 children of sickle cell anemia die before age 3 in the United States each year from pneumonia, meningitis or an overwhelming blood poisoning called septicemia, caused by bacteria known as streptococcus pneumoniae. Others suffer brain damage. Worldwide, the annual death toll is put at 18,000 to 20,000. Low doses of penicillian pills taken twice daily can dramatically reduce death and serious infections in young children with sickle cell anemia, and widespread use of this preventive technique could save thousands of lives worldwide, according to new studies.

Dr. Marilyn Ceaston of the Federal National Heart, Lung and Blood Institute is quoted as saying, "We like to think we have a chance of eliminating mortality."

About 1500 babies are born with sickle cell anemia each year and this is why screening and especially newborn screening is urged, Mrs. Taylor, the Portland Sickle Cell Anemia Foundation Executive Director stated. Dr. Fadulu's new treatment is just that, a treatment and must not be confused with a cure. However, it is one of the greatest discoveries of all times.

Mrs. Taylor said other races affected are people of Arabian, Greek, Maltese, Sicilian, Sardian, Turkish, Southern Asia, Hispanics of Caribbean ancestry, Africans, West Indians and some Caucasians.

New pamphlets, booklets and bookmarkers on sickle cell are now available at little or no cost, such as: How to Help Your Child, Take It In Stride, Why Children with Sickle Cell Anemia Should Attend Summer Camp, Parent/Teacher Guide (How parents and teachers can work together to achieve school success for children with Sickle Cell Anemia), Fact Sheet on Hemoglobin C, Fact Sheet on Thalassemia, Pregnant Women Who Have Sickle Cell Trait, and a few games, such as the Learning Game, & Home Study Kit and others.

For free testing, information and counseling, please call 249-1366.