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Since the dawn of civilization, humans have never stopped venturing into the frontiers of life, health, and happiness. Despite all the appalling and glooming news that we have endured in year 2008, people were still knocking at the frontiers of medicine, trying to find better treatments. Here is a glimpse of some of the medical milestones in year 2008.

Alzheimer's disease is characterized by progressive degeneration of the nerve cells. Researchers have been able to use patient's own skin cells and reprogram them into stem cells that can produce motor neuron (nerve) cells. Now, they can study the development, growth, and destruction of these cells in a laboratory setting to get a better understanding of the natural progression of Alzheimer's disease with the hope of finding a cure some time in the future.

Heart disease is usually linked to cholesterol. A new research study has shown that people who have higher levels of inflammatory markers such as C Reactive Protein (CRP) are at an increased risk of developing heart disease, despite normal cholesterol levels. People who had normal cholesterol levels and elevated CRP levels saw a significant reduction in heart disease incidence (47%) when they were treated with statins (cholesterol lowering drugs)

that lowered the CRP. Researchers think that inflammation may have a role in making the cholesterol plaques weak and vulnerable to rupture.

Surgeons are attempting to perform surgeries that leave no visible scars using the natural orifices such as mouth, colon, or birth canal. A team of surgeons from New York Presbyterian/Columbia hospital reported on removing a gall bladder using a scope that was inserted through the mouth. Ordinarily, an appendectomy will involve making an incision in the right lower abdominal quadrant. A group of surgeons from University of California, San Diego, were able to remove the patient's appendix using a scope that was inserted through her birth canal. The researchers believe such procedures may reduce pain, recovery time, and possible infections.

A number of diseases including heart disease, diabetes, and Alzheimer's, or cancer can be traced to variations in patients' genetic make-up. Now, for less than \$400, you get your gene analysis. This enables the researchers to match your genetic coding with 90 known variations to see if you have a predisposition for milk intolerance, diabetes, or cancer. But, until we know how to alter the disease course itself, this information maybe satisfying nothing more than an intellectual curiosity.

One thing children dread more than anything else is going to a doctor's office, especially when the mother warns that he or she is going to get a shot. By the time they are 18 months, they may receive more than 20 injections for vaccination. A new product called Pentacel, has five vaccines that cover diphtheria, tetanus, pertussis, polio, and type-B hemophilus influenzae. It cuts down the number of injections by 30%.

Medical Stories That Made The Headlines In 2008

So far, most genetic screenings have been used in identifying traits with increased predilection for a disease. This concept has been advanced to aid in the treatment plans for breast cancer patients. SPOT-Light, a genetic test for breast cancer, measures the number of altered genes in a breast tissue that responds to a drug called Herceptin. The more altered genes there are in a breast tissue, the better will be the treatment response. Another test called OncotypeDx identifies people with increased risk of recurrence and aids in chemotherapy to reduce such incidence.

Until now, the only way to diagnose Down's syndrome in an unborn baby was to remove a sample of amniotic fluid from the mother. That carried the risk of infection and possible abortion. As small amounts of baby's DNA leak into the mother's blood. A new genetic test performed on a mother's blood can detect an abnormally elevated chromosome 21 level found in the DNA of babies with Down's syndrome.

Motion sickness is commonly experienced by people who go on a boat or a ship. They have a queasy feeling in the stomach with nausea. A medicine called Granisetron has been found to be useful. The patch may give relief for several days at a time. The same medicine in a patch form also has been approved for use in cancer patients who are on chemotherapy to prevent nausea and queasiness in the stomach. It has been found to be effective for up to 5 days.

The biggest challenge that we face today in transplanting an organ such as heart, lung, liver or kidney from a donor to a patient, is the problem of rejection. The body recognizes these donor organs as foreign proteins and has a natural tendency to produce antibodies to get

rid of the transplanted organ. In order to counteract this rejection, these patients receive an immunosuppressant drug such as Cyclosporin. The drug has significant side effects. Recently, a patient receiving an air pipe (trachea) was coated with patient's own stem cells removed from her bone marrow. Since the lining of the air pipe contained patient's own stem cells, the body had no reason to produce antibodies to reject the air pipe. This experiment may shed more light in using similar techniques with other organs to see if we can avoid using very powerful immunosuppressant drugs to prevent rejection.

You have heard about plastic surgery for breast augmentation or reduction, eye brows, tummy tucking. Now, plastic surgeons at Cleveland Clinic, headed by Dr. Maria Sieminionow, dared to replace 80% of woman's face with a cadaver facial parts that included, skin, nose, nerves, jaw, teeth, muscles, and blood vessels. Many questions have been raised as to the ethical ramifications of such radical attempts at radically altering a human body.

The best measure of diabetes treatment is the level of HgA1c which reflects the long term blood glucose level over a month's period. Normally, it should be less than 6%. The American Diabetic Association measures diabetes treatment success in a population by determining the percentage of people who have HgA1c level below 7%. Theoretically, if less than 7% HgA1c is good, then less than 6% should be even better. However, a study published this year brought some shocking insight in trying to be too aggressive in controlling diabetes or trying to achieve HgA1c levels less than 6.5%. The treated patients with HgA1c below 6% experienced excess

mortality (3 per 1000 patients each year of study). Hence, the study which had enrolled more 10,000 patients, was prematurely terminated.

Vytorin, a combination drug (Simvastatin and ezetimibe or Zetia) that is known to lower cholesterol levels by as much as 50%, was emerging as a wonder drug for cholesterol treatment. However, it hit a significant road block when a recent study showed that even though the drug reduced the cholesterol level by as much as 50%, there was no significant reduction compared with treatment using Simvastatin alone in the plaque buildup or regression, which is the primary aim of reducing the cholesterol. However, there were no more adverse effects compared to that with Simvastatin alone. Until we understand more about the effects, most cardiologists may recommend continuing the drug, since there were no additional side effects.

Healthcare was a top election topic that gripped the nation and engaged all presidential candidates who promised a lot of hope, while the country glided into a deep recession with spiraling unemployment and escalating number of uninsured. Can President-elect Obama keep up his promise and provide healthcare benefits to 47 million uninsured? He plans to reduce the premiums, extend the healthcare benefits to the unemployed, expand children's healthcare coverage, require employees to provide health coverage or contribute to a national pool, and reduce the number of uninsured. To achieve these goals, economists predict the cost to tax payers (you) would be close to 1.7 Trillion dollars over the next 10 years!

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