

Insulin produced in genetically modified plants

The U.S. researchers have successfully expressed the precursor protein of insulin in lettuce and tobacco plants. Moreover, feeding these genetically modified plants to mice that have a tendency to become diabetic protected the animals against inflammation of the pancreas.

Generating the proinsulin protein in plants is a low-cost alternative to standard production methods. Dr. Henry Daniell, from the University of Central Florida in Orlando, and colleagues note in their report in the *Plant Biotechnology Journal*.

In the study, the scientists describe the creation of lettuce and tobacco chloroplast lines that produce a fusion protein consisting of a subunit of cholera toxin joined to human proinsulin.

Giving powered tobacco leaf to diabetic mice helped preserve insulin-producing beta-cells in the pancreas, Daniell's team reports, and this was associated with lower levels of glucose in their blood and urine.

Due to the stigma associated with tobacco, the researchers have now moved on to using genetically engineered lettuce instead. They add that in light of the encouraging results in animals, testing in humans is now underway.

Source: *Plant Biotechnology Journal*

Did You Know



Mother's diet affects cleft-palate risk in baby

Pregnant women who eat a meat-rich, fruit-poor diet may be doubling their baby's likelihood of being born with a cleft lip or cleft palate, Dutch researchers report.

Women with this so-called Western-style diet also tended to report unhealthier habits, such as smoking or drinking, the researchers found. "The relations between dietary patterns and certain aspects of lifestyle are very interesting and may contribute to the future identification of specific risk profiles in the preconception counseling of mothers-to-be," write Dr. Regine P. Steegers-Theunissen of Erasmus Medical Center in Rotterdam and colleagues.

Some studies have found an increased risk of having a child with cleft lip or palate among women with low levels of B vitamins. Steegers-Theunissen and her team note in the journal *Obstetrics & Gynecology*.

To investigate overall diet patterns and cleft-palate risk, the researchers compared 203 women who had given birth to a child with the birth defect to 178 women whose children were not malformed. Their diets were analysed 14 months after they had given birth, because, the researchers argue, diet patterns at that point were likely to be similar to how women were eating three months before and three months after conception.

The researchers divided the women into two groups based on how frequently they ate certain foods, with women who consumed more red meat, organ meats, processed meats, pizza, legumes and potatoes and less fruit classified as consuming a Western diet. Women who ate more fish, garlic, nuts and vegetables were considered to be following a "Prudent" dietary pattern.

Women who ate a more Western diet were less educated, heavier, and smoked and drank more, and had lower levels of B vitamins, on average, the researchers found. Compared with mothers whose diets were least like the Western type, the women whose diets most closely followed the Western pattern were at 1.9-times greater risk of having a child with cleft lip or cleft palate.

Furthermore, their increased risk remained after the researchers adjusted for education and cigarette and alcohol consumption.

However, no increased cleft lip or palate risk was seen among women whose diet followed the Prudent pattern, whether closely or loosely.

The researchers note that current pre-conception guidelines emphasise that nutrition and certain lifestyle factors play an important role in early pregnancy.

Source: *Obstetrics & Gynecology*

Endoscopic neurosurgery: A new hope for the nation

DR TAREQ SALAHUDDIN

In modern era, the surgical treatment of various neurological diseases like brain and spinal cord tumors, hydrocephalus, spinal cord injury, prolapsed disc disease, stroke (hemorrhagic) is possible with great safety and less invasive way due to the tremendous improvement in using operating microscope, neuroendoscope and modern neurosurgical instruments.

Without the use of the modern neurosurgical tools, neurosurgical practice is almost invalid. Neurosurgeons in the modern world are practicing the operations either by using operating microscope or endoscope (most recent advanced neurosurgical technique) for quite a long time. And they provide very good surgical results to their patients in terms of mortality and morbidity.

In our country, the practice of modern neurosurgery is not yet well established due to the lacking of modern neurosurgical equip-

ment and skilled neurosurgeons who are able to perform modern neurosurgery by using new techniques and equipment.

However, few neurosurgeons in the country have already started practicing modern techniques both -microscopic and endoscopic neurosurgery. They are performing routine neurosurgical operations such like

- Endoscopic brain tumor surgery (endoscopic pituitary tumor surgery, endoscopic intraventricular tumors and cysts surgery, endoscopic tumor biopsy etc) and microscopic brain tumor surgery
- Endoscopic lumbar disc (PLID or sciatica) surgery / microscopic disc (cervical, lumbar) surgery
- Endoscopic / microscopic stroke (hemorrhagic) surgery
- Endoscopic surgery for hydrocephalus (excess water in the brain) -- Endoscopic third ventriculostomy (ETV)
- Microsurgery for the spinal trauma and spinal tumors

Endoscopic brain tumor surgery is a very modern and sophisticated neurosurgical technique



The team of Prof Dr Zillur Rahman and Dr Aminur Rahman Azad is doing an endoscopic neurosurgery.

practiced all over the world. Recently, a neurosurgical team at Chittagong performed a few cases of endoscopic brain tumor surgery for the first time in Bangladesh with very successful outcome of the patients.

Among the brain tumor surgery they have performed endoscopic approach for pituitary adenoma, intraventricular tumor, colloid cysts of the third ventricle of the brain, and biopsy from midbrain tumor.

Prof Dr Md Zillur Rahman and Dr Aminur Rahman Azad are pioneer neurosurgeons introducing modern techniques in the country. Their team is doing sophisticated neurosurgeries in Chittagong. Prof Dr Md Zillur Rahman said, "Since I do this at a corner of the country, much people are not aware that these new practices are successfully going on in our country. Many of these patients go abroad to seek these sort of neurosurgical healthcare."

Prof Dr Zillur Rahman also informed that without the use of modern neurosurgical techniques, brain tumor surgery by the conventional approach is very difficult to perform. They need large skin incision and skull bone removal to reach the tumor site and there are every chance of injury to normal brain tissue during the operations in conventional way. Postoperatively patients need longer time to stay in the hospitals with some unacceptable morbidity and mortality.

In contrast, micro-neurosurgical and endoscopic techniques are minimally inva-



What to do during diarrhoea outbreak

In recent days, due to the deluge throughout the country, diarrhoea has been broken out in several parts of the country. The treatment of diarrhoea is very simple, but most often the disease is not managed properly. To treat a patient of diarrhoea, start oral rehydration saline (ORS) immediately after loose motion starts. Zinc preparations should be used simultaneously for better outcome. While using zinc preparations, ORS should not be discontinued as it is the main treatment of diarrhoea. Cleanliness and good hand hygiene will keep you and your family from having diarrhoea. Always wash your hand before and after handling food, using toilet and drink boiled or safe water to get rid of the disease.

HEALTH NEWS

GE Healthcare to support local providers

STAR HEALTH REPORT

GE Healthcare is world's one of the leading healthcare solution providers with presence in diagnostic imaging, clinical systems, medical diagnostics and life sciences.

GE Healthcare was present in Bangladesh through dealer chan-

nels in the past. Recently they have set up an office in Bangladesh and is looking forward to support the growing healthcare market in this country.

The company provides the latest technologies in line with the vision of "Early Health" to top hospitals of our country. Clinical systems such as ultrasound, ECG Monitors etc. are front door to

early health and are easily affordable. Recognising the rural needs in developing countries, they are developing specific value technologies that can meet their requirements.

GE Healthcare is interested to support in various ways to the existing healthcare providers of the country who have the vision to work in the field of preventive care.

Consequences of smoking on reproductive health

DR MM MORTAYEZ AMIN

There are no systems of human body spared from the pronged harmful effects of smoking - heart, lungs, brain, blood vessels and what not. But very few of us know about the harmful effect of smoking on our sexual and reproductive health.

Studies carried out on the effect of smoking on male reproductive ability have shown that cigarette smoking is associated with a significant decrease in sperm density, total sperm count, total number of motile sperm and citrate concentration in semen. Besides, smoking has been shown to have deleterious effects on sperm morphology, sperm vitality, and ejaculated volume of semen. The available biologic, experimental, and epidemiological data indicate that up to 13 percent of infertility may be attributable to cigarette smoking.

The poisonous elements of cigarettes can change the sperm morphology which is an important indicator in fertility and fertilization chances are also reduced according to the percentage of sperm affected. It becomes more important for those who have sperm concentration near the lower limit. Smoking has also been found to affect accessory glands of male reproductive system.

Smokers require nearly twice the number of In Vitro Fertilisation (IVF) attempts to conceive as nonsmokers.

In female, the harmful consequences of cigarette smoking



include various factors accelerating the loss of reproductive function and may advance the time of menopause (cessation of menstruation) by one to four years. Smoking is associated with increased risks of spontaneous abortion and ectopic pregnancy (implantation of embryo at places other than the uterus). Gamete (sperm, ovum) mutagenesis is one possible mechanism whereby smoking may adversely affect fecundity (ability to reproduction) and reproductive performance. germ cell is that it can alter the vital structure called oocytes (immature ova) leading to chromosomal abnormalities which affect reproductive outcomes.

Recent data from smokers suggested a link between smoking and a high incidence of childhood cancer in offspring through

DNA damage of sperm and oocytes.

It is not uncommon that heavy smokers semen parameters are within normal ranges but a clear negative trend is observed in the smokers' semen is that they are more likely to pass on genetically abnormal, mutant DNA contained in the sperm to their offspring through fertilization process. Therefore, any man wishing to have children should know these scientific studies. The accumulated evidence supports the value of taking a preventive approach to infertility by discouraging smoking and helping to eliminate exposure to tobacco smoke in both women and men.

The writer is a Consultant, Infertility & Assisted Reproductive Treatment of Labaid Specialised Hospital.

Bullying tied to mental health problems later

Boys who bully or are victims of bullies may have a higher risk of mental health disorders as young men, a recent study suggests.

The findings, published in the journal *Pediatrics*, are based on a group of 2,540 boys Finnish boys. At age 8, the boys were asked whether and how often they bullied other children, were targets of bullying, or both. Parents and teachers also answered questions about any psychiatric symptoms the boys had.

This information was then compared with psychiatric diagnoses in young adulthood - made during medical exams for compulsory military service at 18 to 23 years of age.

Overall, the study authors found, boys who habitually bullied were more likely than their peers to be diagnosed with antisocial personality disorder as young men. People with this disorder have a disregard for the law and the rights of other people, and are often aggressive or violent.

On the other end of the spectrum, boys who were frequent victims of bullying had an elevated risk of anxiety disorders as young men.

Boys who were both perpetrators and victims of bullying appeared to be the worst off; they had elevated risks of both anxiety disorder and antisocial personality disorder as young adults.

The findings suggest that frequent bullying and victimisation is "a red flag that something might be wrong and preventive interventions should take place," said lead study author Dr. Andre Sourander of Turku University in Finland.

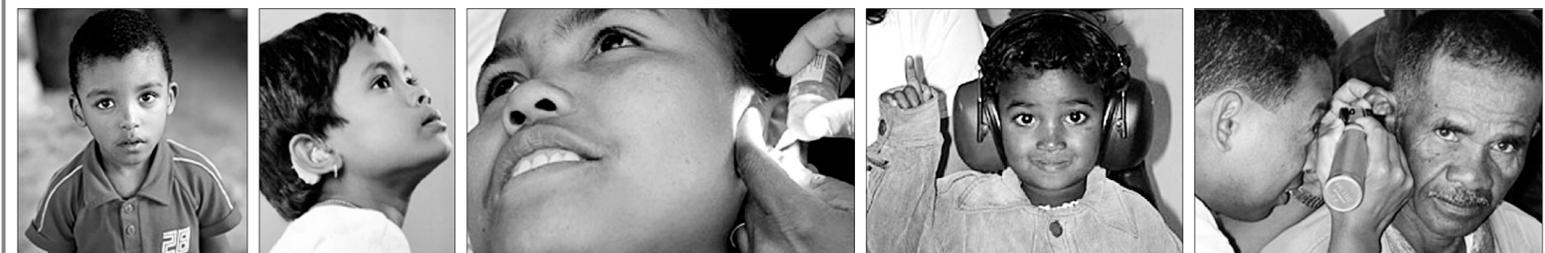
At particular risk are boys who are both involved in bullying - as perpetrator or victim - and have emotional or general behavioral problems, Sourander told.

He recommended that these boys be evaluated by a mental health professional. Boys who are both bullies and victims seem especially in need of help, Sourander noted. Of these boys, who made up 3 percent of the study group, nearly all had some psychiatric problem at the age of 8, he said.

For parents of bullies and bullying victims alike, it is vital to work with teachers and school health staff to help their children, according to Sourander. "Cooperation between parents, teachers and health professionals is most important," he said.

Source: *Pediatrics*

DEAFNESS FACT SHEET



Worldwide, 278 million people are estimated to have moderate to profound hearing loss in both ears. 80 percent of deaf and hearing-impaired people live in low- and middle-income countries. The major preventable causes of hearing impairment in low- and middle-income countries are middle ear infections, excessive noise, inappropriate use of certain drugs, problems during childbirth and vaccine-preventable infections. One quarter of cases of hearing impairment begin during childhood. At least half of all hearing impairment is preventable. Immunization against childhood diseases such as measles, meningitis, rubella and mumps is key to preventing hearing impairment. Detecting and responding to hearing impairment in babies and young children is vital for the development of speech and language. Hearing aid can reduce this disability in many children. many people in developing countries, fewer than 1 in 40 people who need a hearing aid have one.

Photo and data source: WHO