Iran's national cord blood bank saves five-year-old

Social Desk

The Iranian Blood Transfusion Organization has reported a significant milestone in the field of transplants using umbilical cord blood. The organization has successfully performed 28 transplants using stored umbilical cord blood, allowing individuals to experience a renewed lease on life.

One particularly heartwarming case involves the life-saving transplant that enabled five-year-old Arshia to embark on a new journey of health and vitality, IRNA reported.

Umbilical cord blood, recognized as a valuable source of stem cells, is the blood that remains in the placenta after childbirth. If not collected, this precious resource is unfortunately discarded as biological waste. However, studies have revealed that umbilical cord blood harbors hematopoietic stem cells with remarkable potential in treating various immune disorders and hematological malignancies in children. These versatile cells serve as a replacement for hematopoietic cells in patients grappling with cancer and other life-threatening illnesses. By harnessing the power of cord blood stem cell transplantation, numerous patients are being infused with newfound hope.

The Iran National Umbilical Cord Blood Bank spearheads the mission to provide stem cells to individuals in dire need of transplantation. As a public cord blood bank, it houses cord blood units available for compatible patients, ensuring that the donated cord blood unit is not exclusively preserved for the respective donor's family. Instead, the cord blood stem cells, carefully collected from healthy infants, undergo rigorous testing, processing, and are ultimately stored at ultra-low temperatures within the umbilical cord blood bank.

Cord blood therapy has proven effective in treating various diseases, ranging from blood malignancies to congenital anemias such as thalassemia and Fanconi anemia. Moreover, the emergence of this treatment method within the realm of regenerative medicine and cell therapy has sparked extensive research aimed at addressing spinal cord injuries and cerebral palsy.

However, it is crucial to note that cord blood transplantation relies on the compatibility between the patient's histocompatibility antigen and the corresponding cord blood histocompatibility antigen. Consequently, medical and transplant centers play a pivotal role by facilitating the request for suitable cord blood units for transplantation.

Arshia's remarkable journey to recovery

Arshia's story beautifully exemplifies the impact of tissue matching and blood transplant facilitated by the national cord bank of the Iranian Blood Transfusion Organization. This five-year-old child, afflicted with a hereditary immunodeficiency disorder known as hemophagocytic lymphohistiocytosis (HLH), was bestowed with a newfound sense of hope for a healthy and prosperous future. HLH is characterized by severe inflammation and organ dysfunction, potentially culminating in fatality.

Arshia's critical condition was met with a hematopoietic stem cell transplant utilizing a cord blood unit meticulously preserved in the Blood Transfusion Organization's cord blood bank. This groundbreaking procedure marks the 28th successful transplant using cord blood units stored by the Iranian Blood Transfusion Organization. Over 4,250 units of cord blood are currently safeguarded within the cord blood bank for blood transfusion purposes. However, reports indicate that only 86 of these units proved suitable for hematopoietic stem cell transplantation, as determined by compatible HLA samples. Regrettably, during the final confirmation of HLA compatibility using the High Resolution method, the samples fell short of full compatibility, precluding them from advancing to the transplantation stage. The High Resolution method meticulously assesses the perfect match of tissue characteristics between the donor and the suitable graft. Iran's ethnically diverse populace presents a unique challenge, as the chances of compatibility between cord blood bank samples and potential recipients are notably low. The expansion of cord blood reserves and the increase in volunteers donating hematopoietic stem cells hold promise in improving compatibility rates.

The Blood Transfusion Organization's cord blood bank stands as the sole active public cord blood bank in Iran, with operations commencing in 2010. This institution diligently collects, processes, and stores cord blood donations, representing a beacon of hope for individuals awaiting life-changing transplants.

Iran's Mostazafan Foundation donates 30 fully-equipped ambulances to underprivileged regions

Social Desk

In a commendable effort to alleviate deprivation in underprivileged regions across the country, Parviz Fattah, the head of Mostazafan Foundation, announced the delivery of 30 fully-equipped ambulances during a ceremony.

This recent handover marks the successful implementation of the third stage of the initiative, bringing the total number of ambulances donated by the foundation to deprived areas to a remarkable 100, according to Fars News Agency.

Recognizing the limited access to medical facilities in these marginalized regions and the escalating demand for ambulances, Fattah emphasized the foundation's commitment to addressing this critical issue.

"The procurement and equipping of ambulances have been prioritized on our agenda," he underscored.

These 30 equipped ambulances have been dispatched to 30 different regions across 21 provinces of the country. Notably, certain provinces such as Sistan and Baluchestan, Yazd, Gilan, and Kerman have been assigned three ambulances each, taking into account the pressing needs of these areas.

Fattah highlighted that the selection and preparation of these ambulances were based on the requirements specified by universities of medical sciences.

"The Mostazafan Foundation has purchased these ambulances from reputable domestic car manufacturers, strictly adhering to the orders and standards set forth by the Ministry of Health. As of today, these ambulances will be at the disposal of the Ministry of Health in deprived areas," Fattah affirmed.

He further disclosed that the foundation has dedicated $125,000 for the purchase and equipping of each ambulance. This substantial investment underscores the tremendous commitment of the foundation to ensuring the provision of vital emergency care services to those in dire need.

Moreover, Fattah expressed the foundation's unwavering resolve to procure and equip additional ambulances for deprived areas.

"We stand ready to purchase and import the necessary ambulances at the foundation's expense. However, it is regrettable that these fully-equipped ambulances are not readily available in the open market. Their procurement remains solely under the care of the Ministry of Health, thereby elongating the acquisition process," he stated.

According to the latest report, the donated ambulances have been assigned to 30 medical centers across 19 universities of medical sciences throughout the country. The contents of these equipped ambulances feature a comprehensive range of essential medical equipment, including electroshock devices, ventilators, vital signs monitoring systems, baby incubators, cold boxes, traction splints, scope stretchers, spinal stabilization vests, vacuum mattresses, various wire splints, glucometers, serum pumps, pulse oximeters, and neck collars.

With this latest contribution, the Lanback boards continues to make a profound impact on the lives of individuals residing in deprived areas, ensuring their access to critical emergency medical services.

Iran's ancient wind-catchers give architects cooling inspiration

Electricity consumption rises with the temperature as people turn on air conditioners in the summer. But many homes in Iran are still built with a simple but effective cooling device known as a wind-catcher, which requires no electricity and dates back centuries.

A wind-catcher looks like a tall, decorative chimney, usually with two or more open sides. It catches the breeze that blows well above ground level and channels it down into the house below. This displaces warm air that is expelled through the opposite face of the wind-catcher, The Guardian reported.

In some designs the incoming air blows over water, providing further cooling. Studies show that this simple design can reduce the temperature inside a building by 8C to 12C.

Even in the complete absence of wind, a wind-catcher acts as a solar chimney: warm air rises through it, drawing down cooler air into the building from the other side.

Nobody knows how far back wind-catchers date. Ancient Egyptian art depicts what might be wind-catchers from more than 3,000 years ago, but some scholars maintain that structures found on the remains of a Persian temple are the oldest genuine wind-catchers.

Now architects are taking another look at wind-catchers, redesigning them with computer-aided tools for maximum environmentally friendly cooling and ventilation.