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It gives us great pleasure to announce the launching of MEDICOS Next..., a one-of-its-kind publication completely devoted to the health sector of Nepal.

Why MEDICOS Next...? Well, the answer is obvious; although the country is moving ahead in leaps and bounds in the field of medicine, health, and wellbeing, there are only a rare few vernacular magazines, which are not able to cover in depth this vast sector consisting of medical education, medical services, medical equipment and consumable, medical insurance, clinical governance, and pharmaceutical industries.

Health is wealth. Everyone agrees. Indeed, one cannot doubt that increased awareness has resulted in people becoming more health conscious today. This is evident from the ever-growing number of institutions and establishments catering to health and wellbeing all over Nepal, and especially more so in the capital, Kathmandu. All this means that there is a dire need for a common platform where all subjects concerning health and wellbeing can be discussed, shared, and promoted. No doubt there is a veritable plethora of related and up-to-date information in other media, especially on the internet, which is of course valuable. Nevertheless, it would be very helpful to have important medical issues and advancements compiled in a concise and easily accessible format, which is where MEDICOS Next... comes in.

In addition to important, relevant, and current information presented in an engaging manner, MEDICOS Next... is equally, if not more so, important in the national context, because the more substantial part will consist of health issues that are completely local in context, and based on research, opinion, and advice of Nepali medical professionals and others related to the field. We aim to have such professionals as our primary contributors as far as major articles are concerned. Thus, MEDICOS Next... will also serve the important purpose of highlighting their own works and experiences in their various fields of study and practice. This will certainly be of immense interest and value to all those involved in the health sector, including doctors, professors, researchers, teachers, pharmacists, nurses, health workers, medical students, pharmaceutical manufacturers, and so on.

To conclude, MEDICOS Next... is a magazine that we hope will surely be welcomed by one and all as a publication that is much needed in the country. Therefore, we look forward to your valuable support, encouragement, and cooperation in our efforts to achieve this important task.

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In a recently published paper in Nature Communications, a group of researchers from Brunel University, London, and Leiden University Medical Center, Netherlands, stated that in the near future, doctors will be able to predict an individual’s life span. Their study, involving data from 44,868 people aged between 16 years to 109 years (of which 5,512 died during the follow-up period), has come to the conclusion that by examining certain biomarkers in the blood, one can make an accurate prediction of people’s lifespans. They believe that by testing the state of the biomarkers in the blood, one can make an accurate prediction of people’s lifespans. They believe that by testing the state of the biomarkers in the blood, one can make an accurate prediction of people’s lifespans.

The researchers started with a list of metabolites, out of which they finally settled on 14 specific biomarkers that were independently associated with mortality. The study states, “The 14 identified biomarkers are involved in various processes, such as lipoprotein and fatty acid metabolism, glycolysis, fluid balance, and inflammation. Although the majority of these biomarkers have been associated with mortality before, this is the first study that shows their independent effect when combined into one model.”

Based on this list, they created a system of scoring to predict an individual’s lifespan. Then, they determined the reliability of the new system by comparing it with a standard risk factors-based model by researching data from an additional 7,603 people, among whom 1,213 passed away during the course of the follow-up. They discovered that higher concentrations of some biomarkers like leucine, histidine, and valine meant that the individual in question had a shorter lifespan, and that lower concentrations of biomarkers like lactate, glucose, and phenylalanine meant increased mortality. The results were similar in both men and women. The summary statistics of their primary survival meta-analysis are available in the BBMRI -omics atlas: http://bbmri.researchlumc.nl/atlas.

The study concluded, “There’s a hope that in the near future we can understand the biomarkers that can be modified, perhaps by helping people improve their lifestyle or through medication, to lower the risk of death before a significant deterioration of health.”

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On June 25, 2019, the Endometriosis Foundation of America (EndoFound.org) announced that its year-long campaign to encourage New York State elected officials to pass endometriosis legislation has been approved unanimously in both the Assembly and the Senate. The bill will bring endometriosis education to New York’s school and medical practitioners.

Until a few years ago, the medical world didn’t take the women’s suffering too seriously. It was often dismissed as “just” bad period pain, career ‘women’s disease’, or even worse, the sufferers were told that it was all in their head. Women have suffered in silence for years, if not decades, not knowing where to go for help or advice when they didn’t know the name of the pain they were going through every month due to lack of awareness about the disease.

Things have started changing since women with endometriosis began sharing their personal
histories of growing up with the pain on social media in the past few years. A large number of women, celebrities, and organizations are actively raising awareness about endometriosis that is estimated to affect 176 million women of reproductive age worldwide.

Women are using various social media platforms to inform other women who have similar symptoms like them to get early diagnosis and treatment. They are also demanding that research be done on the debilitating condition that interferes with every aspect of their social and professional lives.

Despite being a common condition, endometriosis has been often misunderstood, misdiagnosed, under-reported, and under-researched. It is not a fatal condition, but it is one of the three biggest causes of female infertility. According to American Society of Reproductive Medicine (ASRM), it can be found in 24 to 50 percent of women who experience infertility.

So, what is endometriosis?
Endometriosis is a condition in which endometrial tissue, which normally lines the uterus, develops outside of the uterine cavity in abnormal locations, such as the ovaries, fallopian tubes, and abdominal cavity, according to ASRM.

Every month, the endometrial tissue builds up and is shed if the woman does not become pregnant. Likewise, the displaced cells also act like endometrial tissue and respond to the hormonal changes by building up and bleeding just as the endometrium does during a period. But, unlike the cells in the womb that leave the body as a period, this blood has no way to escape the woman’s body. It becomes trapped, which leads to bleeding inside of the pelvis causing inflammation, swelling, and scarring of the normal tissue (www.hopkinsmedicine.org/health/conditions-and-diseases/endometriosis).

How long does it take to be diagnosed?
It can take years before endometriosis is diagnosed and appropriate treatment initiated. The average time between the onset of pain and diagnosis is nearly 8 years in the United Kingdom, and 12 years in the United States of America. The lack of awareness and research on the condition has prolonged suffering and delayed diagnosis. The diagnosis is also delayed because some people don’t experience any symptoms, while some show symptoms that are similar to other health conditions.

Symptoms
The most common symptoms of endometriosis are painful menstrual cramps, long and heavy periods, pain during intercourse, infertility, painful urination and painful bowel movements during periods, back and leg pain, and gastrointestinal problems, such as diarrhea, constipation, and nausea.

How is it diagnosed?
The only way to diagnose endometriosis is through surgery, while pathological biopsy can confirm the presence of disease. Endometriosis is a progressive condition and there is currently no cure for it. The medical and surgical treatments can help ease the symptoms, but it is most likely to return.

How to help the sufferers?
Awareness about the disease and support and understanding from family, co-workers, and friends can make a world of difference to the patients. Early diagnosis of the condition will help women to seek help sooner; especially women who are trying to conceive, where age matters.

14 CONDITIONS COMMONLY MISSED FOR ENDOMETRIOSIS
- Bladder infection, pelvic inflammatory disease (PID),
- Irritable bowel syndrome (IBS), sciatica, uterine fibroids,
- Polycystic ovary syndrome (PCOS),
- Primary dysmenorrhea,
- Adenomyosis, interstitial cystitis (IC),
- Pelvic floor dysfunction, pelvic adhesions,
- Fibromyalgia, appendicitis, and ectopic pregnancy.

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Addiction is a medical disorder that affects the brain and causes changes in an individual's behavior, and it is a problem that affects a large number of people around the globe, with youth being particularly susceptible to the scourge. Broadly speaking, illicit drugs, tobacco, and alcohol are substances that may cause addiction. The National Institute of Drug Abuse, Bethesda, U.S.A., defines addiction as “a chronic, relapsing disorder characterized by compulsive drug seeking and use despite adverse consequences. It is considered a brain disorder, because it involves functional changes to brain circuits involved in reward, stress, and self-control, and those changes may last a long time after a person has stopped taking drugs.” [https://urlzs.com/zhSr8]

Generally, the chance of developing an addiction depends on the number of risk factors involved, and similarly, certain protective factors reduce the risk. The risk factors include aggressive attitude as a child, lack of proper supervision by parents, less developed social skills, tendency to experiment with drugs, relatively easy drug availability (especially around the school premises), poverty in the community, etc. Protective factors include a well-balanced temperament, good parental supervision, supportive relationships, good school grades, disciplined school environment, and positive community, etc.
In 2016, about 275 million people around the world were estimated to have used illicit drugs (cannabis, cocaine, opioids, amphetamines, etc.). With 192 million users, cannabis was the most commonly used illicit drug. The number of users with drug use disorders was about 31 million. Almost 11 million used illicit drugs in the form of injection, and of this, around 1.3 million had HIV, 5.5 million had hepatitis C, and around 1 million had both.

In 2015, there were around 450,000 deaths due to drug use disorders, of which about 167,750 were directly due to overdose, while the rest were due to HIV and hepatitis C. Opioids were responsible for almost 76% of the deaths due to drug use disorders. Every year, about 3.3 million deaths are attributed to the harmful use of alcohol (a psychoactive substance with dependence-producing properties).

According to WHO’s World Drug Report 2018

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(https://www.unodc.org/wdr2018/)

Naturally occurring opiates (plant alkaloids originating from the opium poppy), along with synthetic and semi-synthetic opioids, are considered to be narcotic drugs. They can be either legally prescribed or illicit substances. Thus the use of the word, narcotic drugs, is most often associated with opioid drugs, which the U.S. Drug Enforcement Administration (DEA) defines as drugs that relieve pain and dull the senses. Besides reducing pain perception in the CNS, opioids also produce euphoric effects, thus leading to their abuse and making them very addictive. As per the American Society of Addiction Medicine (ASAM), almost 300 million opioid drugs were prescribed in 2015 worldwide, of which 80% were in the U.S.A., where over 60% of overdose deaths were due to an opioid drug. The Center for Disease Control estimates that there are about 90 opioid-related overdose deaths daily in the U.S.A. The most commonly used narcotics and opioid drugs are opium, heroin, morphine, codeine, hydromorphone, oxycodone, fentanyl, and carfentanil. (The Big List of Narcotic Drugs, Reviewed by Scot Thomas, M.D., https://urlzs.com/zh5vv).

The Scenario in Nepal

Coming to Nepal, cannabis, which is found growing wild in the high hills and cultivated in the southern part of the country (illegally), has been used traditionally for ages, either as powder (ganja), base (bhang), or resin (hashish). Nepal does not manufacture heroin, and does not produce any precursors scheduled in the 1988 UN Convention. Opium and its derivatives (brown sugar and white heroin), as well as banned pharmaceutical products, are smuggled in mostly from India. Modern drug abuse in Nepal began from the 1960s, which increased in succeeding decades, and substance abuse, too, expanded from mostly cannabis to synthetic opiates and sedatives. Likewise, modes of administration changed, as well, from smoking and ingestion to injection. Besides alcohol and tobacco, cannabis, nitrazepam tablets, cough syrups containing codeine, heroin (mostly smoked), and buprenorphine injections were the major drugs of abuse. (UNODC South Asia Regional Profile 15 Sept 2005, https://urlzs.com/ jGn4L)

The Government of Nepal Central Bureau of Statistics conducted a nationwide “Current Hard Drug Users survey 2013” from August 2012 to March 2013, in which hard drugs included synthetic opiates and chemical substances treated as illicit drugs (morphine, buprenorphine, propoxyphene, heroin, LSD, cocaine, etc.). Inhalers of adhesive substances (e.g. dendrite) were also regarded to be drug users. According to the survey, there were 91,534 drug users in 2069 (2012), as compared to 46,309 in 2063 (2006). Cannabis, tranquilizers, and opiates were the most popular drugs used, and males constituted...
93.1% of the users, with 6.9% being female. Kathmandu Valley had the highest number of drug users (36,998). Among the total users, 57% were IDUs (injecting drug users). (Survey Report on Current Hard Drug Users in Nepal - 2069, http://old.moha.gov.np/uploads/documentFiles/drug%20survey_20140202035708.pdf)

Current rehabilitation center admission trends show that, generally, grade 11 to bachelor’s degree level students between 15 to 30 years constitute almost 75% of the drug users admitted, and 6-7% are girls. About 300 rehab centers are running across the country, but only about 104 such centers are registered with the Narcotic Drugs Control Division. (My Republica, February 11, 2017, https://urlzs.com/6ZZYq). According to the executive director of Narconon Nepal, as stated in a report in another national daily, dated May 7, 2019, the number of addicts in Nepal currently totals about 150,000, with 64% being young people, and with 900-1200 of these addicts being street children of Kathmandu, who inhale glue fumes. (The Himalayan Times, May 7, 2019, https://urlzs.com/YDpf3)

While rehab centers are doing their best to cure addicts and return them to society as responsible citizens, Nepal Police, through its Narcotics Control Bureau (NCB), is ever vigilant to this deadly menace that is no less than a scourge to the country. Established as the Narcotics Drug Control Law Enforcement Unit in 1992, which was upgraded to the NCB in 2012, it is governed by the Narcotic Drug Control Act (NDC Act) 1976. It has nine satellite stations spread across the country, mainly at major border check points, including at Tribhuvan International Airport, Kathmandu. (https://ncb.nepalpolice.gov.np/)
Like a hunger you can never quite fulfill or satisfy, so is drug addiction. Nepal has had a close relationship with drugs, especially after the hippie movement in the sixties and seventies. Which even gave way to coining the name Freak Street in Basantapur, where many of the hippies would congregate and look for their next encounter with God that the fix promised. But now God can be found almost anywhere you go. With the increase in tourism and the excitement of Thamel ever-growing, it’s not unusual to be approached multiple times by various individuals promising you the experience “you are looking for”.

With the continuous effects of globalization, the culture around drugs is slowly changing. With more liberal views being incorporated and traditional practices waning away, more citizens are taking to drugs and alcohol. What slowly turns from a good night out to an uncontrolled habit steadily becomes an addiction. But, this isn’t unique to Nepal; with the drug and alcohol epidemic becoming a deadly issue around the world, WHO reported in 2014 that one in two-thousand people will die of alcohol consumption.

Even more alarming is when we focus on drugs in Nepal. In a report conducted by the Central Bureau of Statistics (CBS) in collaboration with the Ministry of Home Affairs, they reported that, from 2063 to 2069, the number of current hard drug users (CHDU) had increased by 98% (46,309 to 91,534). With 93.1% of CHDUs being male, the majority of drug users are found in Kathmandu (36,998).

These staggering numbers are the reason why the former SSP, a Freedom Medal Winner and Director of Narconon Nepal, Basanta Raj Kunwar, became passionate about assisting the people he saw losing the battle to drugs every day. He worked tirelessly to put drug dealers away and combat the ever-growing drug trade in Nepal. But sadly, he felt he was fighting an uphill battle. Through this experience, he turned to Narconon, where he was inspired by their drug-free method to recovery, and the idea that addiction is not an incurable disease.

Where, in 2004, he brought the Narconon program to Nepal, which has been operating in Kathmandu since then. Now there are three facilities, including the new state-of-the-art Drug Rehabilitation Center atop Hubbard’s Peak that was built in 2013. With the building complete, Narconon now has a facility that can house up to 100 students at a time.

Basanta Kunwar is ecstatic about the progress the organization has made since its opening in 2004, stating, “I have seen countless
individuals come through the Narconon doors from all over Nepal, India, and south Asia, and transform their lives. The success of this program here must be attributed to the humanitarian L. Ron Hubbard, who designed and developed the drug rehabilitation technology; as well as the dedicated staff that we have working here. 

While touring the facility and meeting the staff, you can see why Basanta is so proud of them. With that warm family feeling all around, you can see the smiles on the staff members and their attentiveness to the students. While working through the program's various stages, which they spend 90 days in total at the three different facilities, each staff member is trained and specializes in managing the needs and desires of the students, both during the programs, as well as during communal time, which helps build support groups and relationships for the students.

Whereas most drug rehabilitation centers in Nepal focus only on peer-to-peer support systems, Narconon’s programs start with a mentality of responsibility. This was something that both Basanta as well as Vishal—a former addict and student himself, now working for Narconon—emphasized.

Vishal, now the Division 1 administrative head, shares, “I had a difficult time during my twenties, when I began using drugs and alcohol.” Though he was holding a significant role at his job after obtaining his masters, he started to use brown sugar to cope. “After self-admission into Narconon, things began to be clear to me. I first thought of myself as a normal person with no problems, but started to realize the damaging effects the drugs had on me.” He saw just how emotionally unintelligent he had become; how he didn't care about anything but when the next time he would be using; and how self-centered he was.

Continuing with his self-realization, he started recognizing that drug addiction affects people from all walks of life—elderly people, economically stable people, poor people, people of every caste, people with the best of jobs, and people with the worst of jobs. This is when he realized that drug addiction is something that affects everyone.

After completing the program, he was able to become drug- and alcohol-free. But, he wasn’t finished with Narconon yet, “I decided to take up a position with Narconon to give back to the community, as I was a part of it for so long.” Now, as a success story, he looks to help out all the students in any way he can. He champions the lifestyle of being drug-free, and encourages everyone that they can be, too.

Vishal went on to describe the program and the difficulties that students face in their recovery process, and why the program steps are so crucial. First, the program sets out to have students learn important communication techniques, as many of them have lost the ability to communicate properly with family members and friends. The program also focuses on building proper decision-making skills, as these tend to break down, and it becomes difficult to determine what one should and shouldn’t do. Another crucial skill that is focused on is ethics, which is imperative for the reintegration of students back into their families, a major component to the program. Basanta had a special message: “The main goal of this program is not only to help students recover from drug addiction, but also to reunite them with their family and support network. Narconon wants to give them the chance to start a new life with their loved ones.”

Narconon is one of many facilities in Nepal helping individuals battle drug addiction, but more needs to be done. First, there are limited facilities and programs for women to receive treatment; though they make up a small portion of drug users, they can be more vulnerable than men. This stems from the risk of unwanted pregnancy, sexually transmitted diseases, and the societal backlash they receive. Nepal needs to create facilities and support systems like Narconon for women in order to help the marginalized community.

Secondly, in order to help combat the increase in drug usage, there needs to be more enforcement by the police. Nepal currently has the regulations in place to criminalize drug usage, but the funding and the means to enforce the crimes is lacking. Drug and alcohol usage have been on the rise all around the world, resulting in countless deaths. With the media now demonstrating how fashionable it is to consume them, people will continue to be influenced. Either to be fashionable, or to numb one's pain, drugs are an issue that is here to stay. Luckily, we now have the means with Narconon and other institutions like it to raise awareness about the harmful effects of drugs, as well as to help people in their rehabilitation.

Though drug usage and addicts will continue to be prevalent in society, it doesn’t have to have the same detrimental effect on society or individuals it once did. We can look to inspirations and success stories like Vishal and show that once an addict doesn’t mean always an addict.
DRUG ABUSE

OPIOID EPIDEMIC IN THE U.S.A.

Words by Amar B. Shrestha
A n opioid epidemic has been declared in the United States, with opioid-related drug overdose deaths reaching 47,600 in 2017. In 1999, such deaths numbered 8,048. According to a CNBC report under the heading, “Americans consume vast majority of the world’s opioids” (April 27, 2016, https://cutt.ly/QF5da2), 80% of the roughly 300 million opioid medicines prescribed for pain around the world in 2015 was in the United States.

What are opioids? Opioids are substances that produce morphine-like effects by acting on opioid receptors in the body. In medicine, they are mostly used to relieve pain, with other uses being suppression of diarrhea, cough, and opioid-induced constipation, as well as replacement therapy for opioid use disorder and reversing opioid overdose. Besides itchiness, nausea, respiratory depression, and constipation, the side effects may also include sedation and euphoria. Tolerance (increased doses required to achieve the same effect) and physical dependence (abruptly discontinuing the drug leading to unpleasant withdrawal symptoms) can occur from long-term use. Frequent recreational use (for euphoric effect) results in addiction. Death from respiratory depression can result from overdose or concurrent use with other depressant drugs, such as benzodiazepines (minor tranquilizers like Valium).

Morphine is still one of the most widely used pain medications in hospital settings. Once used only in injectable form, it is now available as immediate- and extended-release tablets, oral solutions, and rectal suppositories (MS Contin and Kadian). Hydromorphone, as injectable solution, oral solution, and immediate release and controlled release tabs (Siaudid, Exalgo), is also widely prescribed as an effective pain reliever. One of the most prescribed prescription pain relievers in the U.S. is Oxycodone (OxyContin, Percocet, Roxicodone), and according to the DEA, hydrocodone (Lortab, Vicodin, Norco) is the most prescribed and most abused opioid pain reliever.

Fentanyl (Abstral, Actiq, Duragesic, Fentora, Lazanda, Subsys) is a drug that is 50-100 times more potent than morphine. It is extremely addictive because it causes rapid and intense euphoria. Codeine is a milder opioid analgesic and a less potent pain reliever compared to morphine. It also has antitussive properties, because of which it is often prescribed to treat coughs. Methadone, a synthetic opioid with analgesic properties, may be more often used as part of a detox protocol to manage opioid withdrawal, as well as replacement therapy to treat opioid dependence. A high number of prescription opioid overdose fatalities have been attributed to its abuse.

Meperidine (Demerol) is another opioid drug used to relieve pain. A person can become dependent even at prescribed doses, and suffer withdrawal symptoms as the effect tapers off. Oxymorphone (Opana) is a painkiller that is almost twice as powerful as OxyContin, and is usually prescribed when alternative treatments are ineffective, or when the patient becomes tolerant to other opioids. It is extremely addictive. Tramadol (Ultracet, Ultrim, Ryzolt) is considered to have comparatively low abuse and dependence potential, but is often abused by healthcare providers and chronic pain sufferers, as well as by already opioid-dependent people. It may lead to addiction, if misused.

Carfentanil is a powerful opioid narcotic developed for use as an anesthetic for large animals in veterinary medicine. It is about 10,000 times stronger than morphine, 5,000 times stronger than heroin, and 100 times more potent than its analog, fentanyl. Thus, it is highly addictive with extremely high potential for fatal overdose. Buprenorphine (Butrans, Buprenex, Probuphine) is an opioid agonist used as an analgesic, as well as treatment medication for opioid dependence. It is also available in combination with naloxone (Bunavail, Suboxone, Zubsolv). As naloxone is an opioid antagonist, the combination was made to deter the inherent abuse potential of buprenorphine.

https://americanaddictioncenters.org/the-big-list-of-narcotic-drugs
Antenatal Care

Words by Dr. Samira Shafi Khan

It is a comprehensive health supervision of pregnant woman from the time of conception to the time of delivery. It consists of examination, observation, and guidance given to the pregnant woman. Pregnancy is divided into three trimesters. Each trimester has its own physiological and biological changes. The aim of good antenatal care is to ensure that pregnancy goes smoothly during these trimesters and avoid complications to the mother, and to keep the fetus healthy over the course of pregnancy.

The components of antenatal care (ANC) include:
Risk identification: Prevention and management of pregnancy-related or concurrent diseases, and health education.
To screen the “high risk” cases: High risk pregnancy is defined as one which is complicated by a factor or factors that adversely affect the pregnancy outcome—maternal, prenatal, or both.
ANC reduces maternal and prenatal morbidity and mortality both directly, through detection and treatment of pregnancy-related complications, and indirectly, through the identification of women at increased risk of developing complications during labor and delivery.
During check-ups, pregnant women receive medical information regarding normal physiological changes, biological changes, proper nutritional requirement, daily activities, exercises, psychological support, and those alarming signs where medical help needs to be accessed immediately. Not only do they get information regarding pregnancy, but they are also better prepared for postnatal care, including breast feeding. All information relating to the pregnancy is entered in a patient-held Maternity Case Record.
The first visit or initial visit should be made as early as pregnancy is confirmed.

**Return visits:**
- Once every month till 28 weeks
- Once every 2 weeks till the 36th weeks
- Once every week, till labor

The recommended antenatal care model consists of minimum of eight visits to health care facilities that will help to reduce prenatal mortality/morbidity and improve woman’s experience of care.

### SCHEDULE FOR ANTENATAL VISIT

<table>
<thead>
<tr>
<th>Stages</th>
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<td><strong>DISCOMFORT DURING PREGNANCY</strong></td>
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<td><strong>SUPPLEMENTS</strong></td>
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**Women’s health**
There are some signs and symptoms indicating danger for the woman or the baby. Being aware of these danger signs can help them to know when they may need to consult the doctor. When these following symptoms appear, women should promptly visit the hospital, regardless of her scheduled antenatal visit.

- Vaginal bleeding
- Rupture of membranes
- Swelling of the fingers, face, eyes
- Headache
- Visual disturbances
- Persistent abdominal pain
- Chills and fever
- Painful urination
- Persistent vomiting
- Change in fetal movements

Most women have uneventful pregnancies and childbirth, but sudden and unpredictable complications may happen at any time to any woman. Where problems do occur, it is important to ensure that they are acted upon without delay.

CONCLUSION

Pregnancy is a normal and natural process. Most women do not experience emergencies during pregnancies, but there are chances. Antenatal care is a type of preventive care. It is designed to prevent potential health problems throughout the course of the pregnancy and promote healthy lifestyles that benefit both the mother and the child.
Monthly 60,000 IU supplementation of Vitamin D started from the second trimester onward is effective and safe in achieving ideal Vitamin D levels throughout pregnancy.


A high prevalence of Vitamin D deficiency is now recognised in pregnant women.

Global Journal of Health Science; Vol. 8, No. 9, 2016

Maternal Vitamin D insufficiency is common during pregnancy & is associated with reduced bone-mineral accrual in the offspring during childhood.

The Lancet 2006;367:36-43

Low birth weight has been associated with low maternal Vitamin D levels.

CMAJ 2006;174:1273-1277

Maternal Vitamin D deficiency during pregnancy & during the period of breastfeeding contribute to the development of Rickets in infancy.


Asian Pharmaceuticals Pvt. Ltd.
SUMMARY
A 27 year old unmarried, sexually active, obese woman with irregular menstrual cycle presented with symptoms of acute intermittent lower abdominal cramps for one day. On examination, general condition was fair and vitals were stable. On abdominal examination, it was soft and tender in right iliac fossa. P/S examination revealed healthy cervix with minimal discharge. On per vaginal examination, uterus could not be assessed and bilateral fornice were full. Ultrasonography of abdomen and pelvis showed a left ovarian cyst of 12×11 cm with mixed echogenicity, a right ovarian cyst of 11×9 cm, and right nephrolithiasis. Uterus was anteverted, normal in size, and no free fluid was seen. Bilateral laparoscopic cystectomy was performed and a significant amount of normal ovarian tissue was left behind. Cut- section of the gross specimen showed hair, sebaceous fluid, and cheesy material. Histopathology showed bilateral mature teratoma of ovary (dermoid ovarian cyst).

INTRODUCTION
Dermoid cyst or mature teratoma of ovary is the most common benign tumor of ovary in young and middle-aged woman1. Bilateral dermoid cyst in young woman is a difficult condition to manage, because a considerable amount of ovarian tissue needs to be preserved for future fertility. There are relatively less cases of bilateral dermoid ovarian cyst in young women.

CASE PRESENTATION
History: A 27 year old sexually active, unmarried, obese woman presented with acute lower abdominal pain for one day. There was history of irregular menstrual cycle and last period was one month back. There was no bowel or bladder disturbance, no history of weight loss or decreased appetite. There was no significant past medical and surgical history. Family history was not significant.

GENERAL PHYSICAL EXAMINATION
General condition: Fair. Obese. No jaundice, pallor, lymphadenopathy, or edema. Vitals were stable. Breast and thyroid examinations were normal. Per abdominal examination: Abdominal obesity present with tenderness in right iliac fossa. No mass was appreciated and there was no ascites. P/S examination revealed healthy cervix with minimal discharge. P/V examination: uterus could not be assessed and bilateral fornice fullness was noticed.

LAPAROSCOPIC SURGERY OF BILATERAL DERMOID CYST

Words by Dr. Rangina Laikangbam

Investigations: All the routine investigations were within normal limits. Renal function test, liver function test, and chest x-ray were normal. Ultrasonography of abdomen and pelvis showed a left ovarian cyst of 12×11 cm with mixed echogenicity, a right ovarian cyst of 11×9 cm, and right nephrolithiasis. Uterus was anteverted, normal in size, and no free fluid was seen. Urology consultation for nephrolithiasis was done and no active intervention was advised with a plan to follow up.

TREATMENT:
Bilateral laparoscopic cystectomy was done under general anesthesia. Intraoperative findings: Left- sided twisted dermoid cyst of 12×10 cm, right sided dermoid cyst of 12×8 cm with another small simple cyst. Capsules were intact bilaterally, without adhesions; no free fluid. Bilateral tubes seemed normal. Uterus was anteverted and normal in size. Cut- section: Dermoid cyst contained hair, sebaceous fluid, and cheesy material.

Outcome: Postoperative stay of the patient was uneventful. Patient was discharged on the fourth postoperative day. Histopathology of cystic wall tissue confirmed the diagnosis of bilateral mature teratoma of ovary.
DISCUSSION

Dermoid cyst constitutes 10–25% of all the neoplasms of ovary. Peak incidence is observed in the age group of 25–45 years. It is usually a benign germ cell tumor that is rarely malignant. Bilateral dermoid cyst of ovaries may be seen in 10% of cases. Dermoid cyst is usually unilocular, containing hair and sebaceous material, with squamous epithelial lining. In some cases, bone, teeth, thyroid tissue, cartilage, and bronchial mucous membrane may also be found. It may be associated with mucinous cystadenoma in up to 40% of cases. Within the inner surface of dermoid cyst, there is area of solid projection known as Rokitansky's protuberance, and it is covered by skin, sebaceous glands, and sometimes by teeth and bones. There are theories which suggest that dermoid cyst develops from genetic material from a single oocyte. The oocytes which are capable of parthenogenesis result from an arrest of development of oocyte after meiosis I. So, almost all mature cystic teratomas have a karyotype of 46, XX.

Complications: Dermoids may undergo torsion in up to 15% of cases because of long pedicle and heavy weight, and it was observed in our case. Spontaneous rupture is rare due to its thick wall. In case of rupture, it may lead to chemical or granulomatous peritonitis. Risk of recurrence is 3–4%, and it rarely becomes malignant (1.7%, squamous cell carcinoma).

Diagnosis: Ultrasonography shows “tip of the iceberg” sign, which is due to acoustic shadowing caused by calcifications or fat. There may be hair-fluid or fat-fluid levels with clear demarcation. Presence of hair is frequently found in mature cystic teratoma. Rokitansky’s protuberance is characteristic of dermoid cyst.

Treatment: Most surgeries for benign ovarian disease can be done laparoscopically. Shorter recovery time, duration of hospital stay, and lesser chance of adhesion formation are major advantages of laparoscopic surgery compared to laparotomy. Randomized
clinical trials also show less burden of febrile morbidity and a lesser chance of urinary tract infection, postoperative complications, including postoperative pain with laparoscopic cystectomy. A known disadvantage of laparoscopic cystectomy is the risk of spillage cyst content or cells into the peritoneum. This may cause peritonitis or spread malignancy if the tumor is malignant. Hence, laparoscopic surgery should be reserved for those patients in whom the chance of malignancy is very low.

To summarize, laparoscopic cystectomy is the preferred technique for dermoid cyst, because it is associated with a smaller scar, lesser duration of hospital stay, and lower frequency of postoperative complications like adhesion formation pain, compared to laparotomy. Conditions in which the open method are when the surgeon is not experienced in using laparoscope, when there are dense adhesions, very large cyst, or when there is a risk of malignancy.

References:
What is laparoscopy?
Laparoscopy is a surgical procedure used to examine the organs inside the abdominal region. A laparoscope is a long, thin tube with a high-intensity light and a high-resolution camera that inspects the abdomen through an incision of one centimeter in the surgical area. This new-age procedure is capable of removing tumor weighing about six kilos. It is done to find the cause of symptoms such as infertility or abdominal or pelvic pain. Moreover, all kinds of surgery can be conducted through the procedure. However, laparoscopy is not applicable during child delivery.
What inspired you to conduct laparoscopy surgery in Nepal?
I completed my medical studies and started working. It was then that I realized that I wanted to do something new in the medical field. So, I joined my first laparoscopy training in Kanpur in 2015. It introduced me to the basic knowledge on the surgery, and work procedures. Having realized that it took numerous trainings to be able to work as a laparoscopy surgeon, I undertook training in many parts of India, including Mumbai, Gorakhpur, and New Delhi. After visiting different countries for international conferences and trainings, I realized that the medical scenario in Nepal was limited to open surgeries, though laparoscopy surgery was being safely practiced across the globe. I then started to hone my skills as a laparoscopy surgeon. Finally got my degree from Kiel University, Germany.

Can you explain the benefits of laparoscopy surgery?
As the procedure requires the equipment to pass through a surgical incision of one centimeter, the method is also called keyhole surgery. It has many benefits compared to open surgery. The scar is not permanent, and the post-surgery pain is also reduced a great deal. Furthermore, the procedure also decreases hospital stays due to the quicker recovery period. Moreover, the surgery is less complicated. Blood transfusion to compensate for the loss of blood is not required, either.

What are the existing setbacks of this new approach?
Challenges prevail in both the public and medical sectors. Most of the medical sectors have been reluctant to adopt the procedure, citing the possibilities of financial loss following the adaptation of laparoscopy. Therefore, they’re hesitant about informing the patient about the technological advancements. Generally speaking, laparoscopy is a tad more costly than open surgery. However, post-surgery expenses are not required.

What measures can be taken to mitigate the challenges that have been barring surgeons from practicing laparoscopy?
It’s necessary that people let go of the stereotypical perception of the new-age medicinal practices they carry. However, I am glad to have found the demography of remote areas perceiving any issue once they undergo counseling sessions. Education and courses on laparoscopy surgery should be widely imparted in medical institutions for students to gain familiarity with the whole process of laparoscopy. With proper coordination between medical institutions and authoritative government bodies, this can be possible after conducting frequent training for doctors.
Medicor NEXT... Magazine Issue 133

Blue Cross Hospital (BCH) was established in 1991 & provide tertiary level, multispecialty services.

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Contact us
Food Specific IgG Antibodies in Health & Disease

Nigel R. Abraham, PhD, FIBMS Immunology

INTRODUCTION
It has been estimated that food intolerances and related diseases affect at least 100 million people worldwide and have increased by more than 50% in adults and children in recent years. Etiological studies suggest that these diseases may be related to adverse food reactions (food hypersensitivity). According to recent data, IgG-dependent hypersensitivity, characterised by a delayed immune response, plays a significant role in the pathogenesis of food reactions, referred to in this review as 'food intolerance'. Whilst this is not strictly the correct term by some definitions, this is however a term in common usage. Determination of serum IgG food antibodies potentially opens new diagnostic pathways for patients who are hypersensitive to food components, which can be alleviated by food elimination diets based on the results of such testing [1].

The specific characteristics of IgG-dependent responses result in a delayed nature for such reactions which is a considerable diagnostic obstacle, making it almost impossible for the patient to identify the factor causing the reaction [2]. While IgE antibodies are responsible for acute, immediately developing allergic reactions, IgG-dependent reactions take much longer to develop.

Elevated levels of IgG antibodies to food antigens have been observed substantially in diseases associated with increased intestinal barrier dysfunction, in particular, IgA deficiency, celiac disease, and inflammatory bowel disease (IBD) [3-5]. The controversy surrounding food IgG testing relates to the significance of food IgG antibodies in the pathogenesis and diagnosis of food intolerance and a number of chronic illnesses, including IBD, IBS, migraine, and arthritis. Clinical studies to date have largely been supportive of a role for food IgG testing in certain illnesses.
BACKGROUND AND DEFINITIONS

Food intolerance can be defined as a general term, describing an abnormal physiologic response to an ingested food or food additive. Such reactions are not considered to demonstrably involve the immune system, an example being lactose intolerance, where there is a deficiency in the enzyme responsible for breaking down ingested lactose. However, these classifications fail to include reactions mediated by immunoglobulin G (IgG), which since such reactions involve the immune system, would be classified as a form of allergy regarded as an example of a Type III hypersensitivity reaction. This has led to a great deal of confusion amongst lay people and professionals alike, where IgG mediated reactions are often referred to as food intolerance, or where IgG mediated reactions are referred inappropriately as 'allergy' tests. Food sensitivity is a term alternatively used to distinguish such reactions from classical allergy (IgE) and food intolerance (non-immune).

IgG mediated reactions are a distinct entity, with a very different clinical picture they are usually defined as 'delayed reactions' with a less severe symptom outcome compared to some IgE mediated reactions. Symptoms can typically affect many different body systems and are regarded as an example of a type III hypersensitivity reaction, characterized by the production of immune complexes with food specific IgG antibodies activating the complement pathway and thus initiating low grade inflammatory reactions [7].
IMMUNOLOGICAL MECHANISMS

The breakdown in oral tolerance, and hence sensitization to dietary antigens, has been and continues to be the subject of intense scientific research worldwide, and considerable progress has been made in elucidating the role played by dietary proteins and the antibodies directed against them. Studies have demonstrated:

1. A role for antigen-specific IgG in type I, immediate hypersensitivity through the aggregation of high affinity receptors (FcγRI) for IgG on human mast cells and basophils resulting in degranulation and the release of histamine and arachidonic acid metabolites. The mediator profile through activation of IgG receptors on human mast cells has been shown to be qualitatively indistinguishable from responses stimulated through the high affinity receptor for IgE [15,16].

2. Increased intestinal permeability after oral challenge and a role for mast cells in the regulation of intestinal barrier dysfunction in patients with food allergy [21-25]. Whilst such studies focus on IgE-mediated allergy, the activation of mast cells through food IgG activation of IgG receptors as described above cannot be discounted, indeed the recent elucidation of novel mast cell activation pathways, have clearly implicated IgG as a potential trigger for such activation [26].

3. IgG receptor polymorphisms play an important role in the pathogenesis of inflammatory disease [27-30]. Aberrant regulation or function of these receptors in the presence of elevated food IgG antibodies would lead to magnified effector responses that initiate inflammatory disease and increased susceptibility to autoimmunity.

4. The involvement of food specific IgG antibodies in type II, antibody-dependent hypersensitivity as in the case of milk-induced thrombocytopenia [17].

5. There is a role for food IgG antibodies in type III, immune complex-mediated hypersensitivity. IgG antibodies combine with food antigen to form circulating immune complexes to which complement is fixed. Such complexes deposit in various tissues promoting Arthus-like reaction resulting in vasculitis and tissue damage [18]. Based on histologic and immunofluorescent findings in intestinal biopsies, there is evidence that the Arthus-type reaction is involved in the pathogenesis of cow’s milk sensitive colitis [19]. Also, the findings of immune complex deposits in lung biopsy specimens taken from patients with Heiner syndrome implicate this type of reaction in the pathogenesis of this syndrome [20].

6. The biological mechanisms involved in food intolerance and the role these play in the onset of chronic diseases are clearly complex and remain to be fully elucidated. However, there is accumulating evidence from both clinical studies and scientific research which indicates that the effective assessment of adverse reactions to foods should include food IgG testing as a means to characterise the immunological response to dietary challenge in a patient, and to provide a rationale for the design of diet therapy.
In a healthy normal intestinal tract where homeostasis is preserved, the intestinal barrier is tight and highly selective, so that only the desired nutrients enter the bloodstream from the intestinal lumen, while access of potentially damaging substances and pathogens is impeded. This barrier also plays a role in immune sampling and processing of potential allergens and in the prevention of infection (e.g., the binding of pathogens by secretory IgA (slgA)). The main structural elements of the intestinal barrier responsible for its correct functioning include commensal microorganisms, secretory IgA, and enterocytes, along with their healthy tight junctions, Peyer’s patches, M cells, antigen presenting cells (APCs), and lymphocytes.

Studies have shown that damage to the tight junctions between the enterocytes is the precipitating cause for the development of food specific IgG antibodies. Correctly functioning tight junctions between the intestinal cells ensure that the barrier shows the required selectivity. Loosening of the tight junctions makes it possible for larger particles – not only nutrients, but also toxins, allergens, and microorganisms – to penetrate the barrier. The increased permeability of the intestinal barrier is often referred to as ‘leaky gut syndrome’. When elements that originate from the intestinal lumen enter the bloodstream, an immune response is triggered. While this response is necessary to eliminate potentially harmful substances and microorganisms, it is at the same time potentially undesirable with respect to harmless neutral food particles [35].

There is increasing evidence that damage to the tight junctions and the subsequent influx of toxins and allergens lead to abnormal immune reactions, in turn leading to the development of autoimmune diseases. Several studies have also shown that this damage to the tight junctions is the precipitating cause for the development of food specific IgG antibodies. Furthermore, there is evidence that this permeability is selective to food allergens. In a published review of all publications relating to increased permeability, IgG antibodies, and IBS by Pasquale et al., 2018, the authors concluded that the production of such antibodies is a specific reaction, rather than a nonspecific reaction as is widely believed [36].
FOOD SPECIFIC IgG ANTIBODIES AND INFLAMMATION

When elements that originate from the intestinal lumen enter the bloodstream, an immune response is triggered. While this response is necessary to eliminate potentially harmful substances and microorganisms, it is at the same time potentially undesirable with respect to harmless neutral food particles. Ingestion of food may therefore lead to chronic activation of the immune system in which IgG antibodies are involved, leading to the development of immune complexes which in turn cause chronic inflammation and mechanical damage to the surrounding tissues.

Low grade inflammation may play a causal role in the development of obesity, insulin resistance, diabetes mellitus, and atherosclerosis. In obese subjects, adults as well as children, inflammatory markers, such as C-reactive protein (CRP), correlate with the degree of obesity and insulin resistance and normalize after weight reduction [8]. The authors of this study concluded that, obese children have significantly higher IgG antibody values directed against food antigens than normal weight children. Furthermore, anti-food IgG antibodies are tightly associated with low grade systemic inflammation, and with the intima media thickness (IMT) of the common carotid arteries. These findings raise the possibility that anti-food IgG is pathogenetically involved in the development of obesity and atherosclerosis.

Recently, immunoglobulin G (IgG) antibodies against food antigens have been suggested to cause low grade inflammation in irritable bowel syndrome by subtle mucosal inflammation [38]. Food elimination therapy based on IgG testing was able to improve the symptoms of irritable bowel syndrome [6]. IgG-mediated food intolerance may be explained by low level absorption of food macromolecules from the gut [39]. Thus, IgG antibodies to some food components are detectable in healthy individuals, although at lower levels the role of this class of antibodies remains highly controversial [40 – 42].

The generation of other interleukins (IL-12, IFN) will result in increased IgG antibodies of the IgG1, IgG2, and IgG3 classes. These are pro-inflammatory and are responsible for chronic dietary disorders. Every time a food is consumed, increased levels of IgG1, IgG2, or IgG3 will generate the formation of an immune complex; these complexes will become bound where individual specific imperfections exist in the body. These “activated sites” may be small injuries that had previously become inflamed (e.g. joints), organs damaged by infections (e.g. intestines), or injuries (e.g. to the thyroid) caused by environmental toxins (e.g. mercury). It is not easy to predict which symptom will appear, because this primarily depends on the patient’s physical condition. If IgG1-IgG3 antibodies are present for regularly consumed foods, the formation of immune complexes leads to chronic inflammation. Non-specific systemic reactions in which low-grade inflammation plays a main role (cardiovascular disease, metabolic syndrome, and obesity) have also been linked to the generation of complement activating food specific IgG antibodies.

IgG AND COMPLEMENT ACTIVATION

Any food antigen entering the bloodstream can produce symptoms associated with food intolerance. Most food antigens enter the bloodstream through the intestinal epithelium and stimulate the production of IgG antibodies. IgG antibodies bind to food antigens that are free in the blood or that have deposited in tissues and form immune complexes (IC). The IC activates complement C3 which becomes covalently linked to the IgG forming IC-C3b. Ultimately, the C3b on the IC is cleaved forming IC-C3d. Under normal circumstances, circulating IC-C3b bind to the CR1 receptors on red blood cells and are cleared from the circulation in the liver and spleen. However, continued production of IgG antibody and formation of IC may result in deposition of IC in tissues, leading to the activation of the terminal complement pathway C5-9 on the surface of the tissue, causing cell lysis and increased inflammation.
**CLINICAL MANIFESTATIONS**

The clinical manifestations of chronic IgG-dependent reactions depend on the target tissue or organ to which the immune complexes composed of IgG and the food antigens have been deposited. High levels of the complexes accompany such dissimilar disease entities as migraine, irritable bowel syndrome, atopic dermatitis, chronic fatigue syndrome, Crohn’s disease, etc. The signs and symptoms develop within 8–72 h after ingestion of the offending food. Delayed symptoms often mean that patients do not associate a given symptom with the food they ate, especially because of the lack of the characteristic “allergic” symptoms. Mild severity of clinical manifestations or their complete apparent absence, which is generally associated with a considerable delay of the reaction time or with low titres of IgG in the blood due to low permeability of the intestinal barrier, highlights the often-controversial diagnosis of type III hypersensitivity food allergy. IgG-dependent food hypersensitivity may affect various organs and systems, such as the gastrointestinal tract (nausea, vomiting, diarrhoea, abdominal pain, lip oedema), skin (urticaria, erythema, rash, pruritus, angio-oedema), respiratory tract (rhinitis, sneezing, itchy throat, laryngeal oedema, hoarseness, cough, stridor, dyspnnoea, asthma), cardiovascular system (tachycardia, hypotension, arrhythmia) and nervous system (dizziness, asthenia, fainting).

Conditions in which food specific IgG antibodies have been demonstrated
- Delayed food allergy [2]
- Irritable Bowel Syndrome [6]
- Inflammation, hypertension, and arthritis [7,8]
- Migraine [9,10]
- Crohn’s disease [12]
- Behaviour problems like schizophrenia and autism [13,14]

**EFFECTS OF ELIMINATION DIET**

According to Isolauri et al., an elimination diet based on the results of the measurement of IgG levels may be equally beneficial in terms of symptom relief as is the case with IgE-dependent allergy [31]. A study conducted by the University of York on behalf of the British Allergy Foundation in 2001 investigated the usefulness of an elimination diet used after determination of serum levels of IgG antibodies. A total of 4200 patients with symptoms were enrolled in the study, but only 1761 were included in the final statistical analysis. As many as 50% of the subjects observed a considerable improvement of health after introduction of the elimination diet and 70% reported health benefits [32]. This study is suggestive enough to justify the need for investigating the potential contribution of IgG-dependent allergy to many disease entities.

In this review, we characterize the mechanism underlying the effects of type III allergy on functional disorders and disease entities associated with the gastrointestinal tract.

The potential role of type III hypersensitivity in the pathogenesis of irritable bowel syndrome (IBS) has been extensively investigated. IBS is a chronic functional disorder of the intestines manifested by frequent abdominal pain, bloating and constipation, and/or diarrhoea, which may occur alternately. The prevalence of IBS in the population is high, and is estimated at 12–22% [33]. Given the heterogeneity of the abnormalities and the multifactorial aetiology of IBS, the involvement of IgG-dependent hypersensitivity in the initiation of the pathological changes seems likely. Interestingly, most patients suffering from functional disorders of the gastrointestinal tract report that certain foods exacerbate their symptoms [34]. The management of IBS focuses mainly on administration of antispasmodics, drugs that modify intestinal function, antibiotics, antidepressants, and analgesics. Atkinson et al. [6] showed that an elimination diet can be effective in relieving the symptoms of IBS. After 12 weeks of the diet, a 10% improvement in well-being and resolution of the symptoms were observed (p = 0.024). The quality of life also improved. Notably, in patients who decreased the restrictiveness of the diet, a 24% worsening of the symptoms was observed, compared to patients strictly adhering to the dietary guidelines. Drisco et al. [33] conducted a study in 20 patients meeting the Rome II criteria for IBS. The patients followed a diet for 6 months that was based on the results of the tests for IgG-dependent intolerance. The study showed abnormal titres of IgG antibodies specific for selected food components in all the patients.

Using a diet based on the results of IgG-dependent intolerance testing led to a statistically significant improvement in symptoms (improved stool frequency, pain relief) (p = 0.05) and the quality of life (p = 0.0001). The patients adhering to the diet reported considerable improvement that was greater than the improvement observed with the intake of a probiotic alone. Also, other researchers see the value in introducing a diet based on measurements of the levels of IgG antibodies to food antigens in patients with IBS [34, 35]. However, a necessity is emphasized to carefully select research tools, i.e. tests that are based on reliable methods and that assess the correct parameter [34].

The therapeutic application of a diet based on the results of the tests assessing type III hypersensitivity has also been shown in patients with Crohn’s disease [12]. The authors of the analysis, given the multifactorial aetiology of the disease, suggested a potential contribution of the immune response to food antigens to the maintenance of inflammation. For this reason, a pilot study was conducted in 79 adult patients...
with Crohn's disease. The control group consisted of 20 healthy volunteers. The study showed markedly higher serum levels of IgG in patients with organic bowel disease, compared to the control group. IgG antibodies to cheese and to baker's yeast were demonstrated in 84% and 83% of the patients, respectively. Following a diet based on the results of the measurement of specific IgG for food antigens considerably improved stool frequency, pain, and patients' well-being. Decreased secretion of interferon (IFN-γ) by T cells was also observed. The levels of the eosinophil-derived neurotoxin (EDN protein) in the stool did not, however, change. The findings of the study demonstrate that implementation of a diet based on testing for IgG-dependent hypersensitivity in patients with Crohn's disease is justified. However, this is the first analysis of this type, and therefore drawing any binding conclusions requires further dietary studies in a group of patients with inflammatory bowel disease.

**EVIDENCE-BASED CLINICAL RELEVANCE OF FOOD SPECIFIC SERUM IgG ANTIBODIES**

A growing body of medical literature supports the clinical value of measuring food-specific IgG antibodies to guide therapeutic dietary changes. A number of studies involve IBS patients. In all studies, significant clinical improvement was gained by using IgG (total) testing to screen for foods for dietary exclusion [1,6,43-45]. Irritable Bowel Syndrome is estimated to occur in 12% to 22% of the UK population, and is a disorder of high direct and indirect medical costs [68]. Any improved treatment and management would be of significant benefit not only to patient outcome, but also to the reduction in healthcare costs. In a review of all published literature from 1966 to 2015 relating to IBS, a report in the World Journal of Gastroenterology in 2015 [36], concluded that hypersensitivity reactions may play a role in causing IBS symptoms in a subset of patients. Furthermore, the increase of food-specific IgG titres could be a specific reaction, rather than a nonspecific response to increased gut mucosal permeability. The authors concluded that “Pending further scientific evidence, the concept of food allergy (adverse food reactions) should be included as a possible cause of IBS, and a dietary approach may have a place in the routine clinical management of IBS”.

The efficacy of a diet based on the measurement of IgG antibodies specific for food components has been demonstrated for a number of disease entities. Excellent results have been obtained in patients with migraine, respiratory disease, IBS, obesity and IBD [8,12,36,44,45]. A diet based on testing for food specific IgG antibodies has shown to be an alternative and safe treatment for patients with chronic conditions [7]. It is important to remember that such testing has been performed by many reputable laboratories all over the world for many years, resulting in many hundreds of thousands of tests, that in a great many cases have resulted in relief for the patient from persistent symptoms. It is therefore nonsensical to suggest that such testing merely reflects a normal immune response and has no clinical value. With the large body of evidence that has now been accumulated, and with the recent evidence demonstrating the crucial role that IgG class antibodies play in initiating tolerance [48], it is time for a balanced medical discussion about what such testing can be used for, and its limitations. The determination of serum IgG food antibodies potentially opens up new diagnostic and therapeutic pathways for patients who are hypersensitive to food components, which can be alleviated by food elimination diets based on specific IgG antibody levels, for a variety of complex and challenging conditions.


44. Julio Pascual and Agustín Oterino. IgG-mediated allergy: A new mechanism for migraine attacks? Cephalalgia 0(00) 1–3. International Headache Society 2010

FOOD INTOLERANCE

DO YOU FREQUENTLY SUFFER FROM

Neurological Symptoms
- Depression
- Fatigue
- Headache
- Hyperactivity
- Irritability
- Lethargy
- Melancholy

Respiratory Symptoms
- Asthma
- Chronic cough
- Running nose
- Shortness of breath
- Wheezing

Circulatory Symptoms
- Edema
- Irregular heart beats

Gastrointestinal Symptoms
- Abdominal pain
- Bloating
- Constipation
- Diarrhoea
- Excessive gas
- Heart burn
- IBS
- Nausea
- Stomach cramps
- Vomiting

Joint & Musculoskeletal Symptoms
- Arthritis (Joint pains)
- Muscle pain

Skin Symptoms
- Eczema
- Itching
- Hives

Other Symptoms
- Dysmenorrhea
- Weight problems
- Failure to thrive

A food intolerance could be the trigger.

Get tested today.........
NATURAL THERAPY

PLATELET-RICH PLASMA THERAPY

Words by Dr. Suryakant Hayatnagarkar
Thin Endometrium and Platelet Rich Plasma Therapy

Despite recent developments in assisted reproductive techniques (ART), the implantation rates still remain relatively low. Successful implantation requires high quality embryo and receptive endometrium. The receptive endometrium is defined as a healthy uterine milieu containing the transformation of endometrial cells into decidua cells appropriate for implantation of blastocysts and rapid growth of placenta.

Endometrial assessment is routinely performed during in-vitro fertilization (IVF) and intracytoplasmic sperm injection (ICSI). Endometrial thickness (EMT) has been considered as a marker of endometrium receptivity and a prognostic factor for embryo transfers during IVF/ICSI treatment. It is known that appropriate endometrial thickness is essential for a successful pregnancy, and several studies have shown low pregnancy rates in the presence of thin endometrium.

The optimal endometrial thickness for conception remains controversial among clinicians. EMT less than 7 mm on ultrasound is generally considered sub-optimal for embryo transfer and is correlated to a decreased probability of pregnancy. Thin endometrium remains a challenge in gynecology and reproductive science, with only slight enhancements attained with the currently available treatment. It is considered that a thin endometrium is caused by a diminished normal endometrial growth. However, little evidence is presented with regard to reasons for impaired endometrial growth in patients with thin endometrium.

Angiogenesis plays a key role in endometrial pattern. Endometrial angiogenesis is vital for regeneration endometrium after menstruation, and to provide a vascularized receptive endometrium for implantation. The majority of studies have focused on vascular endothelial growth factor (VEGF) as a regulator for endometrial angiogenesis, and a number of works state that VEGF is expressed differentially in the uterine with thin endometrium.

Uterine blood flow is an essential marker regulating endometrial growth and is narrowly related to vascular development of the endometrium. Recent improvements in ultrasonography have provided new opportunities for noninvasive evaluation of endometrial perfusion. A significant reduced pregnancy rate in IVF-ET patients with low uterine blood flow displays a close relationship between uterine blood flow and uterine receptivity.
Treatment of thin endometrium

Since a thin endometrium is a multifactorial condition, its management should be cause-related, with the aim of increasing endometrial receptivity and simplifying implantation. However, improving endometrial growth in patients with thin endometrium is very challenging.

Several modes of therapies are used for development of endometrium like estrogens, micronized progesterones, low-dose aspirin, low-dose steroids, and G-CSF granulocyte colony stimulation factor, with variable results. Thin endometrium non-responsive to standard treatments is still a challenge in assisted reproductive techniques, resulting in cycle cancellation and unplanned embryo cryopreservation.

Platelet-rich plasma (PRP)

Platelet-rich plasma seems to be the most interesting and effective therapy for thin endometrium.

PRP is prepared from patient’s own blood and is a concentrate of platelets, which are rich in several growth factors and cytokines. As soon as platelets are activated in PRP, cytokines and growth factors are secreted within 10 minutes.

Recently, PRP has been commonly applied in different clinical situations; however, little is identified about the application of PRP in the treatment of thin endometrium. For the first time, Chang and coworkers introduced intrauterine infusion of PRP as a new approach for the treatment of thin endometrium. They evaluated the efficacy of PRP in the therapy of infertile women with thin endometrium. Five women with thin endometrium after standard hormone replacement therapy (HRT) who were candidate for IVF were included the study. PRP was infused into the uterine cavity on the 10th day of HRT cycle. If endometrial thickness failed to improve 72 h later, PRP infusion was done 1–2 times in each cycle. Embryos were transferred when the endometrium thickness reached more than 7 mm. Endometrial growth, as well as successful pregnancy, occurred in all the patients after PRP infusion.

In the same way, 10 patients with a history of inadequate endometrial growth in FET cycles were enrolled in another study. Intrauterine infusion of PRP was performed for all patients. According to the results,
endometrial thickness increased, and 50% of patients achieved pregnancy. With the promise of providing a battery of growth factors and proven effect in rejuvenation, repair, and restoration, PRP therapy is emerging as an important modality for treatment of thin endometrium. Preparation of PRP for thin endometrial treatment is different than for other therapies.

PRP Therapy for Male Sexual Dysfunction

Male sexual dysfunction can be more than just erectile dysfunction, although this is the most common occurrence of sexual dysfunction in men. With plenty of pharmaceuticals available designed to temporarily relieve erectile dysfunction, men are looking for a more natural and permanent treatment for erectile dysfunction and sexual dysfunction that does not require them to “schedule” sexual encounters around taking a pill.

Penile platelet-rich plasma for male sexual dysfunction is revolutionizing the expectations of men suffering with the symptoms of sexual dysfunction and erectile dysfunction. Although the causes of male sexual dysfunction vary greatly, from illness and obesity to injuries, psychological disorders, and more, PRP Injections for male sexual dysfunction applied directly to the male genitals has given outstanding results in stimulating sexual function and helping patients overcome symptoms of sexual dysfunction.

If you are looking to avoid the dizzying lists of side-effects printed in microscopic size on the packaging of all the popular erectile dysfunction pharmaceuticals and want to reclaim your sexual satisfaction without being bound to the schedule of your medication, talk to a local penile platelet-rich plasma doctor about PRP injections for male sexual dysfunction today. A simple yet revolutionary outpatient procedure can help your body naturally restore optimal sexual function and put you back in the driver’s seat of your love life.

How can platelet-rich plasma (PRP) treat erectile dysfunction?

The Priapus Shot, a revolutionary new procedure from the creators of the popular Vampire Facelift, can treat erectile dysfunction using platelet-rich plasma (PRP). The Priapus Shot procedure is non-invasive and doesn’t carry the heart-health risks that many traditional erectile dysfunction treatments do.

The Priapus Shot uses natural, regenerative cells that are drawn from your bloodstream. These cells are refined to just the platelet-rich plasma (PRP), using a highly-advanced centrifuge.

By administering platelet-rich plasma directly to the penis, the Priapus Shot (also called the M-Shot) delivers erections that are:

- Firmer
- Larger
- More frequent
- Longer-lasting

Breast Augmentation

Here are two ways PRP is used for breast procedures:

1. Fat transfer and platelet-rich plasma for breast lift

Fat transfer is the process of taking unwanted body fat (liposuction procedure) from other parts of the body and processing it before injecting it to upper part of the breast and in the cleavage area. This is immediate enhancement. And, since it’s immediate, the sudden expansion of the breast can cause blood vessels to be blocked, causing some parts of the breasts or the nipples to lose sensitivity. Sometimes, it can even cause the skin in those areas to go haywire. So, the best way to avoid that is to make sure enough collagen and growth factors are supplied, well in excess of the area’s needs. That’s why it makes sense to combine the fat transfer procedure with platelet-rich plasma. In this combination, PRP is added to the fat when processing the fat, which includes many blood-derived growth factors and tissues containing collagen for skin rejuvenation. The end-product is then injected like a typical PRP injection. The result is firmer breasts with not just a change in size, but also changes in skin texture and shape of the breast. And there’s no worry of losing sensitivity. Some call the entire procedure as Platelet-Rich Plasma Facelift.

Results generally last from 9-18 months. This great procedure has boosted the confidence level of thousands of women who wanted to overcome their unnatural shaping and aging of breasts. However, even though it works for all kind of breast sizes, it’s not recommended for women with:

- Extreme loss of volume
- Excessive sagging
- Previous breast implants

2. Only platelet-rich plasma for breast rejuvenation

This second procedure is purely PRP for rejuvenation purposes. It’s for women who’re happy with their breast size, but would love to rejuvenate the skin for youthful look, restore fullness for healthy breasts, and regain sensitivity in areas where it’s diminished. The procedure is same as any other platelet-rich plasma procedure. PRP injection not only enhances the look, it actually produces new tissues in the area because of all those growth factors, resulting in better cleavage and fullness.
A Global Health Issue

Words by Dr. Jemish Acharya

Global health addresses social issues and attributes that are contextual and knocks on the social determinants of health of an individual and the community and the society when looking for solutions.
Global health is a relatively new term, a few years or decades old, coming of age of late measured by the increasing number of academic institutions and organizations using this name to highlight their interests and expertise. Koplan and colleagues propose a definition of global health that they hope will receive wide acceptance and thus encourage global health efforts. They distinguish between global health, international health, and public health; tropical medicine has close connections with international health.

International health, in Koplan’s view, focuses on the health issues, especially infectious diseases, and maternal and child health in low-income countries. However, multiple discussions and opinions have also termed it as the “involvement of countries in the work of international organizations, usually through small departments of international health in the Ministries of Health, and as development aid and humanitarian assistance.” Then comes “public health”, a widely popular and equally misunderstood term, usually viewed as having a focus on the health of the population of a specific country or community. Public health is also used to address underlying social, economic, environmental, and political determinants of health.

Defining Global Health
This brings us to “global health”. Koplan et al. defines global health as ‘an area for study, research, and practice that places a priority on improving health and achieving health equity for all people worldwide’. This is a useful definition, with a broad focus on health improvement and health equity. At the same time, this definition has been criticized as “wordy” and “uninspiring” by certain scholars of the same intellectuality. Around the European world, global health has been described as “those health issues where the determinants circumvent, undermine, or are oblivious to the territorial boundaries of states, and are thus beyond the capacity of individual countries to address through domestic institutions”.

Global health is focused on people across the whole planet, rather than the concerns of particular nations. Global health recognizes that health is determined by problems, issues, and concerns that transcend national boundaries. A proposed definition describes global health as a “collaborative transnational research and action for promoting health for all”, along with another that proposes it to be a “worldwide improvement of health, reduction of disparities, and protection against global threats that disregard national borders”. Health for all refers back to the Alma Ata Declaration and positions global health at the forefront of the resurgence of interest in multi-sectoral approaches to health improvement and the need to strengthen primary health care as the basis of all health systems.

After the text-book friendly definitions and descriptions comes reality. So, is global health a high-income community concern? Is it feasible to be talking about international issues when low and middle income countries are grappling with health and social challenges of their own? Is the approach to solving their problems more local than it is global?
Ebola: A Global Health Issue

An example of a global health scale response would be Ebola. The Ebola virus disease (EVD) outbreak in North Kivu and Ituri provinces in the Democratic Republic of the Congo has continued this month (August 2019), with transmission intensity to recent weeks, with an average of 85 cases per week. More than 11,000 people died from Ebola virus disease (EVD) in Guinea, Liberia, and Sierra Leone during the 2014–15 West Africa epidemic: many times more than the total infected during all previous outbreaks of the disease combined. Ebola virus disease (formerly known as Ebola hemorrhagic fever) is a severe, often fatal illness, with a death rate of up to 90% caused by Ebola virus, a member of the filovirus family.

The virus is transmitted to people from wild animals and spreads in the human population through human-to-human transmission. People can become exposed via direct contact with blood and/or secretions of an infected person. Friends and family members are at an elevated risk when caring for the infected person through close contact with such secretions. Health care workers have also been frequently infected in medical facilities. No specific treatment or vaccine is yet available for Ebola HF, but new promising drug therapies are being evaluated.

The severity of the outbreak opened the eyes of the world to our collective vulnerability to emerging and re-emerging infectious diseases, and the need for coordinated global action to ensure that we are better prepared for the next outbreak. International surveillance systems were up and running to screen travelers and migrants to prevent and detect cases. News on prevention protocols, transmission, and control were disseminated. International non-governmental organizations working with the national health systems had referral systems for treatment and prevention. In areas with compromised access and lacking specialized forces, unreachable areas, or insufficient resources of other kind, countries were helping each other and working towards preventing, detecting, and responding to Ebola. Organizations are involved in the response and continuous monitoring of changes to the epidemiological situation and context of the outbreak to ensure that support to the response is adapted to the evolving circumstances. The last assessment has concluded that the national and regional risk levels remain very high, while global risk levels remain low.

A Comprehensive Approach

“Diseases do not understand boundaries. People are traveling more. Food and medical product supply chains stretch across the globe. Biological threats pose a growing danger to people everywhere, whether diseases are naturally occurring, intentionally produced, or the result of a laboratory accident. In today’s interconnected world, poorly treated cases of tuberculosis or pneumonia in Asia and Africa show up in U.S. hospitals within days.” (U.S. CDC).
Global health addresses issues on a rather comprehensive scale, encompassing transnational problems and boundaries. At the same time, global health addresses social issues and attributes that are more contextual and knocks on the social determinants of health of an individual and the community and the society when looking for solutions. It primarily addresses issues of equity and disparities among castes, creed, and other forms more common to low and middle income countries like ours. “Why treat people and send them back to the conditions that made them sick?” Michael Marmot asks his readers. Global health works towards improving those conditions in a sustainable manner, not just in treating the illness.

On some days, its income, other days its hygiene and mostly, we blame the society we grow up in. So, that way, rich and educated countries should be boasting of good health and prosperity always, which is not the case. Poverty, inequality and equity, social disadvantage and empowerment, we all know the causes of ill health, but we still have them. Conventional approaches have emphasized access to technological sources and change in the behavior of individuals, but these have only helped so much. Among others, what has worked is improving the conditions for people to live in, so they can lead healthy flourishing lives. Improving conditions decreases vulnerability and susceptibility.

Now, conditions comprise of a whole lot of things, starting from birth, lifestyle, sanitation, education, awareness, health security, migration, genetics, the life course, and many others. While it may mean this for us, it may mean something completely different for someone who belongs to the other side of the globe. Everything is hence contextual, to each their own; one person’s health needs are different from that of another. This highlights the key of global health—Equity or Equity in Health. The road is a collective one, that of economic, social, and environmental development. Countries have long been working hard to achieve this goal, and while it has not been an easy one, marked progress is being made, acknowledging this as a goal being one of the most important one.

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Promising Results of Experimental Drugs for Ebola

A randomized, controlled trial of four investigational agents (REGN-EB3, mAb114, ZMapp, and remdesivir) for the treatment of patients with Ebola virus disease began on Nov 20, 2018 as part of the emergency response to an ongoing Ebola outbreak in the Democratic Republic of the Congo (DRC). As of Aug 9, 2019, the trial had enrolled 681 patients toward an enrollment total of 725. The preliminary results in 499 participants indicated that those receiving REGN-EB3 and mAb114 had a greater chance of survival compared to participants in the other two arms. Based on this result, an independent data and safety monitoring board (DSMB) recommended that all future patients be randomized to receive either REGN-EB3 or mAb114 as an extension phase of the study. Co-sponsored and funded by the National Institute of Allergy and Infectious Diseases of the U.S. National Institutes of Health and Institut National de Recherche Biomédicale, the study is carried out by an international research consortium coordinated by the World Health Organization and supported by four pharmaceutical companies, namely, Regeneron, Ridgeback Biotherapeutics, MappBio, and Gilead.
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WHY IS PT/INR MONITORING SO IMPORTANT & CHALLENGING?

Namoti Nembang in conversation with Dr. Raamesh Koirala, cardiac surgeon at SGNHC

An international normalized ratio (INR) test is critical for all people who are receiving warfarin treatment. Warfarin, a vitamin K antagonist, is one of the most widely prescribed anticoagulants. But it is difficult to manage, as it has both a narrow therapeutic index and numerous drug and dietary interactions. "Its multiple interference with food, temperature, water, geographical location, disease states, and almost all kinds of medicines could cause great harm if not monitored and dosed correctly," says Dr. Raamesh Koirala, a cardiac surgeon at Sahid Gangalal National Heart Centre.

The INR is a numeric value calculated from the prothrombin time (PT), a clotting assay result, and the International Sensitivity
Index (ISI), which indicates sensitivity of the reagent used to perform the assay. One of the major challenges with warfarin is maintaining the patient’s INR within the predetermined therapeutic range. It can neither be too high nor too low. Therefore, regular INR monitoring is a must to safeguard patients on anticoagulation therapy. “Many fatalities may occur if they don’t check their INR. There is an increased risk of bleeding if the INR is too high, and there is a risk of blood clotting if it’s too low. The high doses can make people bleed from head, stomach, while brushing, coughing, and in cases of women, menstruation will not stop.”

Warfarin will slow down the process of blood clotting. “But, as it is made from plant extracts, there are many vegetables like cabbage, kale, broccoli, spinach, and lettuce that we eat daily that will slow down the effect of warfarin. Therefore, eating a lot of food rich in vitamin K can lower the PT and INR, making warfarin less effective and potentially increasing the risk of blood clots,” says Dr. Koirala.

“Dabigatran is one of the new oral anticoagulants (non-warfarin drug) that doesn’t require patients to undergo periodic INR monitoring. But, it hasn’t been experimented on humans whose valves have been changed yet, as it is very dangerous,” informs Dr. Koirala.

Warfarin is usually prescribed to treat a blood clot for 3-6 months. “If a person with a tissue valve doesn’t have any other indication for anticoagulation, then we will put him on warfarin for 3 months, and then prescribe him aspirin.” But, for an irregular heartbeat or some heart valve problems, warfarin is prescribed indefinitely.

Can PT/INR confirm that one is 100 % risk free?

- An INR of 1 is normal and is found in people who are not on warfarin.
- An INR of 2 means that your blood takes twice as long to clot than a normal person. It doesn’t guarantee that it won’t clot. It may clot, but the risk is low.
- An INR of 3 means that your blood takes three times as long to clot as a normal person.

There are two classes of antithrombotic drugs: anticoagulants and antiplatelet drugs. Both work to prevent clots in blood vessels but affect different blood clotting processes. Anticoagulants slow down clotting, thereby reducing fibrin formation and preventing clots from forming and growing in your heart, veins, or arteries, while antiplatelet agents prevent platelets from clumping and also prevent clots from forming and growing.
**THE THERAPEUTIC WINDOW**

The optimal INR target range is 2.0-3.0, but it depends on the indications for anticoagulation. “Though we follow the guidelines of American College of Cardiology/American Heart Association, we have a tendency to be satisfied with a bit low INR value,” says Dr. Koirala.

- For micro valves or mechanical heart valves: our target INR range is 2.5-3.5
- For aortic valves: our target INR range is 2-3
- For atrial fibrillation: our target INR range is 2-2.5 or 2-3

**WARFARIN DOSE ADJUSTMENT**

If a person’s INR is within a desired range, a patient has to check his or her INR every three to four weeks. If the report is not within the desired range, he or she needs to readjust the dose of drug to keep the INR readings as close to the target as possible. For that, they need to either check their INR every day, or get admitted to the hospital, informs Dr. Koirala.

According to Dr. Koirala, people with atrial fibrillation (AF) are the ones who need warfarin the most. But, in Nepal, the maximum number of people receiving warfarin are those with mechanical valves. "It is not possible to give warfarin to people with AF, because the number is too big. Also, the chances of blood clotting are low for AF, while people with mechanical valves are at highest risk for clotting. So, they are prescribed warfarin the most."

**OUR EFFORT**

Our Effort is a non-profit organization running under the direct support of Dr. Raamesh Raj Koirala and Dr. Anil Acharya to help people requiring constant monitoring of INR managed anticoagulant therapy.

Founded on Kartik 13, 2068, Our Effort is currently running the PT/INR mobile clinic with over 2000 beneficiaries directly. It is registered in Jhapa district and is financed by Dr. Raamesh Raj Koirala and supported by Dr. Anil Acharya and other doctors, while some fund is generated from French donors who want to help the needy patients. "Some of my friends in France were sponsoring valves to 12-13 needy patients at the Sahid Gangalal National Heart Centre(SGNHC) annually for many years. When they asked me for a way to support the poor patients in the hospital, I gave them the names and they paid for their surgeries," says Dr. Koirala.

"Later, when the government decided to give free valves to those who couldn’t afford it, we thought of a way to make best use of the fund. So, I proposed to them to invest some money to buy INR test machines for people residing outside the valley. So, with their support and some of my investment Our Effort got started."

It was founded with the desire to help people outside the valley do the INR test without having to travel to Kathmandu. “Before, we patients were asked to come to Kathmandu every three months to do the INR test,”

According to Dr. Koirala, out of 600-700 valve operations in SGNHC every year, around 300 people are enrolled in this program. Our Effort provides warfarin to 95 percent of patients with mechanical valves. The remaining 5 percent are people with tissue valve and AF, he adds.

The organization charges patients a nominal fee for the testing strips and medicines that they receive. There are four people involved in the field activity, along with four other people in the technical department making all the necessary arrangements for the smooth operation of the clinic.

Currently, the entire focus of Our Effort has been in anticoagulant therapy service through the PT/INR mobile clinic. Its main concern is to provide convenient and easily available service to patients. There are currently 14 stations across the country.


BIBLIOGRAPHY
The CoaguChek® XS System

Setting New Standards in PT INR Monitoring

Capillary small blood drop: only 10μl
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Results in 1 minute
- Immediate therapeutic decision
- Savings in time and money

Reliable results
- Confidence in therapeutic action
- Low error rate

Small, easy to handle, and carry
Blood Transfusion Service Center (BTSC) of Nepal Red Cross Society (NRCS) was established in 1966, three years after the formation of NRCS. The NRCS has 108 blood transfusion centers across the country through which it makes 24-hour availability of safe blood for transfusion to the needy.

The revised national guideline on the management of blood transfusion services was prepared in 2015. NRCS provides its services based on the national guidelines that follow the national blood transfusion policy. The national policy on blood transfusion service (BTS) was formulated in 1993. It was revised and updated in 2006 and 2012. The revised blood policy mandates the screening of all blood donations for HIV, hepatitis B (HBV), hepatitis C (HCV), and syphilis for the provision of safe blood and blood components.

NRCS follows other manuals and guidelines on transfusion-transmissible infections (TTIs), and biosafety and waste management while providing blood transfusion services.

“Our national blood transfusion policy follows the basic guidelines of World Health Organization (WHO), which has set a minimum standard for the developing countries. It is not a very high standard. Our standard is still being developed. We have recently proposed a new standard to the Ministry of Health and Population and are waiting for its approval,” says Dr. Manita Rajkarnikar, Director, Central Blood Transfusion Service (BTS) Center. The National Bureau for Blood Transfusion Service at Nepal Public Health Laboratory (NPHL) is the governing body that monitors, controls, provides license, and registers all blood transfusion centers throughout the country, she informs.

The government had mandated NRCS as the sole agency to conduct blood programs in 1991. Until recently, it was the only organization responsible for monitoring, supervising, and supplying blood to all the hospital units across the country. There are a few hospital-based blood banks now. The main responsibilities of NRCS are counseling blood donors, blood collection, screening, and supply of safe blood to the needy.

Demand and supply
There is no exact data on how much the demand is. “We have tried to set a target for blood collection, but have not been able to meet it. If the hospitals were to provide an estimate on how much their yearly blood requirement is, then maybe we could set our target on that basis. As per the current trend, the blood demand has gone up by 12-15 percent,” Dr. Rajkarnikar informs.

There is a massive demand of blood during emergencies, and for liver transplants, dialysis, and open-heart and other surgeries. “We need a minimum of 16 units of blood for one patient, and up to 70 units of blood for a liver transplant,” she says. “We are currently facing shortages for platelets concentrate (PRP), and platelet-free plasma, as they can only be stored up to three days. We usually prepare and supply them as per the demand, but it is a bit difficult to manage when it is needed urgently.”

Red blood cells (RBCs) have a long lifespan, so there are usually no problems. But, there has been a steep rise in the number of dialysis cases, which requires packed RBCs (PRBCs) that can be stored up to 42 days. The problem arises when we have to immediately prepare the blood products with short lifespans,” says Dr. Prakash Yadav, Deputy Director, Central Blood Transfusion Service (BTS) Center. According to him, there is a challenge to meet the demand for the rarest blood types.
The common blood groups like A and O are easily available. “But, we have problems with negative blood groups. Negative blood groups constitute about 3 percent of the total blood collected at NRCS, of which, AB negative is the rarest. Usually, the donors of rare blood groups are registered with us, and we call them when we need their blood,” he informs.

Is there any deviation between the world’s best practices in TTIs and our practice?

WHO has made it mandatory for developing countries to test all donated blood against transfusion-transmissible infections (TTIs), including HIV, hepatitis B, hepatitis C, and syphilis. “Mandatory testing is done for all the donated blood. We use aseptic method during blood collection, and safety measures are taken throughout the process, from the vein of the donors to the vein of the recipients. We use Rapid Kit for emergency testing, and ELISA when collecting blood in big camps,” says Dr. Rajkarnikar, adding, “We cross-match blood for hospitals that don’t have cross-matching facilities, and we don’t cross-match blood if they have such facilities.”

According to Dr. Yadav, the Australian National Reference Laboratory sends them 10-20 samples every year for external quality assessment (EQA), and based on the NAT test report from their lab, there was not much difference in the result. “We have recently sent one report with 98 percent achievement. The records on HIV were almost 100 percent. They send us such samples twice every year. Every sample has a certain time frame within which we have to send them the reports. Then they will send us a comparative report,” he discloses. He also says that they use CE-certified companies, and sometimes the local level government suggests some of the different kinds of kits for HIV tests. Since NAT testing is done for the entire negative sample with the screening test, hence it is not very surprising to achieve 98-100% in such samples, the safety standard rises when false negative bags are not released. Reverse EQA would be beneficial as our negative samples are tested with NAT to find out the false negativity.

Areas where we lack the most

According to the national guidelines, the outdoor collection space should be shaded, well ventilated, well lighted, clean, and some distance away from the main road. In developed countries, they even use mobile buses to collect blood in public places. “But, when we collect blood in outdoor camps, we usually have problems with dust and crowd. We lack space for pre-donation counseling. There is no confidential and separate screening space to interview donors. We also haven’t been able to check the donors’ hemoglobin due to limited manpower,” says Dr. Rajkarnikar.

Dr. Yadav says that, in developed countries, interviews are taken seriously, and depending on the interview and their impressions, donors are accepted or rejected. “We haven’t been able to conduct interviews and counseling with the donors in the way it should be done. We can minimize a lot of risks at this stage if we could collect blood from healthy donors. Almost 80 percent blood can be filtered out during this stage.”

There is also lack of doctors during the interview and selection of donors. “As per the international guidelines, the presence of a doctor is a must during this procedure, but it is not possible in every place in our context. We also don’t have sufficient doctors and staff nurses during blood transfusion. But, we have trained staff. In the districts, doctors from the blood transfusion committee will be on call to provide guidance to the staff while providing the services,” says Dr. Rajkarnikar.

Component separation

After the blood donation is made, various blood components: packed red blood cells (PRBC), platelet concentrates, plasma, and cryoprecipitate can be harvested from the whole blood. The products from a single donation can benefit multiple patients. Each blood component can be used for a different indication.

“In developed countries, they do plasma fractionalisation to extract therapeutic products. They further separate albumin and protein products from the unused plasma in pharmaceutical manufacturing companies. People can provide raw materials to such companies through contract basis. But we don’t have a supporting legal system to open such companies in Nepal. Here, the plasma mostly goes to waste. If the patient needs it, we use it, otherwise it becomes useless in a year’s time.”
Disposal of unused blood and blood products

NRCS disinfects both infected and date-expired blood with hypochlorite solution, before discharging into the sewer. “Last year, we decided to dig the ground to dispose the unused blood products, but the locals were against it, so we had to drop the idea. It is one of the oldest methods of medical science.”

Dr. Yadav says that discharging blood products into the drainage is not the proper way, but due to lack of any other alternative, they are still using this method. “The right way would be to use an autoclave or a grinder. Incineration is another way, but it produces smoke during the burning process. Autoclaving would be the best, since it also grinds the blood bags into fine particles. It is a bit expensive, but we are making plans for obtaining it in the near future.”

What Nepal needs: quality or quantity?

“We should never compromise on the quality. One might say quality is expensive, but it is not. There are risks of transmission if we only focused on the quantity, further deteriorating a patient’s condition. Even WHO has said that blood is not the first priority for treatment; it is required in life-threatening emergency situations. But, that is a different scenario, where we might even have to transfuse blood without cross-matching,” says Dr. Rajkarnikar.

Dr. Yadav says that, as a clinician in a hospital, quality blood products are the most important. But, from a manager’s point of view, the need of public demands must be considered, as well. Nevertheless, quality can’t be compromised.

Can quality and quantity go hand-in-hand?

“It is not that difficult to achieve both. But, since NRCS is a humanitarian organization, there are some challenges to achieve this goal. The quality has been compromised due to lack of financial approaches, as it is a non-profit organization. But, if it were to be run like a business, there would be no problem. If people are ready to spend millions of rupees for a life-saving treatment, they will spend whatever cost is involved for a quality blood product, too,” says Dr. Yadav.

WHO has been emphasizing on the total quality system in blood transfusion of 10 South Asian countries, including Nepal, since 2000. In Nepal, the main barrier is costing. “We want to run on a cost-recovery basis; Australia follows the same cost-recovery system. They charge 200 dollars for one unit of blood. The government covers that cost through insurance. The individual doesn’t feel any burden. It is incorporated in the system,” Dr. Rajkarnikar says.

Safety concerns

Dr. Yadav says that doctors should recommend blood products according to the need of patients. As transfusion itself is a risky process, they should focus on minimizing the risk when demanding the products, and put blood transfusion on the least priority list, only when there are no other alternatives. All blood products should be properly labeled and transfused to the specified patients, so the risk is minimized. In transfusion system, cold chain management is the most important logistic support.

Dr. Rajkarnikar says that the focus should be on education, motivation of donors, laboratory facilities, HR, and appropriate use of blood and blood products, without burdening the individual patients.
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As far as the reasons behind heart attacks are concerned, the science behind cholesterol looks to be very fishy and undiscovered, although there is a flood of medications, especially statin drugs, that claim to reduce the number in test results, but do not reduce the risk substantially.

The reasons being explained for plaque formation in the arteries that block the blood supply are basically food and drink, smoke and pollution, stress, and no physical activities. There are many cases I have come across where all those said reasons are not true for victims of MI. The very early age heart attack does not justify the "over a period of unhealthy lifestyle" as the cause. There seems to be very many people with perfectly normal LDL cholesterol levels who suffer heart attacks and strokes, and many people with high LDL cholesterol that suffer neither. Also, there are quite a few examples of those with reckless lifestyles, they look obese, but the test results come almost normal, and they lead a fun filled life.

But for sure, in recent days, adulterated food and unhealthy lifestyle are the reasons for all these problems. Cardiac disease has become a national burden for all countries, which has hit almost every home. The family has to struggle with the angst of losing a family member, and at the same time, education of the children is massively affected if the victim was the only wage earner of the family. Modern lifestyle makes it no easier, what with unhealthy packaged foods being the cheapest and quickest, and fresh foods being the most expensive.

Our working hours have increased, and we are looking for extra hours to work to make life easy with some extra income, which leaves us no longer with free time to cook healthy meals and to work out.

In addition to the heart, blocked arteries can create issues in the kidneys—their failure requires dialysis and kidney transplantation; or stroke, which causes paralysis and long-term illness, and these are more heavy burdens than straight death. Hence, these conditions are not just of academic interest, as they have devastating consequences for real families.

Cholesterol is avoidable in most cases, and the steps required to avoid it should be made familiar to everybody. It has become mandatory
to have lifestyle changes, and the “holy” knowledge to master a lifestyle that keeps cholesterol under control and allows our arteries to remain functional into our old age.

In this article, I would like to initiate a discussion and want to draw the attention of experts in the field about the need for making laypeople aware about fat metabolism and cholesterol management. It is said that the correct theory of cholesterol holds that oxidized cholesterol, not normal cholesterol, poses health risks. Cholesterol and fat become oxidized, they lodge in the arteries, and this is dangerous. The point here is—oxidation of fat in the arteries is the only culprit as per the new findings of cholesterol and plaque formation, the cause of atherosclerosis.

The emphasis on changes in dietary and lifestyle habits that promote and inhibit fat oxidation has become a key factor to stay heart-healthy. The issue of rampant use of statin drugs that have collusive side-effects, yet are ineffective in preventing the dangerous oxidation process, needs to be well explained by the researcher and the scientist. Knowledge about the benefits and dietary sources of antioxidants, the differentiation of good and bad dietary fat sources, and awareness about the destructive oxidizing effects of smoking, along with the extremely beneficial way of life through exercise, sound sleep, yoga, and pranayama to lower stress, are important for a heart-healthy life.

With this article, I am trying to seek some progress on clinical practices that help us to substitute foods that lead to unhealthy oxidized cholesterol by healthy foods. The clinician should start talking about the dangers of saturated and trans-fat, and about how unsaturated fat needs to be consumed on a daily basis. We must train people to read the specifications and ingredients of food products, and the process of manufacturing and preserving them.

Here is a short but important compilation of excerpts from several studies from the last 35 years:

**Refutes Relationship between Cholesterol Levels and Heart Attack**
Scott Davis, in his popular book, *The Oxidized Cholesterol Strategy*, writes, “Atherosclerosis is arguably a condition that arises because the macrophages responsible for removing cholesterol from blood vessel walls become overwhelmed, and they become foam cells and die, adding their contents and their remnants to grow an atherosclerotic plaque, attracting more of their fellows to the same location to repeat the cycle. It is argued that foam cell is the result of oxidized cholesterol. They have decreased ability to migrate, while displaying enhanced production of pro-inflammatory cytokines. Therefore, foam cells participate in maintaining chronic inflammation in the lesions.”

SENS Research Foundation has had some early success in their search of bacteria capable of consuming these damaged forms of cholesterol. However, the mode of action of the most prescribed drug, statins, does not work into the root cause. SRF’s statement on their research work is directed towards repair of damaged cells. “Many things go wrong with aging bodies, but at the root of them all is the burden of decades of unrepaired damage to the cellular and molecular structures that make up the functional units of our tissues. As each essential microscopic structure fails, tissue function becomes progressively compromised, imperceptibly at first, but ending in the slide into the diseases and disabilities of aging.”

*The New Scientist*, Feb 8, 2017, writes in *Cholesterol Wars*, “We may be fighting the wrong enemy. Few people doubt cholesterol is a factor in heart disease, but by fixating on it, we might be ignoring things that matter more. Not everyone is convinced that cholesterol really is all that bad for your heart.”

“The cholesterol campaign is the greatest medical scandal in modern time,” says Uffe Ravnskov, a Danish independent researcher. He has published dozens of peer-reviewed papers about cholesterol’s biological role, and claims there is no link between blood-cholesterol levels and levels...
of atherosclerosis, the furring of the arteries that precipitates heart attacks.

It’s certainly true that half of all heart attacks and strokes occur among apparently healthy people with normal or low levels of “bad” low-density lipoprotein cholesterol, so it’s clearly not the sole factor. Drugs beside statins that lower LDL-C levels, such as fibrates, ezetimibe, and bile acid sequestrates also have little if any effect on heart-related deaths. Statins happen to lower both LDL-C levels and reduce deaths from heart attacks among those with diagnosed heart conditions, but that might just be coincidence, says Richard Lehman of Cochrane, a non-profit organization that reviews available medical data. “The association may or may not be causal,” he says.

In the 1980s, Doctor Daniel Steinberg, who died at the age of 92 in 2015, wrote a book called The Cholesterol Wars, and also published more than 400 papers related to lipid and lipoprotein metabolism and atherosclerosis. He commented that while LDL cholesterol seemed to increase the risk of atherosclerosis, the numerous cases of people with high LDL without atherosclerosis seemed to suggest that LDL alone was not responsible for this form of coronary artery disease.

The most recent research-based article published in Health Impacts News, by PRWEB, on August 20, 2019, states the following:

During his cardiology training over thirty years ago, Dr. Ernest N. Curtis saw hundreds of patients with coronary heart disease and heart attacks. He was struck by the fact that most patients with fairly advanced atherosclerosis had a wide variety of cholesterol levels. He began to question what he had been taught on the subject and to research the origins of the Cholesterol Theory.

“If one takes the occurrence of heart attacks and strokes as an index of the severity of atherosclerosis, then there are some statistics that argue strongly against a role for cholesterol. For example, men suffer heart attacks at a rate 3-5 times that of women. Yet, women on average have higher cholesterol levels than men. If you examine the statistics closely, you will see that the incidence of heart attacks is spread pretty evenly throughout the entire range of cholesterol levels.”

People taking statins may be surprised to learn that, according to a California cardiologist, cholesterol levels have nothing to do with whether a person develops heart disease or has a heart attack. “Everybody has atherosclerosis to one degree or another,” states Dr. Ernest N. Curtis. “It is simply a biological fact of aging.”

The idea that cholesterol causes disease comes from a set of closely related theories known as the Lipid Hypothesis, the Cholesterol Theory, and the Diet-Heart Theory. These theories claim that too much cholesterol in the blood is the major causative factor in atherosclerosis, also known as hardening of the arteries. The Diet-Heart Theory maintains that too much saturated fat and cholesterol in the diet raises the cholesterol level, causing atherosclerosis and leading to the two most dreaded complications of atherosclerosis—heart attack and stroke.

However, many doctors and patients have a seriously mistaken view of what atherosclerosis actually is. Cholesterol is not deposited on the inner surface of the arteries and built up over time like sludge in a pipe. Actually, the process is initiated by a proliferation of smooth muscle cells from the middle layer of the wall of the artery. These sheets of cell form a firm plaque which rigidifies that portion of the arterial wall. Nothing is deposited upon or sticks to the inner lining of the artery. Some have hypothesized that the breakdown of cells within plaque gives rise to the cholesterol that is often found there, which is to say that cholesterol is a result of the plaque, and not the cause.
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Let's start with the history of organ transplant in Nepal.

‘Solid organ transplant’ started in Nepal 1998 when two private hospitals, Everest Nursing Home and Dans Care, carried out kidney transplants informally. The transplants were carried out off the record, as we did not have legislation to do such surgeries in Nepal. Then, in 2004, a transplant was carried out at Bir Hospital, but the service did not continue. In 2008, a transplant was carried out at Teaching Hospital, and at Bir Hospital again, after a few months.

On the legal front, the human organ transplant act came into force in 2055, it was later amended in 2058. But we realized that the provisions in the act were hampering the growth of organ transplants in Nepal. According to the act, only a limited number of family members could donate organs to patients in need of transplants. Because of this, thousands of Nepalis had to go abroad to get transplants.

Then, in 2072, parliament passed a new piece of legislation that removed restrictions on who could donate organs. The new law said that anyone who is a relative of the person in need of a transplant could do so. It took us eight years to convince the lawmakers about this.
What were your initial days in Nepal like after returning from the UK?
Then health minister, Giriraj Mani Pokhrel, called me to his office and asked me if I would be interested in starting a transplant unit at Bir Hospital. I agreed. But we faced a lot of challenges at Bir. For example, we did not have a dedicated operation theater. We had limited resources, and the doctors there did their bit to help us. The government then gave us a building in Bhaktapur to start the Human Organ Transplant Center. Things moved pretty fast. We now have a 100-bed capacity facility.

Could you give us some numbers on kidney transplants in Nepal?
We carry out around 200 transplants at our center, Teaching Hospital does around 130-135 a year, and Bir around 14 a year. According to records, around 1,500 people have received kidney transplants in Nepal, so far. If you are to look at our record, we have carried out 435 successful transplants from 2073. We have a 100 percent success record as far as patient recovery and discharge is concerned. If you look at liver transplants, it’s a bit complicated. We carried out the first liver transplant in 2073.

Transplanting liver from a live donor is a bit more complicated, and we are not there yet. But, we can transplant liver from a brain-dead person.

Despite the great results, why do you think so many people go abroad for transplants?
What we have achieved at our center is astounding. Ever since we started our service, we have a 99 percent success rate for the 6.5 years we have been in operation. I think this success rate would be an envy for any institution in any country.

What is the main challenge your center faces?
Transplanting organs from a brain-dead person is easier than from live donors. In Nepal, around 3,000 people need kidney transplant every year. But, not even a tiny fraction of them receive organs from brain-dead people. It is believed that around 1,000 brain death cases occur in the Kathmandu valley every year, but almost no one wants to donate their loved ones’ organs. Ever since we started transplants, we have only received 20 calls, and out of that we have only done six kidney transplants and three liver transplants. We have technically proven that we can transplant organs, but talking to people during a time of grief is not easy.

Are you taking any steps to address this challenge?
I always say that brain-dead transplant ads should be like that of Coke. We need to have such ads placed on every nook and corner. That is why we are working with the government to campaign for organ donation. Only recently, we worked with MaHa Jodi to prepare a documentary on the issue. We are planning to invite all mayors, deputy mayors, and ward chairs of Kathmandu Valley to watch the documentary. We hope this will help in raising awareness about the issue.

What about the challenges facing the center?
Well, we carry out the most number of transplants in Nepal, but we are yet to receive academic recognition. We would like to run postgraduate courses on transplantation. That would help us train new doctors. Also, we have asked the government to allow us to set up transplant centers in all provinces. That is yet to materialize. The other thing is that we want to expand the center to accommodate at least 300 beds. We hope the government takes steps towards this direction soon.
MEDICAL JURISPRUDENCE

TALE OF TWO TREES

The two big trees of law and medicine have branches spread out that tend to intersect at a point—Medical Jurisprudence. “Study of laws related to medicine” and “administration of medical knowledge for administrations of law” are sentences that, although sounding adversarial, happen to swirl around each other, forming a bridge between the two trees.

Words by Dr. Jenash Acharya

Forensic science is the field where the knowledge of science as a whole is applied, and the scientists are usually experts from different fields of science, who work in a confined zone, the forensic science laboratory. Three major branches of science—physics, chemistry, and biology—are the backbones of all their investigation, and interpretation of evidence analyzed are their major job responsibility. The evidence examined depends on the expertise of these major branches. Serology, a branch originating from biology, for example, analyzes blood, blood products, and seminal stains, whereas toxicology, a branch originating from chemistry, analyzes poisonous and narcotic products.

A branch of science studying human body in medical science is anatomy, and the basis of diagnosis of an organ is pathology. Death and crime investigations can be considered fruits from the same tree. Scene of crime officers are the police, who inspect the scene of incident. Forensic pathologists are experts in human pathology who collect evidence of court value not only from the dead bodies, but at times get indulged in the evolving concept of ‘clinical forensic medicine,’ where vital medico-legal evidence is collected from living survivors of violence and abuse for further examinations. Their workplaces are hospitals, field hospitals, or even crime scenes, alongside the investigating police officer. Collection of evidence and interpretation of findings to estimate grievousness of injuries and formulation of the cause of death and association of any injuries/illness to death are basic objectives of their work.

Forensic anthropology and odontology are other specialized branches of human body science that are versatile and practical during mass disasters for identifying individuals. Study of fingerprints and handwritings, and even more sophisticated DNA testing, are all branches of different sciences within the same tree.
Ironically, the public’s understanding of court procedure is reflective of the old saying, “whoever tells the best story wins.” The statements given by assailant, perpetrator, victim, neighbor, or anyone present at the scene of incident are recorded as verbal evidence. Witness analysis is a major branch of legal procedure. Any papers like birth certificates, injury reports, licenses, etc. are documentary evidence provided by experts or any authorized personnel who are experts in their field, or the expert witness. The expert witness gathers facts from the content and produces a report based on his/her expertise. Court procedure appears understandable when we mention defense lawyers, public prosecutors, and judges, but is equally puzzling when the stories discussed and focused on in the courtroom are usually confined to mere witness statements that can turn hostile any moment. Civil law, corporate law, child/infant and female delinquencies, and humanitarian laws are some branches that one is aware of. A separate branch of law that deals only with medical science is medical jurisprudence.

The branches from both these trees tend to intersect at multiple points, but bear separate fruits. These trees, no matter how close to each other, coexist as separate entities in today’s world. The reports provided by a scientist can be of value only if a student of law can understand it. Similarly, allegation of negligence and misconduct by the medical man can only be avoided if s/he knows his laws right and tends to abide by it.

At some point of life, our expertise is confined to the path we travel on and the tributaries we leave behind. We tend to remember some algebra formula and question ourselves about its importance in life. What we should not regret is being taught the things that we never used in our life, but having discontinuity in learning things we need the most in life, the science and the law!
First treatment for severe hypoglycemia that can be administered without an injection.

The U.S. Food and Drug Administration has approved Baqsimi nasal powder (Eli Lilly and Company), the first glucagon therapy approved for the emergency treatment of severe hypoglycemia that can be administered without an injection. Baqsimi, which is a powder administered into the nose, will come in a single-use dispenser that can be given to someone suffering from a severe hypoglycemic episode. Baqsimi increases blood sugar levels in the body by stimulating the liver to release stored glucose into the bloodstream.

Baqsimi should not be taken by patients with pheochromocytoma, a rare tumor of adrenal gland tissue, or by patients who have insulinoma, a tumor of the pancreas. Baqsimi should not be taken by patients with a known hypersensitivity to glucagon or the inactive ingredients found in Baqsimi, as allergic reactions may occur. Baqsimi also carries a warning that it should be used with caution by those who have been fasting for long periods, have adrenal insufficiency or have chronic hypoglycemia because these conditions result in low levels of releasable glucose in the liver. The most common adverse reactions associated with Baqsimi are nausea, vomiting, headache, upper respiratory tract irritation, watery eyes, redness of eyes and itchiness.

FDA accepts to review Sanofi’s multiple myeloma candidate isatuximab

Sanofi said that its biologics license application (BLA) for isatuximab for the treatment of relapsed/refractory multiple myeloma (RRMM) has been accepted for review by the US Food and Drug Administration (FDA). An investigational monoclonal antibody, isatuximab has been designed to target a specific epitope on the CD38 receptor of a plasma cell. CD38 is regarded as a highly and uniformly expressed on various myeloma cells. It is a cell surface receptor target for antibody-based treatments in multiple myeloma and other malignancies. The drug has been designed to activate multiple, distinct mechanisms of action that are thought to directly encourage programmed tumour cell death (apoptosis) and immunomodulatory activity. The FDA has set a target action date of April 30, 2020 to take a decision on isatuximab’s approval.

Earlier this month, Sanofi alongside Regeneron Pharmaceuticals has been given conditional approval by the European Commission (EC) for Libtayo (cemiplimab) for the treatment of metastatic or locally advanced cutaneous squamous cell carcinoma (CSCC) in adults. Libtayo is a fully-human monoclonal antibody, which targets the immune checkpoint receptor PD-1 (programmed cell death protein-1). According to Sanofi, Libtayo is the only treatment to be approved in advanced CSCC in the European Union (EU).

FDA approves new treatment for refractory multiple myeloma

Multiple myeloma is cancer that begins in plasma cells and may also be referred to as plasma cell myeloma. Abnormal plasma cells build up in the bone marrow, forming tumors in many bones of the body. As more antibodies are made, it can cause blood to thicken and keep the bone marrow from making enough healthy blood cells.

The U.S. Food and Drug Administration granted accelerated approval to Xpovio (selinexor) tablets (Karyopharm Therapeutics) in combination with the corticosteroid dexamethasone for the treatment of adult patients with relapsed refractory multiple myeloma (RRMM) who have received at least four prior therapies and whose disease is resistant to several other forms of treatment, including at least two proteasome inhibitors, at least two immunomodulatory agents, and an anti-CD38 monoclonal antibody. Xpovio in combination with dexamethasone was granted accelerated approval, which enables the FDA to approve drugs for serious conditions to fill an unmet medical need based on an endpoint that is reasonably likely to predict a clinical benefit to patients. Further clinical trials are required to verify and describe Xpovio’s clinical benefit. Common side effects of patients taking Xpovio in combination with dexamethasone include a low white blood cell count (leukopenia), a low count of neutrophils (neutropenia), low count of platelets (thrombocytopenia), and low amount of red blood cells (anemia). Patients also reported vomiting, nausea, fatigue, diarrhea, fever, decreased appetite and weight, constipation, upper respiratory tract infections and low blood sodium levels (hyponatremia).

The US Food and Drug Administration (FDA) has approved Pfizer’s Ruxience (rituximab-pvvr), a biosimilar to Roche’s Rituxan (rituximab). The treatment has been approved in adult patients with non-Hodgkin’s lymphoma (NHL), chronic lymphocytic leukemia (CLL), and granulomatosis with polyangiitis (GPA), and microscopic polyangiitis (MPA). The approval marks Pfizer’s third oncology monoclonal antibody biosimilar to be approved by the FDA this year, and the drug has also been filed for regulatory approval with the European Medicines Agency (EMA).
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Advance in Breast Cancer Blood Test

A technique known as TARDIS (TARgeted Digital Sequencing) has been developed by researchers at the Translational Genomics Research Institute and Mayo Clinic in Arizona (in collaboration with the Cancer Research UK Cambridge Institute), to analyze the tiny circulating fragments of DNA from cancer cells. Initially, 80 blood samples from 33 women with early stage and locally advanced breast cancer were analyzed, and it was discovered that the test could identify circulating tumor DNA in all the study patients before they started treatment. This was followed by further blood tests on the 22 women receiving treatment before surgery, radiotherapy, chemotherapy, or hormone therapy. Concentration of circulating tumor DNA was found to be lower in patients with no breast cancer cells remaining at the point of surgery, compared to for those that did. Until now, blood tests for breast cancer have ‘only been sensitive enough to reliably identify tumor DNA in people with advanced disease,’ states Dr. Muhammed Murtaza, lead author of the study, adding, “TARDIS is able to detect circulating DNA at extremely low concentrations in the blood, opening up the possibility of monitoring patients with early-stage breast cancer to find out how their disease is responding to treatment.” The test could allow doctors to use blood samples to monitor the effectiveness of breast cancer treatments, thus making way for customization of individual treatment plans. Ref: https://stm.sciencemag.org/content/11/504/eaax7392

The Combined Power of GSK and Pfizer

GlaxoSmithKline has closed a joint venture deal with Pfizer Inc. to combine their respective consumer healthcare businesses and create the world’s largest supplier of over-the-counter medications. The joint venture company will operate as GSK Consumer Healthcare, with GSK owning 68% of the stock and Pfizer with a 32% equity stake. The move brings together a portfolio of leading OTC brands, including Advil, Centrum, Sensodyne, Flonase, Tums, and Caltrate. The combined portfolio has resulted in the venture becoming the world’s largest OTC business, with category leadership positions in pain relief, respiratory, therapeutic oral health and vitamins, minerals and supplements, and therapeutic oral health. https://urlzs.com/p9zo4

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Healthcare and Photonics Workshops
Oct 01, 2019
High Tech Campus Eindhoven, Eindhoven, Netherlands

Exhibitors will showcase Innovation in medical devices / wearables, early detection, dealing with mild cognitive and physical decline, big data in health care, wellbeing at work, wellbeing at home, application of photonics in health care, robotics in health care, ethical aspects / legal issues / security, and more. https://10times.com/health-tech-event
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Supporting & Inspiring .... Life
International Conference on Health and Medicine Oct 20-21, 2019  Crowne Plaza Columbus North - Worthington, Columbus, U.S.A.

International Conference on Health and Medicine aims to become the leading annual conference in fields related to health and medicine. The goal of ICHM-19 is to gather scholars from all over the world to present advances in the relevant fields and to exchange ideas and information. This conference will also provide an ideal environment to develop new collaborations and meet experts on the fundamentals, applications, and products of the mentioned fields.

https://urlzs.com/amEqa

Strategies in Pharmacovigilance & Risk Management
Nov 07-08, 2019, NBC Tower, Chicago, USA

Heightened demand for new drugs has increased the need for streamlined pharmacovigilance processes within clinical trials, research and development, and overall reporting when it comes to drug safety. PV professionals need to increase their skill set while mentoring and leading the drug safety teams that keep patients safe across the globe.

Key Topics
• Pharmacovigilance Status Evaluation
• Communicate Health Data and Findings
• US vs EU Regulations and Standards
• Benefit-Risk Management
• The Future of Pharmacovigilance

https://urlzs.com/eoALd

Turkish Airlines adds Mexico City and Cancún to its network

Turkish Airlines, flying to more countries than any other airline, has launched scheduled flights to Mexico City, the second biggest city of Latin America and capital of Mexico, along with Cancún, one of the favorite holiday centers of Central America. The flights to Mexico City and Cancún, the 18th and 19th destinations of Turkish Airlines in Americas, will be operated three days a week on the Istanbul-Mexico City-Cancún route, starting from August 21, 2019. During the press conference held in Mexico City International Airport for the Mexico City and Cancún inaugural flights, Turkish Airlines Chairman of the Board and the Executive Committee, M. İlker Aycı, said; “We continue to expand the borders of our flight network within the framework of our growth strategy. Following Bali, we are happy to be able to connect these two important cities of Americas to 125 countries around the world. From this day forth, our guests traveling to Mexico City and Cancún will be able to fly with the comfort of Turkish Airlines. We believe our new flights will strengthen the ties between Turkey and Mexico in every way.”

To view the flight schedules please visit www.turkishairlines.com, contact the call center at +90 212 444 0849, or visit any Turkish Airlines sales office.
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