

Padma vibhushan Dilip Mahalanabis: An indian paediatrician

Dr. Dilip Mahalanabis, born on 12 November 1934, was an Indian paediatrician known for pioneering the use of oral rehydration therapy to treat diarrhoeal diseases. Mahalanabis had begun researching oral rehydration therapy in 1966 as a research investigator for the Johns Hopkins University International Center for Medical Research and Training in Calcutta, India. During the Bangladeshi war for independence, he led the effort by the Johns Hopkins Center that demonstrated the dramatic life-saving effectiveness of oral rehydration therapy when cholera broke out in 1971 among refugees from East Bengal (now Bangladesh) who had sought asylum in West Bengal. The simple, inexpensive Oral Rehydration Solution (ORS) gained acceptance, and was later hailed as one of the most important medical advances of the 20th century.

Dr Dilip Mahalanabis was working in overflowing refugee camps during the 1971 Bangladesh Liberation war when he came up with ORS, which *The Lancet* called "the most important medical discovery of the 20th century."

Between the years 1975 and 1979, Dr. Mahalanabis worked with the WHO in Afghanistan, Egypt, and Yemen to fight the cholera epidemic. In the 1980s, he served as a consultant for the WHO, conducting research on the treatment of bacterial infections. The World Health Organization's Diarrhoeal Diseases Control Programme welcomed Mahalanabis as a member in the year 1983. He continued to serve in that capacity for more than five years. In addition, he was affiliated with National Institute of Cholera and Enteric Diseases (NICED) and the Institute of Child Health. Both of these institutions are located in Kolkata.

The commencement of the War of Independence for Bangladesh resulted in a large refugee crisis, with the majority of the refugees ultimately finding their way to India. Cholera quickly became a major cause of death among the famished and exhausted refugees, and with a case fatality rate (CFR) of 30%, The Johns Hopkins Center for Medical Research and Training in Calcutta (JH-CMRT) dispatched its professional and paramedical personnel to the refugee camps to assist the government and non-governmental organizations in dealing with this situation. The treatment clinic that Dr. Mahalanabis and his team ran was at Bongaon, which was located along the border between India and East Pakistan where they did their work. Cholera wards quickly ran out of space with even floors being completely occupied by sick patients; as a result, it was necessary to set up a large separate tent with 100 cots in order to accommodate the 350,000 refugees who were living in the vicinity of the town. The 16 beds that were available to them in two cottages that served as cholera

wards were completely insufficient to serve the refugees. They also suffered from a lack of intravenous fluids and had no way of obtaining them in the needed volumes or having qualified personnel to deliver them. This caused them to suffer from a shortage of both intravenous fluids and trained personnel. Oral rehydration would be sufficient to prevent deadly dehydration in the early stages, Mahalanabis and his team were certain, based on research that was available at the time, and intravenous fluid would only be required for severe cases after the start of hypovolemic shock and severe acidosis.

He employed an oral rehydration solution (ORS) that contained the smallest amount of ingredients possible and was made with ingredients that were readily available in the area. One liter of water was mixed with 22 grams of glucose, 3.5 grams of sodium chloride, and 2.5 grams of sodium hydrogen carbonate. JH-CMRT was responsible for the preparation of the glucose, after which the components were weighed and placed in polyethylene bags that were both sealed and labeled. Patients were given cups of this powdered combination after it had been poured to drums that already contained drinkable water. Because all of the components were obtained from local sources, the price of one liter of solution came to just 11 paise, which is equivalent to 1.5 cents. Because ORS is such a straightforward treatment, the patients' immediate family members were given the task of administering the medication to their loved ones. Together with a low dose of tetracycline, potassium was also given orally to the youngsters, and wherever feasible, coconut water was given to them because of the high potassium content it has. Tetracycline was also given in very low doses to the adults.

During this time period, Dr. Dhiman Barua, who was the chief of the WHO's Bacterial Diseases unit, paid a visit to the camp supervised by Mahalanabis, and he began aggressively promoting the treatment inside the WHO and UNICEF. Mahalanabis is credited with bringing the treatment to widespread attention. In spite of the fact that Mahalanabis's treatment was met with skepticism from the scientific community and that many journals refused to publish his original paper, it would take another seven years for oral rehydration therapy to be acknowledged as an effective treatment for dehydration caused by diarrhea and other diseases. His ORS recipe was never submitted for a patent.

The establishment of the NHS in UK provided him an opportunity to pursue medicine in the UK, he obtained degrees from London and Edinburgh. While he was in the UK he became the first Indian to be selected as the registrar for the Queen Elizabeth Hospital for Children.

The Royal Swedish Academy of Sciences chose Mahalanabis to represent their institution as a foreign member in the year 1994. Oral rehydration therapy was initially discovered and put into practice thanks to the efforts of Dr. Mahalanabis, Dr. Nthaniel Pierce, Dr. David Nalin, and Dr. Norbert Hirschhorn, who shared the first Pollin Prize in Pediatric Research in 2002. In 2006, Dr. Mahalanabis, Dr. Richard A. Cash, and Dr. David Nalin were each presented with the Prince Mahidol Prize for their respective contributions to the creation and implementation of oral rehydration therapy.

Mahalanabis was married to Jayanti Mahalanabis. Unfortunately, Dr. Mahalanabis died at a private hospital

in West Bengal on the 16th of October in 2022 at the age of 87 years. Dr. Dilip Mahalanabis' loss left a huge void in India. On our 74th Republic Day, the Government of India posthumously awarded him the "Padma Vibhushan" – the second-highest civilian award for his selfless service to humanity.

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