ONLY DIVINE LOVE BESTOWS THE KEYS OF KNOWLEDGE AND POWER
Mr. Thomas John

ARTHITIS: AN OVERVIEW
Prof. Dr. D M Vasudevan

PRANA HEALS YOUR BODY NATURALLY AND DIVINELY
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OSTEOARTHRITIS & MENOPAUSE: ANY CORRELATION?
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PREVENTION IS BETTER THAN CURE: HIGHLIGHT ITS IMPORTANCE ALWAYS
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RHEUMATOID ARTHRITIS: CLINICAL FEATURES AND INVESTIGATIONS
Dr. (Lt General) Ved Chaturvedi

CONVERSING ABOUT DIFFERENT TYPES OF ARTHRITIS WITH PROVEN LIVING EXAMPLES
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30-33  MIRACULOUS RECOVERY FROM RHEUMATOID ARTHRITIS
I am proud to bring out this 22nd edition of Techagappe. During the last 5 years of its existence, this magazine is being regularly published every 3 months. This edition covers various aspects of arthritis. Here we have tried to include the best stories and medical articles to make the reader more fascinated.

The first article is from Agappe’s MD’s desk, where he explains Agappe’s value system and motto of spreading divine love across globe through its product and services. Agappe always believes in serving mankind which is a noble cause and key to success. In this session, readers can understand how Agappe has marched forward in the IVD industry, following the value system close to our heart.

In the medical article session, we have included three articles on Arthritis. The first one is an overview of clinical presentation of Arthritis from my desk. The second one is from Dr. (Lt General) Ved Chaturvedi, from New Delhi discussing Rheumatoid Arthritis. The third story is from Dr. Annil Mahajan, Professor & Head, Postgraduate Department of General Medicine, Govt. Medical College, Jammu, checking the association between Osteoarthritis and Menopause.

Further in the life story session, we have three stories who have achieved their goals in life. First one is a story about Padma Shri Lakshmikutty Amma who is a tribal medical specialist for Arthritis and toxic therapy. The second story is on Indira Pulliadath, a Nutritionist who could overcome her distress of Rheumatoid arthritis by following a professional diet. The third story is on Mr. V. P Mohan from Bangalore, a veteran of Pharma industry managing his osteoarthritis symptoms successfully during his advancing years.

In addition, we have included two interviews to share the experiences of medical professionals. The first interview is with the Prof. (Dr.) M K Mondal, SCB Medical College and Hospital, Cuttack who discusses the hospital’s public support initiative for the welfare of mankind and to further emphasize their relationship with Agappe. Second interview is with Padmashree Dr. John Ebnezar, the world renowned orthopaedician discussing his life’s various turning points and success.

To empower the knowledge of IVD technicians, we have a technical article on laboratory procedure, highlighting Importance of understanding the error codes. I am glad to state that we have received very good feedbacks and great appreciating letters for the previous issues, out of which, some selected letters are published in this edition. We thank all the readers for their continued support. I am sure, this issue of the TechAgappe will give useful insights to the Arthritic problems, and different aspects of laboratory practices. Your constructive criticisms to improve the contents will be greatly appreciated.

With warm personal regards and wishing a very happy New Year.

Dr. D.M. Vasudevan
Awesome and Quite interesting

Congratulation to Agappe for achieving 25 Years of Success. Very happy to receive your news journal Techagappe. Last edition “Asthmatic Disease” was awesome. You could do improvements subsequently in every edition. Hats off to your contribution to the society by publishing such a creative and beautiful magazine for enhancing medical awareness among both public and medical professionals. Thank you. Keep in touch.

Dr. Mayank Purohit, Jaisalmer, Rajasthan

Techagappe is a reference book

Thank you Agappe so much for sending The Diagnostics News Journal “Techagappe”. It helps us in updating of new things happening in the medical arena. We are very much eager to read its content and now Techagappe has a vital place in our library as a reference book.

Pooja Laboratory, Raigad, Maharashtra

Neat and Crisp presentation

Hello Team Techagappe, I have seen your magazine in a key pocket and would like to subscribe Techagappe. I am a doctor by profession. The main thing which impressed me is the neat and crisp presentation of reading materials. I used to read many other health journals and this the one which gave me an awesome experience in reading. I could read and complete the magazine at a single stretch as the magazine is that much informative and interesting.

Dr. Tanupriya Bindal, Govt. Medical College, Chandigarh.

Success stories help doctors to treat panicked patients honestly

I, a Managing Trustee and all other Honorary Doctors of Thakershy Charitable Trust Hospital, serving poor and needy patients since 1983 here at Ahmedabad, Gujarat sincerely congratulate all members of Editorial Board as well as all respected learned Board of Directors of the Journal “TECHAGAPPE”. Through Techagappe, we came to know that Agappe is celebrating its Silver Jubilee year. Thanks for your most informative and useful journal Techagappe which gives very true and honest data and understanding about medical problems related to Pathological work. As your Journal is most attractive, we love to read, I would say it is a Silver Line in prevailing cluster of black clouds in Pathology and diagnostic work of Medical field giving hope to poor and needy patients to get true results of their tests without bias, guiding consulting doctors to treat panicked patients honestly. Last but not the least, complete layout of your journal articles everything is good. But most eye-catching department is your Photography department in journal. So my heartiest congratulations to Mr. Nelson Thomas. All Photos, printing are best, clear and self-explanatory.

Dr. T. Venkatesan, BNYS, Tiruchengode, Namakkal.

Well-presented, Up-to-date Info

TechAgappe is overall a well-presented magazine. I am very much impressed with the presentation of articles. I could not read this magazine from first issue onwards. Recently, I happened to go through two of your latest issues about Diabetology and Ovarian Disorders. All the contents are well placed in a systematic way and articles are up-to-date. I admire informative interview with the eminent Padma shri Dr. Manjusha Anagani. Thanks for keeping us updated through Tech Agappe.

Adithya R Nair, Doctors Lab, Payyoli

Seeking Subscription

I have gone through your esteemed Journal: Techagappe. It is very good. I am a Retired Professor of Pathology. I wish to receive your Journal, for my personal reading. Kindly include my name in your mailing list and oblige.

Dr. CH. V. Ramana Murty, Retd. Prof. of Pathology, Hyderabad.
Arthritis taught me lessons,
The Lessons to be transpired for all.
Don’t exit this life without you living live,
It’s not years, but life in your years that count.
Portraying my retrogressive anecdote in nutshell,
It is for your prudence, your lifestyle adaptation, sure.
Doctors divulged, it’s just Joint inflammation, mere arthritis!
Sans any exclusion, every joint gets affected with sustaining pain.
My whole mobility at stake with joint bulging and much protuberant,
Inch by inch, excruciating pain across the body, Joint creeks when moves,
Upset & distracted, mind you, sometimes painful existence teaches homework,
Capitulating my whole Confidence and Strength, Oh my God! It’s really harrowing!

Both knees, essentially besieged and agonized with inflammatory tissues & nerves,
Surgeons admonished me to restrain sports and swift movements altogether,
Only Knee Transplantation, the panacea for the harrowing forbearance.
Months together, medicines were only comrades for quick succour,
Simple Yoga practices prompted by my buddies bestowed relief,
Continual practice kicked in incredible, immense melioration,
Life style changes, mobility exercises, right nourishments.
And I am so comforted with great mobility with ease,
Yoga, the “Unison” chips in excellent remedies,
It opens up another world, far from pain,
Have courage & face real alternate,
And let’s swing to kid again.

Dr. Satheesh Kumar C.S
Senior Vice President,
Supply Chain Management, AGAPPE
Our organization has grown multifold and it is a privilege to address our well-wishers, who have made it possible to achieve this extraordinary feat. Our aim is to continuously grow and evolve as a human-centric organization has helped us reach this height. Agappe is based on the core values of Trust, Respect, Excellence and Care and this culture is knitted throughout Agappe’s fabric. As it is evident from our focus on the Silver Jubilee celebrations, our Motto, ‘Surging Innovations, Serving Mankind’ has led us to focus more on the aspect of this culture to be blended to it making it a reality. Our continuous stride to instill this concept into the hearts of each individual we touch, in the truest of sense, has led us to explore the traits associated with our core values that define the intricate nature and subtle benefits of consistent success.

We start this journey with the trait, ‘Empathy’, the strand that holds our core concepts. This trait with its depth to the core helps us to set our organization into motion.

As Agappe stepped into the arena of diagnostic industry, 25 years back, our vision was to establish globally as a premier in-vitro diagnostics corporation and to be the best partner in the diagnostic field for the welfare of mankind. Since the beginning, our mission was to expand and continuously improve our products and services with a world class R&D programme and to provide the best work environment for our employees to meet and exceed their true potential and to thrive in the world of excellence. 25 years of dedication has made us what we are today, one of the forerunners in the Indian diagnostics industry. The name Agappe in Greek means ‘Divine Love’, which is seen in every action we deliver through our product and services for the wellbeing of mankind. Let’s discuss the value system of Agappe, which is the core subject of our prosperity.
Empathy is the ability to understand and share the feelings of another human being and this can be attained by making our core values the basic essence in every action we do, in every reaction that follows through, in every process we create and follow. "Ubuntu is a philosophy of African tribes that can be summed up as – 'I am what I am because of who we all are'. That perfectly describes the way we view Empathy. We are belittled when others are humiliated, belittled when others are oppressed, belittled when others are treated as if they were less than who they are. The quality of Ubuntu gives people resilience, enabling them to survive and emerge as human despite all efforts to dehumanize them. An individual that is empathetic can do wonders and can create a possibility where he can win without making another person’s self-esteem at stake.

Coming back into our core concepts, ‘Trust’ plays its role in bringing in the characteristic behaviour. Our perception is a firm belief in character and strength - a combined trait that will take years to build but only seconds to diminish. In Agappe, we trust everyone and it is upon you to maintain the trust. Trust, in its core, is the central part of all human relationship including partnership, business operations and medical practices. Our actions and behaviour are based on these simple traits. The way we behave to others and how we accept our fellow beings is a result of the mental state of trust present in our mind towards them. Trust can always be related to our trust in God and this fills our soul with unconditional love. Unwavering trust in God creates an energy that radiates around in the form of Divine Love.

Taking our next trait of ‘Respect’ – it’s an attribute that builds up one’s character. As said by Earnest Hemingway “There is nothing noble in being superior to your fellow man; true nobility is being superior to your former self.” No matter whatever position you are in, respecting a fellow being shows your true character. This changes our perception as to how others see us. Being considered noble among our peers and by our competitors is a herculean task, yet there is nothing very difficult about it once we respect every individual. When we treat people as merely as they are, they will remain as objects but when we treat them as what they should be, they will become what they should be. To be able to speak the same way to the Managing Director and the cleaning staff, determines whether the respect is truly from within or just an act. I believe that respect is a quality that has a deep binding to selfless love.

"We exist to spread 'Divine Love' in the world by following the principles of Trust, Respect, Excellence and Care for everyone associated with Agappe. Divine Love is the unconditional Love for everyone around you. Serving others without any self-interest, giving with full heart unconditionally."

Prof. M.Y. Yohannan
Chairman, AGAPPE

As we move on, ‘Excellence’, it is a trait that has its vastness with innumerable sub-traits. Excellence, in my perspective, is a jigsaw puzzle that is only complete once all the pieces are aligned correctly. The complexity of the pieces is only limited to how clear our perception is on the picture is. In Agappe, we have tried to get this complexity reduced by making the pieces clear and transparent.

Speed is decisive factor that will let you see success when
you are matched against competitors that are equal. If I can break down speed, it is the pace of ‘Making decisions and executing the decisions’. It is imperative to develop speed as a habit. Failure to execute this attribute has made Individuals and industries to fall from grace. One can say, ‘A good plan violently executed now is better than a perfect plan set aside for next week’. This too has its limitations that must be checked by ‘Discipline’. Discipline is not limited to just your area of work but the overall conduct of the individual both in and out of the organization. Discipline is required in every form and has to be thought so as to bring an order and conduct in the overall process and procedure. A hard truth is that this word separates the great from the average! Discipline trains the mind and will create focus on what is at hand. A focused mind will help you see the big picture and brings you to the essence of what is needed to be done. If you figure that out, the decision will be made just like the switching on of a light bulb.

Making our progress into exploring Excellence, a trait that is vital in every field of work is ‘Ownership’. Ownership is a feature that has high importance in any field of work, a trait that pushes an individual to achieve what is assigned to him. In simple words, ‘Ownership is taking the ‘initiative’ to bring about positive results’. An obligation of an individual to the organization is in terms of the results he creates and this obligation makes the individual to act in the best way possible so that the expected result is impacted. Even though you may lead a team but at the end of the day, you must take the accountability and the ownership of the results of your actions. Taking ownership shows others that they can trust you with doing the right thing. Once every individual feels the same or has a belief that this culture is nurtured in the work environment, the sense of ownership will be evident in their work and assignments. The biggest advantage of ownership is that you will be focused on the success of the task and you will be ‘result-oriented’. As one of the world leading keynote speakers, Art Turock says, “There is a difference between interest and commitment. When you are interested in doing something, you do it only if the circumstances permit. When you are committed to something, you accept no excuses, only results”. The idea is to have a result-oriented mindset.

As Victor Hugo proclaimed, “Initiative is doing the right thing without being told”. Excellence becomes the hallmark feature in the character of a true leader. As noticed widely in workplaces globally, there are three types of people: those who make things happen, those who watch things happen and those who wonder what happened. The growth of an organization is possible only by the team who has this innate trait of initiative. It is a character that can be imbibed by the personnel at any stratum of the work hierarchy. This can be achieved by the self-assertive nature, proactive approach and persistence in overcoming difficulties that arise in the pursuit of a goal. The ability to see something that needs to be done and stepping up to do it is a game-changing habit that can help you to stand out from the crowd. A person who updates his knowledge is always honing his skills to be a formidable force in every single scenario he faces. To be ignorant of what is happening is synonymous to taking oneself to the gallows. An Initiative to learn new things is a character that defines excellence. If you think you know everything about a subject, you are the greatest fool in that field. The cognition of every individual urges to push forth to gain new knowledge and it is up to each one of us to chase this urge. There are many exemplary historical figures who had set examples for this excellence. The fabled stories of Dr. APJ Abdul Kalam and B R Ambedkar had this ‘excellence’ element that elevated them to their monumental achievement, which we take pride in.

‘Care’ - even though in our chronology of defining our core values, care is placed at the very end, it invariably defines the
overall culture of our organization and the dependency of Vision and Mission revolves round this single value. Care can be defined as the process of protecting someone and providing what that person needs. The healthcare industry is totally based on this core value. Care is a trait that defines a person and this trait will be highly visible and recognizable by others. We associate care with different characters that play in our life.

It’s a quality that is reflected to everyone that we interact. Precisely speaking, “To know how much a person cares, look at their garden, their children, their pets”. The way they treat them shows how much the individual has the sense of care in their heart. Care doesn’t mean that it should be a pleasing quality but should make an individual grow completely into a very sensible and responsible individual. In conclusion, care is a trait that seems so little and takes a miniscule effort but has a profound reach to anyone that experiences it. This can make wonders or even transform the misfit and unwanted into responsible and socially just individuals.

As a conclusion, we can say that the true foundation is 'Integrity', which has an underlying effect on the core values and with-out which the said values will be deemed futile. It is your choice of actions and thoughts based on your values rather than focusing on a personal gain.

A person with integrity can pull everything together to make things happen no matter how challenging the circumstances are. As Warren Buffet has rightly proclaimed, “Look for 3 things in a person - Intelligence, Energy and Integrity. If they don’t have the last one, don’t even bother about the first two.” This shows us that even being a person of integrity does not make you perfect but it surely makes you authentic. I truly believe that with the lack of integrity no company can ever have a positive word of mouth. 'Listen with curiosity, speak with honesty and act with Integrity’ - this is engraved in our values, imbibed in our soul and truly radiates our energy around coupled with Divine Love.
There are around 200 types of arthritis which are grouped into seven main groups, namely (a) Inflammatory arthritis (b) Degenerative or mechanical arthritis (c) Soft tissue musculoskeletal pain (d) Back pain (e) Connective tissue disease (f) Infectious arthritis and (g) Metabolic arthritis. Let’s discuss it in detail.

Arthritis is a term used to mean any disorder that affects joints. The term is derived from ‘arthr’ (Greek) meaning joint of limb and ‘itis’ meaning inflammation. Evidence of arthritis has been found in Egyptian mummies circa 3000 BC. More than 50 million adults and 300,000 children have some type of arthritis. It is most common among women and occurs more frequently as people get older. About 20% adults have arthritis, while 40% of those with arthritis have limitation in joint activity. Some people may be genetically more likely to develop arthritis. Additional factors, such as previous injury, infection, cigarette smoking and physically demanding occupations, can increase the risk of arthritis. Overweight and obesity can contribute to both the onset and progression of arthritis.

Different types of Arthritis

There are around 200 types of arthritis, which are grouped into seven main groups, namely, a) Inflammatory arthritis b) Degenerative or mechanical arthritis c) Soft tissue musculoskeletal pain d) Back pain e) Connective tissue disease f) Infectious arthritis and g) Metabolic arthritis.

The most common forms are osteoarthritis and rheumatoid arthritis. Other diseases in which joint pain is the important symptom include Gout, Septic arthritis,
Ankylosing spondylitis and Juvenile arthritis. Joint pain can be a symptom of other diseases, where the arthritis is considered to be secondary to the main disease; which includes Psoriatic Arthritis, Ulcerative Colitis, Henoch Schonlein Purpura, Sarcoidosis and Systemic Lupus Erythematosus.

Symptoms include pain, swelling and stiffness in joints. In some types of arthritis, other organs are also affected. Onset can be gradual or sudden. Symptoms may include inability to move joints of the hand or leg, malaise and fatigue, weight loss, muscle aches and pains and muscle weakness. Arthritis can make it very difficult for individuals to be physically active, contributing to an increased risk of obesity, high cholesterol or vulnerability to heart disease. People with arthritis are also at increased risk of depression.

Osteoarthritis (OA)

It is also called degenerative arthritis and is the most common form of arthritis. It affects about 4% of the population. More than 50 percent of women have some degree of osteoarthritis by age 65. Osteoarthritis is a degenerative joint disease usually occurs with age. It affects mainly weight bearing joints of the body, including knee, feet, back, and hip. Pain in osteoarthritis tends to be associated with morning stiffness, which eases relatively quickly with movement and exercise. In later stages, the pain can be debilitating and prevent one from doing activities. The disease is acquired from daily wear and tear of the joint. Osteoarthritis begins in the cartilage and eventually causes the two opposing bones to erode into each other. Severe arthritis, particularly if it affects your hands or arms, can make it difficult for you to do daily tasks. Arthritis of weight-bearing joints can make the person difficult to walk or sit up comfortably. In some cases, joints may become twisted and deformed. Other risk factors for osteoarthritis include prior joint trauma, obesity and a sedentary lifestyle. When the joint symptoms of osteoarthritis are mild or moderate, they can be managed by balancing activity with intermittent rest, hot fomentations, maintaining a healthy weight, using assistive devices, along with pain relievers or anti-inflammatory medicines. If joint symptoms are severe, joint replacement may be necessary.

Rheumatoid Arthritis (RA)

It affects about 0.3% of people. It is a disorder in which the body’s own immune system starts to attack body’s tissues. The attack is not only directed at the joint but towards many other parts of the body. Most of the damage occurs to the joint lining and cartilage, which eventually results in erosion of two opposing bones. RA often affects the smaller joints in the fingers, wrists and can lead to severe deformity within a few years if not treated. Pain in rheumatoid arthritis is generally worse in the morning and associated with stiffness lasting for a few hours. The risk factors are family history of rheumatoid arthritis and exposure to tobacco smoke. Blood tests include rheumatoid factor (RF), antinuclear factor (ANF) and specific antibodies. Early diagnosis and aggressive treatment is critical. Remission may be achieved through the use of one or more medications of antirheumatic drugs. The goal of treatment is to reduce pain, improve function and prevent further joint damage.

Gout

It is also called metabolic arthritis. Gout affects about 1–2% of the population. It is caused by deposition of uric acid crystals in the joint. Uric acid is formed in the body from purines, a component of DNA or nucleic acid. Uric acid is increased when the body produces too much uric acid or does not excrete enough uric acid. This excess uric acid forms crystals in and around the joint, resulting in sudden spikes of joint pain, or a gout attack. Gouty attacks may be precipitated by alcohol intake. Often the patient has a few drinks and go to sleep symptomless but is awakened during the early hours of the morning by excruciating joint pains. The typical gouty arthritis affects the big toe, of the foot, but with time, it can occur in many joints and be quite crippling. Long periods of remission are possible, followed by flares lasting from days to weeks. Sometimes it can be chronic. Re-
persons with psoriasis. With psoriatic arthritis, most individuals develop the skin problem first and then the arthritis. The typical features are of joint pains, stiffness and swelling. The disease does recur with periods of remission. A small percentage develops chronic destructive form of arthritis, which destroys the small joints in the hands and can lead to permanent disability.

Systemic Lupus Erythematosus (SLE)

It is commonly called as lupus, and is a systemic collagen and vascular disease with red rash on the face, often in the shape of a butterfly across the nose and cheeks, sensitivity to the sun, painful or swollen joints, fever, extreme fatigue, depression, kidney problems and low blood count. Lupus can affect the joints, skin, brain, lungs, kidneys, blood vessels and cause other tissues. The SLE is an autoimmune disease where the immune system produces antibodies to cells with widespread inflammation and tissue damage. The cause remains unclear but it could be linked to genetic, environmental and hormonal factors.

Childhood Arthritis

Juvenile Idiopathic Arthritis (JIA), also known as Juvenile Rheumatoid Arthritis (JRA), occurs in childhood and can cause permanent damage to joints. It may be due to immune system problems. Symptoms of childhood arthritis include a joint that is swollen, red, or warm, a joint that is stiff or limited in movement, limping or difficulty using an arm or leg, red eyes, eye pain, especially when looking at light and swollen lymph glands.

Fibromyalgia

Fibromyalgia is estimated to affect 2% of the population. It usually starts during middle age or after but it can affect children also. Fibromyalgia can involve widespread pain, sleep disturbance, fatigue and depression. The persons may experience abnormal pain, where they react strongly to something that other people would not find painful. The causes of fibromyalgia are unknown but some factors associated with the disease are stressful or traumatic events, injuries, viral infections and obesity. It is more common among females.

Treatment of arthritis in general

Treatment options vary
depending on the type of arthritis and include physical therapy, lifestyle changes (including exercise and weight control), orthopedic bracing and medications. Medications can help reduce inflammation in the joint which decreases pain. Moreover, by decreasing inflammation, the joint damage may be slowed. Joint replacement surgery may be required in eroding forms of arthritis.

**Physiotherapy**

Physiotherapy has been shown to significantly improve function, decrease pain and delay the advancement of the disease. Exercise often focuses on improving muscle strength, endurance and flexibility. Take regular breaks while you keep moving. Smoking increases arthritic pain and hence smoking should be avoided. Depression is more common in people with arthritis. Treating depression with antidepressants and other therapies reduces not only depression symptoms but also arthritic pain. Applying heating pads to aching joints, taking hot baths or showers or immersing painful joints in warm paraffin wax can help relieve pain temporarily.

**Medications**

The medications start with analgesics (paracetamol), which may be upgraded to non-steroidal anti-inflammatory drugs (NSAIDs) like ibuprofen or naproxen. For more severe cases of arthritis, intra-articular corticosteroid injections may also be considered. Creams and ointments containing menthol or capsaicin may be rubbed over a painful joint can lessen pain. Disease-modifying antirheumatic drugs (DMARDs) are used to slow or stop the immune system from attacking the joints. Examples include methotrexate. Corticosteroids (prednisone) reduce inflammation and suppress the immune system.

**Surgery**

Arthroscopic surgery for osteoarthritis of the knee provides some additional benefit. In late cases, knee joint replacement may be required.

**Natural therapies**

Various herbs such as turmeric, garlic, ginger, black pepper, green tea and spices have been recommended. Meditation, yoga, deep breathing, listening to music also will be useful for relaxation and to reduce the joint pain. Some people get pain relief through acupuncture.

Massage might improve pain and stiffness. Massage with ayurvedic oils are used by some people with encouraging results. Transcutaneous electrical nerve stimulation (TENS) for knee osteoarthritis is effective for controlling pain. Low level laser therapy may be considered for relief of pain and stiffness associated with arthritis. Pulsed electromagnetic field therapy may also improve functional quality of joints in some patients.
Hailed as the grandmother of the jungle, Lakshmikutty (76), fondly called as Lakshmikutty Amma is a Padma Shri recipient, the country’s fourth highest civilian honour for her breakthrough practices in traditional medicine. A tribal woman from Kallar forest area, Thiruvananthapuram; Kerala, Lakshmikutty Amma so far has saved more than 400 patients from poisonous snakebites. Many patients come from various parts of the state and neighbouring Tamil Nadu seeking remedy and herbal medicine for various diseases especially patients suffering from Arthritis and other life style body disorders.

Prior to receiving Padma Shri in 1995, the Kerala Government felicitated her with Nattu Vaidyaratnam Award. Lakshmikutty Amma belongs to Kaani tribe and has knowledge of more than 500 varieties of traditional herbal medicine. A teacher in Folklore Academy, she also writes poems and dramas. She grows several medicinal herbs and plants around her hut and uses them in the production of medicines. She dreams to convert her hut to a small hospital where patients requiring long-term treatment can continue to stay. But before that, she points out the necessity of a good road for the patients to reach her home without difficulty. She is also invited to give lectures on natural medicine at various institutions across the southern states. At Government College, Karyavattom, she is a regular invitee to take classes on Botany.
She is quick to shift our attention to the roads, if that hard terrain of stones and sand can be called so, through which we reached her home. “There is no proper road to our settlement. There are several families in this area and it is not easy for us to reach the outside world. Many of my patients also have to travel through this so-called road to reach me. If there were proper roads, my two sons would have been alive now,” she laments the untimely demise of her sons. Lakshmikutty Amma’s elder son, who worked as an auditor with the cooperative bank died on his way home when a wild elephant attacked him. Her younger son, who was differently-able, died after a heart attack in 2015. She has taken the matter of road to every minister and media person possible, but there has been no progress so far. Her husband Mathan Kaani (82), whom she married when she was only 16, passed away in 2016.

**Childhood spent in the abode of nature**

Lakshmikutty Amma was the seventh child of her parents. “The first two kids of my parents passed away soon after birth. A year later, my elder sister was born, who now lives across the other bank of the river. I have two elder brothers who also live nearby. Another elder brother passed away. I was the seventh child for my parents in the Malayalam year 1119, Meda Masam (1944, May 8th.) Shortly after my birth, my father passed away. My grandparents took care of me during my childhood days,” she recalls.

She remembers that it was her insistence which made her mother send her to school when she was five years old. At that time, the people of Kallar wanted to establish a school for their kids. An abandoned horse shelter of the Travancore Kingdom near their place was modified to a primary education centre. Within a few years, government undertook this and turned it to a tribal school.

For the education after Grade V, Lakshmikutty Amma had to join the school at Vithura. From her home, they had to walk 10 km to their new school and 10 km back to their home accompanied by her elder brother. She discontinued her education at Grade VIII due to unfavourable conditions of her household. Later, when she became a mother, Lakshmikutty Amma insisted that her kids acquire good education as she knew the importance of education. Her second son now works as a Ticket Examiner with the Southern Railways.

She learned mostly about herbal medicines from her own mother. “You gain knowledge through different means. Some from your own experience, some you acquire from others and some through trial and error. Reading has also helped me in acquiring more knowledge. I have been practising this treatment for the past 46 years. Right from our childhood, we are taught about the herbs and their medicinal qualities. Now people don’t even know the plants which grow on their own garden or courtyard. Sometimes for patients who consult me over phone, I ask them to learn about Botany first so as to identify the herbs and plants available near their house.

It could reduce my job to a great extent,” she points out. Lakshmikutty Amma tells how tribal people are now chased off from their traditional homes. “Earlier, the forest used to be our own. We protected it as our own. If the forest is well maintained, it meant that our community is indeed well-maintained. Now, we are at the mercy of forest officials. We are also
against tourists being given a free hand at forests. We go to the hills and the deep forests only during certain occasions and only after doing prayers. It is not a tour for us but almost like a sacred tradition,” she refers to the Agasthyarkoodam, the second highest peak in Kerala, which is considered to be sacred by certain tribal communities.

**Treatment tales**

There are many patients coming from several parts of Kerala and Tamil Nadu for treatment. Lakshmikutty Amma attends to all of them. Yet, she insists the patients to take their diet seriously while undergoing treatment. During the treatment, if the patient eats according to their desire, then the medicine will not be effective and sometimes could even be counterproductive. She provides Kashayam, made of several herbs and medicinal plants, for arthritis. “It was a few days ago a patient came to me with rheumatoid arthritis. The patient was sceptical whether I will be able to heal her. I told her the same thing, “If you follow my diet and medicines regularly, there will be results,” she says with a smile. Several patients have improved their situation through her medicines alone. She insists that the patient must meet her personally even though in certain situations she has advised medicines over phone. There is a spider called Kaduva Chilanthi (Tiger Spider) in the forest. During its mating season, if it comes under a threat, it might bite even human beings. Though it might not lead to death, the difficulties associated after its bite is hard. The joints would get curled up and it might be hard to straighten your own finger. The treatment to that spider bite is rigorous as there are many things to be followed.

Kizhi treatment must be applied to the joints of the body of the affected person. There are medicines to be consumed as well as to be applied on the body. Thalam must be given to the head at regular intervals. If the treatment is properly followed, there will be assured relief in five days. When compared to the treatment of snake poison, the treatment to spider poison is harder. I have treated more than 400 persons from different poisons including that of this specific spider.

“You will be pleasantly surprised listening to the story of Kerala's tribal lady Lakshmikutty. Lakshmikutty is a teacher in Kallar and still resides in a hut made of palm leaves in a tribal tract amidst dense forests. She has created 500 herbal medicines relying solely on her memory. She has mastery in synthesizing medicines used for treatment of arthritis, snake bites and many other diseases. Lakshmi is continuously serving society with her knowledge of herbal medicines. She has been honoured with the Padma Shri for her contribution to society”, said the Prime Minister of India Shri Narendra Modi in his Mann Ki Baat.

People from several parts of Kerala and Tamil Nadu come to me seeking remedy for diseases like arthritis, psoriasis, jaundice and even for varicose vein. I have treatment for all these provided the patients adhere to strict diet restrictions. There are many patients who get considerable improvement in their situation,” she
gives out a tranquil smile.

**Life after the national award**

“It was the District Collector, K Vasuki, who informed me over phone that I was chosen for the Padma Shri award. Honestly speaking, the award has not changed me at all. If someone comes before us seeking help, we are bound to help them. We are doing our duty and it is not for any award,” she looks extremely poised and dignified when she says this. After she received the national award, the number of people who come to see her has increased manifold. The interviews also increased. Lakshmikutty Amma has a little complaint that this has, in a way, reduced her time to read and to spend time within her locality.

Besides this, Prime Minister Narendra Modi spoke about Lakshmikutty Amma’s contributions in his monthly ‘Mann Ki Baat’ radio programme shortly after she received the national honour. “You will be pleasantly surprised listening to the story of Kerala’s tribal lady, Lakshmikutty. Lakshmikutty is a teacher in Kallar and still resides in a hut made of palm leaves in a tribal tract amidst dense forests. She has created 500 herbal medicines relying solely on her memory. She has mastery in synthesising medicines used for treatment of snake bites. Lakshmi Jiji is continuously serving society with her knowledge of herbal medicines. She has been honoured with the Padma Shri for her contribution to the society,” said the Prime Minister in the speech. This also made news in several media.

The award giving ceremony was on March 20, 2018, and she attended the function with her son. “The president shook my hands and said, "Lakshmikutty, Congratulations!” She is quite enthusiastic to say that they were also invited to join the President at the Governor’s residence when he visited the state.

**Challenges faced by the sector**

The real threat faced by people like us who do this kind of traditional medicines is the non-availability of such medicines. Traditional practitioners had to keep the ingredients of the medicine as a secret because otherwise people will destroy it with overuse. During a meeting of traditional medical practitioners in Botanical Garden in 1995, I mentioned a plant which could be used as a medicine for a particular disease.

A woman who was in that meeting conducted research on it and found that it was true indeed. But once the research was published, people began to collect this plant from hills and forests through tribal people. Now it is scarce to find. The plant only grows in the hilly terrains and it is impossible to grow it in regular fields.

She is also of the opinion that the forest fires, once in a while, are vital for the nature to produce new trees and plants. “The grass cover often acts as a blanket for wildlife. Herbivores typically eat grass as they couldn’t reach for the tree leaves. Now there is scarcity of herbs and such plants as the number of such herbivores increased. A forest fire will effectively keep the number of these animals and their grazing in check and hence new trees will sprout from the fields,” she points out.

**Tips from ‘Amma’**

“You should eat and exercise moderately to live long. You should not have greed for anything. The nature has everything for everyone to live quite well and if you share the resources with your fellow beings, you can live happily and peacefully.

Since there is an increase in high BP cases, I will suggest a traditional remedy. It’s the extract of Moringa ila (Drumstick leaves) along with a small sized Veluthulli (Garlic). The quantity must be 10 ml. You should not increase the quantity. Drink it for 5 days in the morning. Your BP will be in control.” - This is an assurance from an experienced doctor nurtured by the purity of the forests.
Interview Prof. Dr. M K Mandal (Biochemistry Specialist)

PREVENTION IS BETTER THAN CURE
HIGHLIGHT ITS IMPORTANCE ALWAYS

Prof. Dr. M K Mandal, M.B.B.S., M.D.

Prof. Dr. Manmath Kumar Mandal is the Head of Biochemistry Department, Sriram Chandra Bhanja Medical College (SCB Medical College and Hospital), Cuttack, Odisha. He shares some time with TechAgappe. Excerpts from the interview:

TechAgappe: Tell us a bit about your childhood, education and career.

Prof. Dr. Manmath Kumar Mandal: My schooling was mostly done in Rairangpur, Odisha itself. I joined VSS Medical College, Burla, for my MBBS and later, I went to Institute of Medical Sciences, BHU, Varanasi, for doing MD in Biochemistry.

After studies, I joined SVP Institute of Pediatrics (Sishu Bhawan), Cuttack, as a lecturer in Biochemistry. After 4 years, in 2000, I was promoted and transferred to VSS Medical College, Burla, as Assistant Professor. I have a deep relationship with SCB Medical College and Hospital, Cuttack, and VSS Medical College, Burla, as I have served in various capabilities at these two hospitals. In 2007, I joined MKCG Medical College, Berhampur, Odisha, until 2012. I became a Professor in the same year and HOD of Biochemistry at VSS Medical College and Hospital. From November 2018, I joined SCB Medical College and Hospital, Cuttack, Odisha again as the HOD of Biochemistry Department.

SCB Medical College, which was established in 1944, is a pioneer institute in Eastern India in the realms of medical teaching, training, research and patient care. A small dispensary during that time meant to provide medical assistance to pilgrims of Lord Jagannath in Puri has now turned to a full-fledged Medical College and Hospital with several departments.

It is one amongst the very few Medical Colleges of India which have been permitted to admit 250 students for MBBS course. PG courses in different specialties (MD/MS) were started in 1960. Since 1981, postdoctoral training, leading to the award of D.M and M.Ch Degree, was instituted in the disciplines of Cardiology and Neurosurgery respectively. At present, this medical college extends its facility for PG training in all the 22 broad specialties as well as PG studies in super speciality subjects like Cardiology, Neurology, Nephrology, Endocrinology, Gastroenterology, Neurosurgery, Urology, Cardio-Thoracic Surgery, Pediatric Surgery and Plastic Surgery. Besides these, facilities are available in other super speciality disciplines viz. Clinical Haematology, Hepatology, Surgical Endocrinology and Surgical Gastroenterology.
The people of Odisha give importance to pre-health checkups and tests. Now they are more health conscious. It could be the influence from different media that they access. Moreover, on behalf of the Medical College, the Community Medicine Group conducts awareness programs to the people about the importance of timely health checkups and tests.

Dr. M K Mandal sharing his experiences with team AGAPPE

In addition to medical undergraduate courses and post-graduate courses, Govt. of Orissa started Bachelor in Dental Surgery (BDS) course with 50 seats in a separate wing named as the Dental Wing of SCB Medical College, Cuttack, in the year 1984. Besides the BDS course, the dental college undertakes postgraduate training in six subjects. The institution has its Level A Trauma Centre, which deals with polytrauma patients, as it is situated alongside the NH. This centre is of great benefit to victims of road accidents. State-of-the-art treatments like bone marrow transplantation and renal transplantations are offered to needy patients here.

At present, the SCB Medical College, with its attached hospital, is a huge institution comparable to the very best of its kind in our country. With respect to teaching, training, research and clinical service, SCB Medical College maintains an excellent reputation and has high standards.

Now, referral patients from all over Odisha come to SCB Medical College and Hospital. Although there are other medical colleges, if there is a situation in which they can’t handle, it will be referred to us. This is a premier institute. There are also patients from West Bengal who come to us for medical assistance.

TA: We heard that the Molecular Genomic Lab was opened here recently. Tell us about it.

Prof. Dr. M K Mandal: Yes, in fact it was unveiled by the Health and Family Welfare Minister of Odisha, Naba Kishore Das, to the research students and public in August 2019. You
must have seen the queue in front of our lab. That’s the faith people have on us. The number of tests conducted in a day is around 18,000 to 19,000. The lab is well equipped with ultra-modern equipment worth more than 5 crores and at present, we are able to detect cancer mutations even in pre-cancerous stage.

The laboratory is also helpful in determining Malaria, TB, methicillin-resistant bacterial infections in ICU and detecting drug sensitivity within a few hours. Gene sequencing can also be done at the facility by checking the DNA sequence and mutation disease susceptibility to diabetes mellitus, hypertension, Alzheimer’s, depression etc.

Earlier, samples were sent outside the state for tests and patients had to spend more and wait for 15 to 20 days for the report. Now, all these tests are done at the laboratory free of cost and the results are available in a few hours.

**TA:** How do you evaluate the people of Odisha? Do they give importance to pre-health checkups and tests?

**Prof. Dr. M K Mandal:** Yes, the people of Odisha give importance to pre-health checkups and tests. Now they are more health conscious. It could be the influence from different media that they access. Moreover, on behalf of the Medical College, the Community Medicine Group conducts awareness programs to the people about the importance of timely health checkups and tests.

**TA:** Your views on preventive testing against disease testing.

**Prof. Dr. M K Mandal:** If you check the statistics, you will find an increase in the number of people affected with lifestyle diseases. Diabetes, high blood pressure, stroke, obesity, cardiac disease, cancer, liver problems, kidney and lung diseases are now present in almost all households. The situation is alarming that even many youngsters are prey to these diseases.
TA: What is your opinion or suggestions about the present condition prevailing in the IVD industry in India?

Prof. Dr. M K Mandal: It is estimated that in India, there are around one lakh laboratories in the private sector. I’m glad about the fact that diagnosis is accessible to more and more people of our country. The thing which concerns me is that how many of these labs are actually quality conscious. Several labs in the private sector are run as a mere ‘business’ rather than serving the healthcare sector.

Only people with proper qualification must be allowed to run labs. My suggestion is that labs which don’t belong to this category must not be allowed to function. Government, Health Department and Medical Boards must take care of such matters.

TA: As a doctor, what is your message to diagnosis and treatment of arthritis?

Prof. Dr. M K Mandal: The diagnosis and treatment of arthritis require a hands-on approach. By examining joints, muscles and observing the symptoms, the doctor can get an idea of your situation. Though lab tests aren’t needed for every form of arthritis, they are very important to verify and confirm the presence of some diseases. Tests are often helpful in confirming rheumatoid arthritis, lupus and a few other inflammatory forms of arthritis.

Yet, all forms of arthritis cannot be confirmed by lab tests. Other tests, including X-rays, various types of angiograms (studies of blood vessels) and magnetic resonance imaging (MRI) may be required to diagnose osteoarthritis, determine the cause of chronic back pain or examine internal organs affected by some forms of arthritis.

Even then also, lab tests are essential for the diagnostic and treatment processes. The right tests, along with your doctor’s own observations and your participation in the process, can help you get the safest and most effective treatment for your disease.
India is deemed as the world’s capital of Diabetes. The diabetic population in the country is closing to hit the alarming mark of 69.9 million by 2025. So, it is very important to have an accurate and precise blood glucose measurement for the management and prevention of the major complications in diabetes.

Different methods are available to estimate Glucose. In that, Hexokinase method is considered as the most specific method for measuring glucose in serum or plasma. The Hexokinase method is developed by the American Association of Clinical Chemistry and this method has been accepted as the reference method for glucose determination. This method came into prominence in the IVD industry in 2005 but that was exclusively for closed system analyzers. Agappe has launched this advanced technology with the brand name, ‘AGGLH’, to the open market for the first time in India so that all the laboratories and ultimately, the patients also can reap the benefits.

Being a core reagent manufacturer, Agappe has taken up the responsibility of availing this superior glucose testing method to each and every laboratory so that even semi-auto users can enjoy the privilege of Hexokinase method in an affordable price. We, as a company, are always focused on ensuring innovation through affordability. Yes, it is the high time to change the way of Glucose testing and it is the right time to change to the Glucose Hexokinase method.

**Glucose Hexokinase - Principle**

In Glucose Hexokinase, the reaction uses glucose-6-phosphate dehydrogenase and yields highly specific results. The hexokinase enzyme in the presence of Adenosine Triphosphate (ATP) converts glucose to glucose-6-phosphate. Glucose-6-phosphate and the cofactor Nicotinamide adenine dinucleotide phosphate, oxidized form (NADP+), are converted to 6-phosphogluconate and nicotinamide adenine dinucleotide
phosphate, reduced form (NADPH), by Glucose-6-phosphate dehydrogenase. NADPH has a strong absorbance maximum, at 340 nm. The rate of appearance of NADPH can be monitored spectrophotometrically and is proportional to the amount of glucose present in the sample. Gross hemolysis and extremely elevated bilirubin levels (>20 mg/dL) may cause a false decrease in results. However, this method is not affected by ascorbic acid or uric acid levels.

Advantages of Hexokinase over GOD-POD method

1. Newer automated laboratories prefer to use Hexokinase method as this method has more specificity, precision and accuracy. The two enzymes involved in this method, both Hexokinase and Glucose-6-phosphate dehydrogenase are very specific and have almost negligible interference from other components in blood. Whereas in GOD-POD method, POD part is non-specific. If the patient has taken any reducing substance like Vitamin C a few hours before the test, the reported glucose value will be wrong due to its interference.

2. In Hexokinase method, the reaction graph is linear up to 1000mg/dL whereas in GOD-POD method, the graph will be a straight line up to 300mg/dL only. So, higher values will not be accurate unless the serum is diluted, otherwise the patient may have been incorrectly diagnosed.

3. Hexokinase method doubles the glucose estimation TAT (Turn-around time) efficiency by reducing the glucose testing time to 5 minutes whereas in GOD-POD method 10 minutes’ incubation time is required.

4. Glucose hexokinase is with calibrator and precision study always report an Excellent CV of <2% and which shows the reliability of Hexokinase method than GOD-POD method.

Diagnosis and management of Diabetes Mellitus is a complex matter. So, it is recommended that laboratories should use Hexokinase method, the reference method for accurate glucose testing. Now, Agappe is making the product available in market at an affordable price for all customers.
RHEUMATOID ARTHRITIS

CLINICAL FEATURES AND INVESTIGATIONS

Rheumatoid arthritis (RA) is an autoimmune disease in which the body’s immune system which normally protects its health by attacking foreign substances like bacteria and viruses mistakenly attacks the joints. This creates inflammation that causes the tissue that lines the inside of joints (the synovium) to thicken, resulting in swelling and pain in and around the joints. The synovium makes a fluid that lubricates joints and helps them move smoothly. If inflammation goes unchecked, it can damage cartilage, the elastic tissue that covers the ends of bones in a joint, as well as the bones themselves.

Dr. (Lt General) Ved Chaturvedi MD, DM, Senior Consultant Rheumatologist, Sir Ganga Ram Hospital, New Delhi, India.
Former President, Indian Rheumatology Association.

Rheumatoid Arthritis

Rheumatoid arthritis (RA) is a chronic systemic autoimmune inflammatory disease that affects mainly the small joints of the hands and feet. RA is one of the most common inflammatory joint diseases and causes premature mortality, disability and compromised quality of life.

Burden of RA

RA is widely prevalent throughout the world. The overall worldwide prevalence is 0.8% and steadily increases to 5% in women over the age of 70. RA is two to three times more common in women compared to men. In India the prevalence has been estimated to be 0.7%.

Basic pathology

The inflammatory process primarily affects the lining of the synovium, in contrast to osteoarthritis which primarily involves the cartilage. The inflamed synovium leads to erosions of the cartilage and bone and if the inflammatory process is unchecked leads to joint deformity.

Clinical (Articular) Manifestations

Clinical manifestations consist of pain, swelling, and tenderness of the small joints of the hands. It is very important to take a detailed history of the joint symptoms, particularly on the mode of onset, whether gradual or acute, the pattern of joints involved, and any variance in symptoms according to time of day.

Since RA is a systemic disease patients may therefore have accompanying symptoms like as fever, weight loss, and fatigue.

Onset

The most common form of presentation is gradual and insidious onset of joint pain and swelling occurring over weeks to months. Some patients may present with
an abrupt explosive onset polyarthritis. Still others may present with transient self-limited episodes of mono- or polyarthritis lasting days to weeks. This presentation is known as palindromic rheumatism. RA is classically a polyarticular disease but occasionally it may present as a monoarthritis; in such a situation more familiar causes of monoarthritis should be always ruled out like infectious arthritis, gout, and spondyloarthritis.

**Morning stiffness**

Morning stiffness (i.e. difficulty in moving around) lasting for 1 hour or more is a characteristic feature of RA. A similar phenomenon can occur if a patient is inactive for a period during the day. This is probably due to the accumulation of edema fluid within inflamed synovial tissues during sleep. The morning stiffness dissipates as edema and products of inflammation are absorbed by lymphatics and venules and returned to the circulation by motion accompanying the use of muscles and joints.

**Joint involvement**

The joints most commonly involved in RA are the wrists, small joints of the hands and feet, i.e the metacarpophalangeal (MCP) joints, proximal interphalangeal (PIP) joints of the fingers, interphalangeal joints of the thumbs, and metatarsalphalangeal (MTP) joints are most commonly affected. Distinctively the distal interphalangeal (DIP) joints are spared. As the disease progresses, larger joints such as the ankles, knees, elbows, and shoulders frequently become affected.

The thoracic, lumbar and sacral spine are nearly always spared in RA. However cervical spine involvement is not rare. Cervical spine involvement is seen in established RA. There can be atlantoaxial subluxation, which manifests as neck pain, but passive range of movement of the cervical spine is often normal. The most dreaded complication of atlantoaxial subluxation is spastic quadriplegia. The temporomandibular joint and sternoclavicular joints are also involved in varying proportions.

**Pattern of arthritis**

RA is a polyarthritis. Joint involvement is classically bilateral and symmetrical. The arthritis in RA is an “additive” form of arthritis, in that it is rare for symptoms to remit completely in one set of joints while developing in another. This is in contrast to rheumatic fever where the arthritis is migratory, in that symptoms in one joint subside completely before involving another. Asymmetrical joint involvement is seen when RA coexists with poliomyelitis, meningioma, encephalitis, neurovascular syphilis, strokes, and cerebral palsy. Joints on the paralysed side are typically spared.

**Physical examination**

Patients with suspected or confirmed RA should undergo a thorough initial physical exam and the extent of articular and extra-articular involvement assessed.

Patients should be followed every 2 to 4 months henceforth to monitor disease activity and response to treatment, the frequency depending upon the severity of the disease and the medication regimen.

Joint examination reveals symmetrical swelling and tenderness of the joints. While palpating the joint, focus should be on the joint line to detect fullness and synovial tissue swelling (synovitis). This is important because the joint swelling could due to bony enlargement (hypertrophy) which is seen in osteoarthritis.

Joint swelling is often confined to the joint capsule. While looking for joint swelling one must also look for joint tenderness, the range of motion of each joint, and any deformities of the joints. The presence of joint deformity, decreased range of motion, or mal-alignment suggests that the joint is damaged.

**Hand joints in early and established RA**

Synovitis of the wrists and elbows is easy to appreciate. In advanced stages of RA, there can be deformities like hyperflexion of the PIPs (Boutonniere Deformity), or hyperextension of the PIPs and flexion of the DIPs (swan neck deformity).

Other deformities include ulnar deviation of the fingers and subluxation of the MCP joints. There can also be loss of full extension of the elbow and loss of flexion of the wrist. These deformities are less commonly seen these days because of early diagnosis and treatment.

**Stages of Rheumatoid Arthritis**

**Stage 1**
- Body mistakenly attacks its own joint tissue.

**Stage 2**
- Body makes the antibodies and the joints start swelling up.

**Stage 3**
- Joints start becoming bent and deformed, the fingers become crooked. These reshaped joints can press on the nerves and can cause nerve pain as well.

**Stage 4**
- If not treated, the disease will progress to the last stage, in which there is no joint remaining at all and the joint is essentially fused.
ESR and CRP are the two most important biomarkers of inflammation in RA. These markers are usually elevated in RA patients with active disease and decline with treatment.

Shoulder synovitis can be difficult to assess because the joint lies deep and is covered by muscle. But there can be painful range of motion. Similarly hip joint involvement is difficult to examine clinically. Knee joint effusion is commonly observed in RA.

Large knee effusions may herniate posteriorly, creating a popliteal (Baker’s) cyst that can dissect or rupture into the calf, causing calf pain, swelling, pitting edema, which closely mimic deep venous thrombosis but ultrasonography can differentiate the two entities. Synovitis in the ankle may be due to inflammation in the tibiotalar joint (which mediates flexion and extension) or in the joints of the hind foot (which mediate inversion and eversion of the ankle). Range of motion of the tibiotalar joint is usually fairly well preserved early on, while diminished inversion and eversion are more common.

Physical examination of the MTPs in early disease reveals tenderness when the foot is squeezed. In more chronic disease, dorsal subluxation of the MTPs resulting in cock-up toe deformities, and hallux valgus (bunion) are commonly seen.

The cervical spine involvement in RA causes headache, neck pain, giddiness, paraesthesias, weakness, and bowel bladder symptoms. The development of any of these clinical manifestations in patients with RA warrants a neurological examination followed by an MRI to look for anatomical derangements of the cervical spine. Among the joints of the cervical spine the atlantoaxial joint is most prone to subluxation. Chronic synovitis may result in bony erosion and ligamentous laxity that result in instability and subluxation. Risk factors for development of cervical subluxation include older age at onset of RA, longer duration of RA, active synovitis, high CRP, and early peripheral joint subluxations.

INVESTIGATIONS

Routine blood investigations

At initial patient evaluation complete blood count including ESR, liver function tests, kidney function tests, and CRP should be done.

Anemia of a normocytic normochromic picture is seen in 25% patients, as mentioned above. The kidney function tests and liver function tests are usually normal. If the liver function tests are abnormal it suggest the presence of a concomitant disease process, and this may preclude the use of methotrexate (MTX) and leflunomide (LF). Abnormal kidney functions will warrant caution in the use of NSAIDs.

Sometime serum albumin can be low, which is a sign of ongoing systemic inflammation. There can also be increased gamma globulin production by B cells (hypergammaglobulinemia), leading to elevated serum levels of non-albumin protein (so-called protein gap or gamma gap).

ESR and CRP

ESR and CRP are the two most important biomarkers of inflammation in RA. These markers are usually elevated in RA patients with active disease and decline with treatment.
Rheumatoid factor (RF)

RF are antibodies against the Fc portion of IgG and can be of any immunoglobulin subclass (IgA, IgG, and IgM) but are most commonly IgM. RFs can be estimated in the laboratory by enzyme-linked immunoabsorbent assay (ELISA), or by nephelometry or by latex fixation. The cut off value for a positive RF varies depending on the methodology used in the local laboratory, but a common cutoff point is greater than 45 IU/mL ELISA or laser nephelometry, or greater than a titer of 1:80 by latex fixation.

RF is detectable during the course of disease in approximately 75% to 85% of patients with RA. RF is approximately 69% sensitive and 85% specific for the diagnosis of RA. The result of a positive RF should be carefully interpreted in the light of clinical findings. RF in low titres is positive in elderly individuals, in chronic infections like chronic hepatitis C and bacterial endocarditis, cryoglobulinemia, primary biliary cirrhosis. RF is also positive in other rheumatic diseases.

High titres of RF are associated with aggressive, destructive joint disease and extra-articular complications of RA, such as interstitial lung disease and rheumatoid vasculitis.

Anti-citrullinated peptide antibodies (ACPA)

ACPA are antibodies directed against the citrullinated residues of proteins. Citrulline is a non-naturally occurring amino acid generated by deamination of arginine residues on proteins by enzymes called peptidylarginine deiminases. Deiminated recombinant fillagrin protein in cyclic form is a particularly useful substrate to detect these auto antibodies. Newer assays detect non-cyclic citrullinated peptides.

ACPA are commonly detected in the laboratory by ELISA. They are more specific than RF for diagnosis of early RA. Their sensitivity is 70% and specificity approaches 96% for diagnosis of established RA. They have also been found to be present in the sera at least 10 years before the diagnosis of RA. The presence of high titres of ACPA in sera of patients with RA predicts a more erosive joint disease and radiographic joint destruction.

Radiology

Plain radiographs of the hands, wrists, and feet posterior anterior (PA) view should be obtained at baseline in patients with RA, and can be repeated periodically to ensure that additional damage is not occurring in the face of apparently effective treatment. The earliest change on radiographs of the hands and feet is periarticular osteopenia. More typical changes of RA are juxta-articular bony erosions and symmetrical joint space narrowing. Erosions usually begin at the bare area of the joint not covered by cartilage, such as the intracapsular articular margins. Bony erosions often begins very early (in the 1st year) and progresses rapidly within the first years from symptoms onset if disease activity is not controlled effectively. Late radiographic findings include subluxation and loss of joint alignment, due to bone and cartilage destruction and also due to laxity of the ligaments and tendons surrounding the joint.

Differential diagnosis

The most common causes of symmetrical inflammatory polyarthritis that may be confused with RA are the other systemic connective tissue disorders like systemic lupus erythematosus, systemic sclerosis, mixed connective tissue disease, psoriatic arthritis and Sjogren’s syndrome.

SWOLLEN HANDS RHEUMATOID ARTHRITIS
When seen from a middle-class Indian’s perspective, the life of Indira Shyju, had all the vibrant shades of a colourful dream. Indira Shyju was born and raised in Mumbai however her parents hailed from Kochi in Kerala and so she spent most of her school vacations in Kerala. After her marriage, she moved to the US with her husband and shortly thereafter was having a high-paying dream corporate job in one of the top health insurance companies there.

Her life was blessed with a loving husband and two sweet kids. Until the chronic inflammatory disorder - Rheumatoid Arthritis (RA) – presented itself in her life, everything was going quite well. But RA affected her life in such a debilitating way that she had to seek help to even do the simplest of chores in her kitchen! This state of affairs was doubly painful for her as Indira had a passion for cooking and she loved to cook and bake for her family. RA slowly began to take a toll on her both physically and mentally. Despite all her struggles, Indira hesitated to give up. With the support from her family and friends, doctors as well as online resources, the fighter in Indira regained her active life back and she now leads a better life.

Indira was diagnosed with severe RA in 2015. She had been working as a health economist/researcher for more than 15 years. Also, a pharmacist, she is currently based in Connecticut, USA, with her loving family. “My symptoms started suddenly. I was working fulltime and had a busy life professionally and also personally - cooking and taking care of our family of four and our home.

One day while I was at work, I felt extremely fatigued and experienced severe pain on my left hip. I went home thinking it was probably a bad case of flu and then at night, my right wrist started hurting. I took a pain reliever and went to sleep,” she recalls her first episode of RA.

Trouble came in the form of severe wrist pain the next day. Although she felt relieved from the hip pain, she couldn’t even move her wrist. She couldn’t even drive to the doctor and her husband had to take her for consultation. Doctor judged it to be ‘tendonitis’ considering her busy job schedule. Pain relievers were again prescribed. But Indira was more cautious...
as she knew her mother had a history of RA. She again approached her doctor with that information. Since Indira had told the doctor how she had been experiencing pain in several parts of the body, the doctor then ordered the tests. But her RA factor was negative and fearing it could be Lyme’s Disease, the doctor prescribed tests for that too. However, those tests also turned negative.

Meanwhile her pain increased day by day until one night she had again seek medical attention at the Emergency Care at midnight. The doctor on duty at the ER put her on doxycycline thinking that it could be Lyme’s Disease. Since it didn’t provide much relief, Indira pleaded her physician to send her over to a rheumatologist and thus more tests were conducted. Following that, in the RA diagnosis, it was found that her anti-CCP factor was considerably high (> 250).

Now, as the correct diagnosis was made and she had a pharmacist background, Indira was optimistic that she could get back to normal life with proper medications. She was prescribed methotrexate, which helped her pain levels to go down a bit but it kept coming back recurrently.

Her rheumatologist then increased her methotrexate dose to the highest for RA patients, which was 25 mg. Shortly after that, she had an episode of abdominal cramps where she passed out due to the pain. “My husband had to call 911 and I was rushed to the hospital. That experience extremely scared both of us and we asked the doctor if he could change the medication,” Indira recalls.

As requested, doctor prescribed her another medication - ‘lefluonamide.’ The side effects were worse this time with weight loss and breathing difficulties. She ended up losing 20 pounds in less than a month. What was even worse was that she had to gasp for air while climbing up the shortest flight of stairs in their house. All these made her to stop the medications altogether and to explore alternative therapies like naturopathy, ayurveda and homeopathy.

Quitting medications had its toll on her as her RA started to progress very fast. Within a period of three months, all her joints were affected. “I went off work on disability basis for a period of three months. During those three months, I tried ayurvedic treatment in India. But that didn’t help at all. After coming back to the US, I continued consulting with a naturopath from India, who had put me on a gluten-free, dairy-free and refined sugar-free diet.

I resumed work and continued with this diet but my condition changed from bad to worse”, She recollects. She was more affected emotionally. Even though she tried to remain positive, she began to feel the pangs of frustration and hopelessness growing in her. Her condition began to decline further and pretty soon she could hardly do anything in the kitchen. They took servants so as to prepare food for the entire family. “Looking back, this period was the lowest point in my life’s journey. I love cooking and it made me too depressed that time thinking that I might never be able to do much in the kitchen,” she seemed lost.
Indira has been following a Paleo diet which was founded by Dr Sarah Ballantyne, specifically the Autoimmune Protocol (AIP) that has been developed by some experts to reverse or control autoimmune diseases. “I really believe that food is medicine! A Paleo Autoimmune Diet is a ‘nutrient dense’, grain-free diet that focuses on fresh vegetables, fruits and good quality meats like wild-caught fish and grass-fed beef and chicken. Additionally, an AIP diet tries to eliminate some of the other potential inflammatory foods which include nuts, nightshades, spices and eggs for a period. After that, we can try to re-introduce these one at a time to see if it is inflammatory to our body or not. So to summarise, the Paleo Autoimmune Protocol eliminates the following from your diet: all processed foods, including refined sugar and flour, dairy, gluten, nightshades (tomato, pepper, eggplant and potato), nuts and all grains,” Indira assures as she is the living example of the goodness of AIP diet.

Indira in a session explaining how to control rheumatoid arthritis symptoms through Paleo Autoimmune Protocol

Indira in thoughts. Indira has such an affinity to cooking that back in 2014 itself she had started blogging (cook2nourish.com) to document traditional Kerala recipes that she learned from her mother.

She tried several diets and programs including veganism, Paddison program etc. and also started doing yoga. But her RA just kept on progressing. She checked online communities of RA warriors as a source of inspiration and to know how they were dealing with it. She had started working from home by then even though working was too terrible an experience for her due to the painful inflammation in her body. Depressed and scared Indira wondered where her life has reached and what she had dreamt about her life a few years ago.

Light at the end of the tunnel

Indira received the much-needed positive energy from a friend and co-worker, who suggested trying meditation too. The spiritual connection with a higher power, which was missing until then helped Indira to approach things positively. She likes to believe that it was this spiritual connection that helped her discover about a naturopathic doctor from California, who treated a lot of RA patients. Indira contacted her and she put Indira on the Paleo Autoimmune Protocol (AIP).

Confident to come out of this, she also decided to see a new rheumatologist, who diagnosed her condition as ‘severe RA’ based on her blood markers and the fast progression of the disease. The doctor’s recommendation was to go a biologic (rituxan) infusion. But being a pharmacist, she was aware of the side effects of biologics, the major one being increased susceptibility to infections. So Indira inquired about the possibility of doing a combination of oral medications – methotrexate and Plaquenil. "Luckily, my doctor agreed but he did not seem to have much faith in its effectiveness, considering the severity of my disease,” Indira adds.

Indira started the new medicine and the AIP diet together after her doctor agreed to try this combination regime, before the trial of biologics. The result was evident within 3 weeks of the new treatment plan as she started feeling much better. “The frequency of my severe pain episodes had dropped considerably, and pain levels had reduced, too. A month later, my ESR (marker for inflammation) had gone down by 10 points. My rheumatologist had not expected my inflammatory markers to go down so much in such a
short period of time since RA was severe and had affected all my joints. I continued to surprise him every month with my progress and my lowered inflammation levels,” she adds with a beaming smile.

Indira currently takes immunosuppressant medications to control her symptoms along with actively following dietary and lifestyle changes to help control the disease. Being a pharmacist, she is well aware of the side effects of the RA medications and hence likes to control her disease by eliminating all inflammatory foods from her diet, by taking anti-inflammatory foods and through lifestyle changes like yoga and exercise. Although this disease has made everything a little hard for her, she continues to cook, bake and blog with the help of her supportive husband and children.

She likes to believe that it was God’s grace that took her to the current rheumatologist. It was, in fact, a significant turning point in her life. Her first rheumatologist was of the opinion that she must restrict her physical activities including cutting vegetables and lifting heavy things for a ‘normal life’, while taking a few drugs. That doctor even discouraged her enquiry on diets and their effects on RA saying that it wouldn’t have much positive impact. On the contrary, though her current RA doctor suggested a biologic or an infusion as the only two options for her, he allowed her to try the combination treatment plan with oral medications and the AIP diet. Though he was a bit sceptical at first, Indira is glad now that he let her try this combination of medications, diet and lifestyle changes for a couple months, during which she was able to get better.

Even after undergoing all these agonies associated with RA, Indira now says that she has no regrets. Her spiritual connection has helped her to see things in a new perspective. In January 2017, she quit her high paying corporate job. “It was a huge life changing decision. I decided to quit my corporate job since it was very stressful for me and I strongly felt that I did not need that kind of stress in my life. Stress is a known trigger for all autoimmune diseases and that was the first thing I needed to eliminate from my life,” she looked very serene when saying this.

Now, it was her time to repay the society which helped her to overcome the difficult times. Her positive healing experience with food and her passion to cook and bake made her enrol in the Nutritional Therapy Association’s Nutritional Therapy Practitioner (NTP) program. In November 2018, she became certified as an NTP by the Nutritional Therapy Association (NTA), Washington, USA.

Now her mission is to provide nutritional guidance to help heal chronic diseases and more importantly, giving hope and positivity to those who are badly in need of it. Indira Shyju blogs her nutritious recipes at www.cook2nourish.com and can contact her at cook2nourish@gmail.com for Nutritional therapy related queries.
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Padma Shri Dr. John Ebnezar, The World Renowned Orthopaedician

An internationally renowned Indian orthopaedic surgeon, Dr. John Ebnezar, PhD, M.B.B.S, D.Ortho, DNB (Ortho), MNAMS (Ortho), DAC, DMT, Diploma in Sports Medicine - Australia, INOR Fellow (UK) is known for promoting ‘Wholistic Orthopaedics’, a practice combining modern medical techniques with Yoga for the management of Osteoarthritis of the knees and other chronic orthopaedic problems. Being a Padma Shri Awardee and two times National Award winner including the prestigious Dr. B C Roy National Award, Dr. John Ebnezar also holds several Guinness World Records to his credit including the most number of books written in a single calendar year (103 books). Excerpts from an interview with him:

Childhood and Inspiration to enter medical field

I was born in Bellary; Karnataka, as the only son to my parents along with a younger and elder sister. I came from a very humble background as my mother who was the lone earning members and was a nursing superintendent and my father was a preacher. Our mother’s transfer took us to several schools in Karnataka like Belgaum, Gulbarga and Raichur until our higher secondary education.

I was selected at Karnataka Medical College, Hubli, presently known as Karnataka Institute of Medical Sciences (KIMS, Hubli) when I secured good marks in higher secondary examination. At KIMS, I bagged second rank in MBBS. Besides that, I was also the literary champion and inter-collegiate singing champion during my studies. For PG in Orthopaedics, I went to JNM Medical College, Belgaum after which I went to Victoria Hospital Bengaluru for my DNB in Orthopaedics, which was attached to Bengaluru Medical College.

My constant inspiration to enter medical field was my mother Sampath Kumari, who advised me not to choose medical field just for the money it offers. She told me only if I had the intention to serve the society sincerely like Mother Teresa and Dr Ida Scudder, who started Christian Medi-
cal College Vellore, I must pursue medical studies. She downplayed all my academic achievements and told me to excel in life as academics is a part of life and not life itself. The decision to choose orthopaedics had also some association with my mother. I used to accompany her during her rounds when I was a kid. I was impressed by the sight of a plaster boy applying plaster on patients. The white glistening plaster fascinated me to a great extent as a kid and inspired me to become an orthopaedic surgeon later in life.

**Academic Excellence - Becoming an Author**

In 1993, I was preparing to take the DNB Exams and as a part of my preparations I used to take classes at Victoria Hospital during the evening and night and many students used to come and attend my lectures. My notes became very popular among the students and they asked me to publish a book in Orthopaedics. Since I was a very junior staff, aged 36 that time and that too a non-teaching staff, I was very reluctant but had to give in to the sustained pressure from my students.

I faced lot of hurdles to publish the book and finally, I had to do it with my own savings and managed an initial print of 1000 copies. However, when it was published, a leading medical books publisher saw it and acquired the rights from me. The rest is history! Currently, 'Textbook of Orthopaedics' reached its 5th edition and is a recommended text in most of the medical colleges in India and abroad. Now it has been more than 23 years and I still get many students who tell me how my book has helped them in becoming an Orthopaedician!

Shortly after I got my first book published, my publisher asked me to write another book for physiotherapists. As there was only one book at the market at that time dealing with the subject, they wanted mine to compete with it. I saw that the other book was authored by senior doctors from India’s top most medical centres like All India Institute of Medical Sciences (AIIMS). I was sceptical initially but went on authoring a book titled, 'Essentials of Orthopaedics for Physiotherapists'. It also become popular and later, even overcame the other book in sales and is currently in its 4th edition.

A book for nurses was the next book authored by me. Several short books on operative orthopaedics like fractures, first aid, operative orthopaedics etc. were also published during that time. I wrote around 10 to 15 books for the same publisher group. My book on injection techniques for joints went abroad and there it became so popular that it was sold out and was even translated into Spanish language and soon 4 International editions came out. As students we read books authored by foreigners and I had the unique distinction of authoring books that became popular in the Western countries making my Country proud. I’m even told that the pirated editions of my book are in wide circulation among Pakistan and Bangladesh and I purchased a copy of my own book in the Pirated book markets of Bangladesh!! Till date he has authored over 200 books in orthopaedics as a single author, a mind boggling achievement.

**The journey to Padma Shri Award**

It all began with my tryst with the Guinness World Records! It was during that time I came upon a Japanese author who held a Guinness World Record for publishing six books in a year. I accidentally found out that I had authored eight books in a year and hence contacted them. Soon the record was in my name. But in the next year in 2011, my record was broken by another Japanese author who published 52 books in a year. Wondering how one could write so many books, I decided to break his record by authoring 53 books a year.

I went to another publisher as my previous publisher already had about 10 to 15 books under my title. I told them how I was planning to author 53 books in a year with 100 to 120 pages each. They got a separate editorial team for me in Delhi for doing this and I started working on these books. After I finished writing, I realised that I had contents not just for 53 books but for 105 books!! Two people from the editorial team of the publisher group came to my hospital and stayed with me for one month to finish the work in time. Our book, ‘A to Z in Orthopaedics’ was released in the same year and it become my second Guinness World Record. Now, I have authored...
203 books altogether. I’m glad that all my books are widely read and of great help in the medical realm. All the books are available in Amazon and you can see most of them carry 4 or 5 stars. The intellectual thirst of medical students is very high and it is not easy to satisfy them. My books cover almost all areas of their interest and it gives me immense pleasure that I have been able to keep up to their expectations. Same with a commoner who seldom read books on health, but all my books appealed to them immensely and are best sellers now.

Apart from the record for publishing most number of books in a year, my zeal for preventive orthopaedics and community service, prompted me to create three Guinness World Records for social work and another three for conducting health awareness classes, thus making me the only medical doctor in the World to hold GWR in Academics, Community Service and Health Awareness!

From an Author to a Researcher

Yoga in Orthopaedics - This was also a chance happening. In 2004, a 77-year old lady came to me with stage 4 arthritis. Prior to approaching me, she had taken several treatments with little effect and she had great difficulty moving around. Some even suggested her of knee transplantation. But she refused to do so as she had seen her younger sister, who was in her late 40s, restricted to wheelchair after undergoing a knee transplant. I told her such things happen in one or two cases and it was not fair to compare it with the larger picture. She wasn’t convinced and I wondered what I must do to her.

It was during the same time, I went to Swami Vivekananda Yoga Anusandhana Samsthana (SVYASA) Yoga University, Bengaluru, as I was invited by my homeopath friend for his lecture there. He was speaking on the role of Yoga in homeopathy and the significance of incorporating Yoga into homeopathy. Then the idea of incorporating Yoga into orthopaedics dawned on me.

For that old lady, I tried to incorporate Yoga therapy with physiotherapy (modern medicine) and for a three-month period, she went through it under our guidance. She got very good results and had significant pain relief. At the end of the treatment, she had a drastic change and she began to walk normally. After that, I began to use Yoga regularly for other patients and got very good results.

In 2005, I was invited to the British Orthopaedic Association Conference at Birmingham. At a forum on knee replacement surgeons, I presented my work of combination treatment. I was the only person there talking about my ‘non knee replacement’ innovation. But they were all impressed with my talk and I decided to pursue it with further research and studies.

I enrolled as a PhD student in SVYASA Yoga University, Bengaluru, as the first orthopaedic surgeon to join them. We conducted a massive trial on OA Knees (Osteoarthritis) on 250 patients. We divided them into two groups. On controlled study, we did normal treatment like physiotherapy, drug therapy and so on. On the study group, along with this normal treatment plan, we combined Yoga therapy. We compared the results and the results were excellent in the second study group. Patients’ pain, disability index, walking speed, mobility, quality of life, stress, mental issues, diabetes, hypertension – all these parameters came down drastically when compared to the other group. My paper was published in three important journals and I bagged the best researcher award in 2012. Later, the American Acad-
emy of Orthopaedic Surgeons (AAOS), who publish the guidelines and recommendations for the Orthopaedic treatment globally, took my three research papers to form their first recommendation for the 11 Non-Replacement treatment options for OA Knees and gave it a strong recommendation. It is the first instance where an Indian researcher’s research papers were used for framing an international guideline. This gave me immense satisfaction for I had achieved an unthinkable milestone as an Orthopaedic researcher and had forced the Western World to take notice of my research, that too on Yoga, for the betterment of the patients with arthritis.

Yoga for Fractures and Spinal Cord Injuries

Yoga is an Indian science that has been tried successfully on lifestyle and non-communicable diseases. Then a new thought triggered me about using Yoga on fractures. This Yoga was not physical Yoga but advanced Yoga called ‘Pranic Energisation Technique’ (PET). The concept behind it is that we all have vital energy in our body called ‘prana’. We use prana to heal our disorders. In short, we use our own internal healing power to heal diseases and I thought why not try it on fractures.

Whatever medical science does, ultimately it is our own body that has to heal. Suppose you are given a tablet for headache, it has to work in your body along with your immune system. If you get a fracture, the doctor might be able to operate and medically correct it. But ultimately, it has to heal by itself or in other words, the nature must heal it naturally.

The PET works like this - You are given an audio file to listen. The instructions in the file ask the patient to imagine the power inside him or nature’s power as a light and to direct it to fracture healing through mental imagination. Also, imagine that the light or nature’s power is stimulating the fracture. This is followed by the regular treatment for fractures. In the results, we saw that the patients who underwent PET were healing faster than the other patients. Suppose regular patients went through 6 weeks of treatment, the other group got healed within 4 weeks with our PET.

That research was so popular that when I published it, American journals were so keen to take up that paper. Apparently, no one has ever done any work on fractures with Yoga. I secured the best researcher award for that research also in 2009. Recently, I introduced Yoga therapy into spinal cord injuries and the results have come out now which are also very encouraging. I have also become the only orthopaedic surgeon in the world to successfully try Yoga on trauma. Similarly another advanced yoga technique called Mind Sound Resonance Technique (MSRT) was tried on chronic neck pain with outstanding results.

Pioneered Wholistic Orthopaedics

My concept of treating patient as a whole and not just as bones and joints is the basis of Wholistic Orthopedics. Each human being is formed of five layers and addressing all these is what it stands for. It is based on the same concept as WHO’s definition of health which says “Health is the complete physical, mental, social well being and not just the absence of a disease or infirmity”, hence the word Wholistic! Yoga forms the core in this concept.

When we talk about Yoga, it is not the Yoga you watch on the TV or internet which is used for this treatment. You should be selective according to the treatment plan devised. We are doing Yoga Therapy and not Yoga Exercise.

We pick and choose the asana according to specific disorders and patient type. It is an Integrated Approach of Yoga Therapy (IAYP) and one needs to undergo training to practice this.

This is how I pioneered ‘Wholistic Orthopaedics’, a practice combining modern medical techniques with yoga for the management of osteoarthritis of the knees and other chronic orthopaedic problems like lower back pain, neck pain, frozen shoulder and modern lifestyle orthopaedic problems etc.

This concept is now gaining worldwide acceptance and have promoted it actively and delivered over 40 orations all over the Globe in a span of just 18 months, apart from CME programs, workshops etc! Many orthopaedic surgeons are now embracing wholistic orthopaedics revolutionising the way orthopaedic ailments are being treated all over.
Geriatric Orthopaedics

I realized we are living longer now due to the increased life expectancy which brings its own share of health problems and had to change the way we treat the elderly. We were not trained to do so and I felt the necessity to serve the neglected geriatric society and thus formed Geriatric Orthopaedic Society of India with the intention of training our orthopaedic surgeons especially the young postgraduate students to handle this vulnerable group.

I have done seven international conferences and have been conducting various CME programs, workshops all over India and abroad to train our fellow orthopaedic surgeons. I’m the first person in the World to form an association exclusively for Geriatric Orthopaedics even though there are other associations for Geriatrics.

My message to the fellow orthopaedicians is to concentrate more on Geriatric Orthopaedics so that they can provide a stress free, pain-free and manageable life for the elderly people. I think, it’s a great cause to pursue!

Awards and Recognition

Following the path lay down by his mother very early in life, much recognition and awards came his way. He is the first Karnataka Orthopaedic Surgeon to have been awarded the most coveted Padma Shri and Dr. B C Roy Award (which incidentally only 15 Orthopaedic Surgeons in the country have won).

He also received the prestigious Karnataka Rajyotsava Award (2010) and Kempegowda Award (2011). Last year, the Medical Council of India awarded him the Silver Jubilee Research Award. Having an array of Guinness World Records to his credit, Dr. Ebnezar is the recipient of more than 280 awards including international, national and state awards. He is the only orthopaedic surgeon in India to give a TED talk.

Beyond these accolades, his life is dedicated to the well-being of the society as a whole. He has shown that if one follows this path it leads to lots of fulfilment, satisfaction and recognitions from the Society which has always held the medical profession in high esteem.

His life is an inspiration to many that, though coming from a very humble background and fighting many odds in life, one can reach the pinnacle of success if one practices right principles and values in life. He is an excellent teacher, author, orator, researcher, writer, publisher, motivational speaker, reformer, social crusader and singer too. He has excelled in all. He feels that he has made his mother proud and dedicates his success to her.

Sigma Diagnostics Services started its journey in IVD Industry from 1997 in Delhi. We are associated with Agappe Diagnostics Ltd from 2002. Agappe has been highly customer sensitive and came up with Innovative Products regularly for the Indian IVD with excellent Quality over the years. Agappe is unique in the sense that it has product segment for diverse range of the Indian Market. We have been installing good number of Fully Automatic Biochemistry systems for many years with all leading pathological labs and hospitals. The after sales service and product quality makes our association strong and durable with each passing day.

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Osteoarthritis (OA) is the most frequent joint disease encountered in the clinical practice and is the most common cause of locomotor disability in the elderly. OA strikes women more often than men and it increases in prevalence and incidence after menopause. Females are found to have more severe OA, more number of joint are involved, have more symptoms and increased hand and knee OA. Many experimental, clinical and epidemiological studies suggest that loss of estrogen at the time of menopause increases a woman’s risk of getting osteoarthritis and use of HRT (Hormone replacement therapy) render help in such patients. The present review is aimed to reveal these facts.

DR. Annil Mahajan M.D., Fellow Rheumatology, FICP, FIACM, FIMSA MAMS
Professor & Head, Postgraduate Department of General Medicine, Govt. Medical College, Jammu.

OA strikes women more often than men and it increases in prevalence, incidence and severity after menopause. Therefore, a million-dollar questions arises, Is menopause associated with the onset and progression of osteoarthritis in women and can HRT (Hormone replacement therapy) render help in such patients. The present review is aimed to reveal these facts.
met will include conventional non-pharmacological and pharmacological treatment.

Osteoarthritis (OA) is the second most common rheumatological problem and is most frequent joint disease encountered in the clinical practice. This is the most common cause of locomotor disability in the elderly. OA is a chronic degenerative disorder of multifactorial etiology characterized by loss of articular cartilage and peri-articular bone remodeling. It is probably not a single disease but represents the final end result of various disorders as joint failure. OA may cause joint pain, bony or soft tissue swelling, tenderness, bony crepitus, peri-articular muscle atrophy, bony hypertrophy, deformity and marked loss of joint motion. It commonly affects the hands, feet, spine, and large weight-bearing joints, such as the hips and knees. It can present as localized, generalized or as erosive osteoarthritis.

Primary osteoarthritis is not only related to aging but also to uncoupling of balance between cartilage degeneration and regeneration whereas, secondary osteoarthritis is caused by another disease or condition. The diagnosis of OA is essentially clinical-radiological. X-rays are still the main diagnostic tool however arthroscopy, ultrasound, MRI, CT scan etc. are used specially for experimental studies and not recommended for routine clinical use. Radionucleide studies, may detect abnormalities before radiographic signs. Arthrocentesis and laboratory testing may help identify an underlying cause of secondary OA.

OA strikes women more often than men and it increases in prevalence, incidence and severity after menopause. Therefore, million-dollar questions arises, Is menopause associated with the onset and progression of osteoarthritis in women and can HRT render help in such patients. The present review is aimed to reveal these facts.

In a prospective cohort study, use of estrogen replacement therapy did seem to be associated with a reduced rate of progression of knee osteoarthritis.

Metabolism of estrogen—specifically the conversion of estrone into estradiol—has also been observed within osteoarthritic cartilage tissue. Based on these results, some researchers have proposed that estradiol mediates the damage to cartilage tissue in osteoarthritis.

Relation of Estrogen / Menopause and Osteoarthritis Preclinical studies

Ovariectomy (OVX)-induced acceleration of cartilage degradation and erosion in rats indicate that estrogen deficiency accelerates cartilage turnover and increases cartilage surface erosion. Whereas, estrogen supplementation may play an important role in delaying the development of osteoarthritis in OVX induced osteoarthritis in rats both biochemically and histologically. Not only estrogen but even levormeloxifene, a SERM (selective estrogen receptor modulators) can prevent the OVX-induced changes in cartilage degradation in both rodents and humans, suggesting potential therapeutic benefits in the prevention of destructive joint diseases such as osteoarthritis.

OVX may also have a detrimental effect on the intrinsic material properties of the articular cartilage of the knee and treatment with estradiol implants ameliorate these deleterious effects and help to maintain the tissue’s structural integrity. One recent study provide direct experimental prove that long-term estrogen replacement therapy may be beneficial in OA by increase insulin-like growth factor binding protein (IGFBP-5) levels in articular cartilage which appears to be synthesized by articular cartilage chondrocytes in a well-characterized monkey model of naturally occurring (OA).

Clinical and epidemiological studies

The Framingham Knee Osteoarthritis study suggests that knee osteoarthritis increases in prevalence throughout the elderly years, more so in women than in men. Females are found to have more severe OA, more number of joints is involved, and have more symptoms and increased hand and knee OA. These observations and others reporting a painful form of hand osteoarthritis after the menopause suggest that loss of
estrogen at the time of menopause increases a woman’s risk of getting osteoarthritis. Polyarticular osteoarthritis also has strong female inheritance, frequent onset around menopause and an association with previous hysterectomy and gynecological surgery leading to suggestion that hormonal factors are important in this subgroup. A large epidemiological study was conducted in Italy, gave epidemiological support to the hypothesis that estrogen deficiency may increased the risk of OA.

In a prospective cohort study, use of estrogen replacement therapy did seem to be associated with a reduced rate of progression of knee osteoarthritis. Similarly, long term hormone replacement therapy increases bone mineral density in women who have experienced natural menopause, and protects against bone loss in surgically postmenopausal women. Combined estrogen and progestin replacement therapy can relieve the knee OA symptoms of postmenopausal women. Significant differences on pain at night and tenderness around knee were seen in the treatment group compared with the control group after 1 months of treatment. One of the most recent studies focused on women who were taking bone antiresorptive agents, primarily estrogen or alendronate. Women taking either alendronate or estrogen had significantly fewer bone abnormalities associated with severe knee OA - including subchondral bone thickening, osteophytes, and bone marrow edema-like lesions than the women not taking these medications. “This finding is particularly important because the MRI bone marrow abnormality score which is a strong predictor of progression of structural deterioration in knee OA, was used. In addition, women using alendronate experienced less knee pain, according to the WOMAC scores, than nonusers. However, researchers found no association of either alendronate or estrogen use with changes in cartilage detected by MRI or radiographic changes of OA of the knee. Thus suggesting that alendronate and estrogen may protect against the development of bone abnormalities associated with knee OA, which may have a beneficial effect on the overall course of the disease. Furthermore, one recent review suggest that HRT for the menopause seems to be associated with a decrease in the prevalence of symptoms and radiological alterations related to hip and knee osteoarthritis. Not only this but in menopausal women and the elderly, populations most often affected by osteoarthritis (OA), estrogen levels are lower than normal, which strongly suggests that estrogen may be an important regulator of OA.

Contrary results

Metabolism of estrogen – specifically the conversion of estrone into estradiol – has also been observed within osteoarthritic cartilage tissue. Based on these results, some researchers have proposed that estradiol mediates the damage to cartilage tissue in osteoarthritis.

Thus, with our expanding knowledge of osteoarthritis (OA) over the years, our concept of this “aging” disease has been re-evaluated to that which is the opposite of traditional views. To clinicians and scientists, OA is no longer the inevitable disease of aging. Epidemiological studies show a higher incidence of OA affecting polyarticular joints in women than age-matched men, particularly those over the age of 55. This discrepancy in sex difference in the OA incidence highlights the significance of sex hormones and their alterations in menopause. Evidence indicates that this alteration possibly occurs early in adult life and may well persist into menopause. As well, this hormonal perturbation is thought to be consequent to obesity in these women. Both in vivo and in vitro studies suggest that estrogen is chondrodestructive via the receptor-mediated mechanism. The finding of estrogen receptor in canine, rabbit, and human articular cartilage further confirms this hypothesis. Recent findings of elevated synovial estradiol level and higher estrogen receptor bindings in human osteoarthritic cartilage strongly
suggest the importance of local uptake of estradiol (E2) and the possible up-regulation of estrogen receptors.

**Estrogen, like other hypothesized etiologies, is important in the development of OA in women**

One prospective cohort study to examine the effects of HRT on radiographic knee OA indicated that current use of HRT had a moderate but not statistically significant, protective effect against worsening of radiographic knee OA among elderly white women. These findings point fingers to studies suggesting potential benefits of HRT in prevention OA in women. The study examining postmenopausal estrogen (PME) use and prevalence of clinical osteoarthritis (OA) at the hand, knee, and hip indicated, significantly larger proportion of women who used PME for at least 1 year had hip and hand OA compared with women not using PME (4.1% vs. 1.1%), indicating PME is associated with a higher prevalence of clinical OA.

Furthermore, polymorphisms in estrogen receptors have been suggested to play important roles in the pathophysiology of osteoarthritis. Polymorphisms in the ERalpha gene are suggested to be associated with radiographic OA of the knee, and in particular with osteophytosis, in both elderly men and elderly women. The study of Jin et al 2004 confirmed these findings.

Thus, findings regarding a correlation between estrogen and OA are inconsistent and inconclusive and range from estrogen protecting against OA to detrimental to cartilage.

**Current management of osteoarthritis and place of HRT**

**Status of HRT in OA:** Thus, researchers strongly implicates estrogen imbalances during menopause and/or estrogen deficiency following menopause as major hormonal risk factors for the disease. Indeed, large-scale controlled studies have shown a reduced incidence of osteoarthritis in postmenopausal women who undergo long-term estrogen replacement therapy. On the contrary few results disfavoring its use are present suggesting worsening of OA with the use of postmenopausal estrogen use. Hence with the current level of evidence, HRT cannot be recommended as a first-line treatment against progression of OA, but the fact cannot be denied that if somebody is taking estrogen therapy for some other reason may get benefited.

Otherwise treatment will include Non-pharmacological measure in the form of education and behavioral intervention, weight loss, exercises, mechanical aids, transcutaneous nerve stimulation, local massage, acupuncture, pain management counseling and support groups. Assistive devices in knee osteoarthritis, physical therapy in form of knee sleeves, cone or walker and occupational therapy are other modalities which can be used.

Pharmacological treatment in the form of drugs which can relieve symptoms like, acetaminophen, salicylates and traditional NSAIDs, COX-2 inhibitors, or NSAIDs with misoprostol as cotherapy. Opioids like tramadol, topical analgesia and intra-articular glucocorticoid injection can also be helpful. The second category of drugs includes symptomatic slow acting drugs for OA (SYSADOA) including nutraceutical like glucosamine and chondroitin sulfate or their combination. Therapeutic benefit of hyaluronic multiple intraarticular injections may be utilized. However, routine use of it is not well established because of unclear mechanisms of action, multiple injections are required and latency of onset of action. Hylan GF-20 (synvisc) is a high molecular weight cross-linked derivative of hyaluronic that has elastoviscous properties similar to healthy synovial fluid. Its efficacy for treatment of osteoarthritis knee pain, with low incidence of local adverse effects, has been demonstrated in recent clinical trial.

Therapy in the pipeline like structure modifying OA drugs (SMOADS) including metalloprotease inhibitors may have promising role in future. Moreover disease modification potential of agents like glucosamine, diacerhein and hyaluronic need further studies. Patients with persistent pain, progressive limitation of daily activities despite medical management, progressive joint damage and ankylosis may be the candidates for surgery.

In conclusion menopause is associated with the onset and progression of osteoarthritis in women and HRT can render help in such patients but with the current level of evidence, it cannot be recommended as a first-line treatment.
THE SPORTS MINDED "CHAMPION OF ANTI-RHEUMATICS"

V. P. Mohan is a veteran in the pharmaceutical industry of India. Beginning his career in Geigy, a Swiss Pharma Company which introduced original research drug for arthritis in India and the first anti-inflammatory medicine, Mohan held various roles including that of a Product Manager handling anti-rheumatics products of the company. He was hailed as the ‘champion of anti-rheumatics’ among the industry considering his vast experience in the field. Now 82 years old and residing with his daughter and her family at Bengaluru, Mohan talks about his industry experience, arthritis and osteoarthritis.

From his childhood days itself, Mohan was an avid athlete. Educated at Brennen College, Thalassery, Kannur, he was part of the football team and was passionate about the game. As soon as he completed his BA, he was offered a job by one of his dad’s friend at Madras. Thus Mohan started his career in 1960 in a chemical company at Madras (now Chennai) with a salary of Rs.120/-, which was quite a decent sum at that time. His company dealt with chemicals to be used in the labs of medical colleges and hospitals. The products were directly imported from Italy. Although Mohan was appointed as the Executive Assistant to MD, he was asked to take orders from medical colleges. Mohan remembers that the company had absolute monopoly at that time and he had no idea what the products were. He had to show the catalogue to the clients and they will make the order.

During one such journey, Mohan was spotted by a guy who was the Area Manager at Geigy. Since Mohan looked like a medical representative with his attire and the bag, he enquired Mohan about his whereabouts and informed him about an opening as a representative for Geigy at Trivandrum. Mohan decided to give it a try. He applied for the post and got selected. Thus began Mohan’s long career with Geigy (Geigy underwent several changes in management later) lasting almost 33 years. Mohan was promoted as Area Manager within three years and in another two years, he became the Regional Manager. He held the prestigious position of Product Manager, which is considered as a top senior management position at Geigy. From Product Manager, Mohan was promoted to Training Manager. He excelled in the field of imparting training to the newly appointed representatives of the
company. He held the office of General Manager before retirement. His career was spanned across places like Trivandrum, Kochi, Bombay and Baroda.

The golden era of medical representatives

As the first anti-inflammatory drug for arthritis or first anti-rheumatic drug in India, Butazolidin was an original research product of Geigy. Later, both Tanderil and Diclofenac had pinned many golden stories in the world market. Since most of the products of Geigy were original and disease-specific products, Geigy used to enjoy a special status in the medical realm at that time. “The company was very serious in its approach to doctors. No representative with half-baked knowledge will represent the company. In certain situations, the medical representatives used to educate the doctors about the product as they were trained by the best research doctors of the company. Apart from that, Geigy had three days’ compulsory residential training when a new drug was introduced to the market. During the training, experts including doctors will impart the information about the drug to medical representatives. A good medical representative was always respected by doctors,” Mohan recalls memories from those days.

He remembers that the company even had Butazolidin ointment, which was meant for external application. At that time, doctors used to tease the representatives asking how they believed an ointment to produce result for arthritis and how it resembled Ayurveda concept of external application. “Geigy conducted a special experiment in this regard and made an x-ray of the anti-inflammatory action of the gel, which could penetrate through the human skin to give the desired result. It was like a demo and became a huge success,” he recollects.

“The status of medical representatives today is very low. Money decides everything now. If you pay a commission to the doctor for prescribing a medicine, what is the ethics in it? Also, I personally believe that pricing of a product is 100% marketing decision, not a management decision. Marketing team must not unilaterally take it. They must consult the Product Manager for that. Now, this is not happening in most of the companies. Most often, the Marketing Manager is a big guy and he will decide the price,” Mohan laments the present unethical system.

After retirement, his wife wanted to return to Kerala and thus they settled in Thrissur, Kerala. Mohan had no plans to work after retirement. However, Mohan’s friend persuaded him to take up a position in a pharma company in Thrissur, which dealt mostly with ayurvedic products. Mohan took up the offer to revive two ayurvedic products of the company mostly prescribed to women to regain health, post partum. Though there were a few other products, these two products were the best selling ones. The company was facing a dilemma at that time with a dispute among IMA (Indian Medical Association) and ayurvedic doctors. As a result, IMA came up with a decision of not prescribing any ayurvedic products by its members.

Mohan took up the challenge and conducted extensive research. Since the medicine dealt with pregnant ladies, Mohan extended his research in that core area. He came to know that in allopathy, there is no medicine prescribed to

Mohan also points out that footwear has also got a role in preventing osteoarthritis. Good footwear can prevent you from developing osteoarthritis at your young age. Try to wear the best of footwear, but comfort should be given top priority.
increase lactation while in ayurveda, the root of a medicinal plant could serve the purpose. He approached the manufacturing team and asked to incorporate this root prescribed in ayurveda to their existing product, which could increase breast milk in mothers.

The new product underwent various tests and proved quite efficient. Mohan revived the product with a new design highlighting this content. With the catch word, ‘Breast fed is best fed’, it proved to be a huge success. As the allopathy doctors had no English medicine to be prescribed in this regard, they had to suggest it and Mohan revived the company with this single product. Mohan later joined another pharma and medical products company in Kochi.

Champion of anti-rheumatics

As a veteran in the pharma field and with an experience of dealing with the subject for several years, Mohan believes that osteoarthritis is prone to attack every human being at old age. “Millions of human beings around the world are affected by it. We are the only living beings that walk on two legs. Hence, Rheumatic arthritis is a 100% assured thing for a human being as legs have all the weight bearing joints. They undergo wear and tear as age progresses. In other words, it occurs when the protective cartilage that cushions the ends of your bones wears down over time. They say women are more affected by osteoarthritis. It is only because women don’t exercise much. If you gain more weight, osteoarthritis will definitely present itself. Once it deteriorates, nothing could be done,” he gives a warning note. Ointments or medications might help to reduce the pain but it won’t be helpful more than that. He talks about the importance of taking proper exercise regularly to reduce deterioration. You should also be careful not to overdo exercise. Body weight is another important factor. An injury on knee will definitely cause osteoarthritis.

As of now, Mohan has the initial difficulties of osteoarthritis. However, he keeps it under control with proper care. “The sports mentality of keeping active helps,” he quips in. Mohan used to play badminton after his job until retirement. He took to walking after he stopped playing badminton. His cholesterol level is well under control and he has no diabetes. “Exercise is very important to check osteoarthritis. My regular exercise helped me from getting osteoarthritis till date,” he comments with confidence.

Mohan says that he was always very careful about his food. “The quantity as well as quality is uncompromised. In the morning, as I wake up, I will have a tea. I will have my breakfast at 8 AM, usually consisting of a boiled banana, two idlies and curry. No tea with this but will drink plenty of hot water. Between breakfast and lunch, by 11 AM, I will have a bowl of oats with a little milk and no sugar. For lunch, it’s the usual rice but very less quantity. At 4 PM, I will have a half glass of tea. Dinner usually consists of a bowl of chicken soup at 7 o’clock followed by 2 or 3 dosas or rice porridge. Now, my doctor has asked me to drink milk compulsorily and hence I take a glass of milk at 10 PM. By 10.30, I will go to sleep,” Mohan exudes an inimitable energy and cheer not so common among people of his age.
Mohan also points out that footwear has also got a role in preventing osteoarthritis. Good footwear can prevent you from developing osteoarthritis at your young age. "Try to wear the best of footwear. By best, I mean footwear that suits you and is comfortable. It shouldn’t be too tight and must be broad enough. Sharp foot wears are dangerous and harmful. Fashion must not be the priority while selecting your footwear but comfort should be given top priority. There are instances where people with spondylitis have brought it under control with the use of good slippers. It is important to that extent," he adds. The right choice of shoes is important even if you're not experiencing foot pain since what you wear on your feet can directly affect your spine. Any sort of footwear that’s going to help decrease pressure across the spine — something that’s a little more padded in the heel, like sneakers is a good thing to go with. Flip-flops or sandals, high heels are not recommended at all.

Rheumatoid arthritis is an autoimmune disorder. It happens on the smaller bones first and later migrates to the larger bones. Osteoarthritis affects your bigger joints first and later of course affects your smaller joints. OA is a degenerative disease. Treatment is difficult as there are no effective drugs to completely cure the disease. You might have to live with it if you are affected by the disease. The only thing the doctors will be able to do is to reduce its intensity. Osteoarthritis occurs when the cartilages that cushion at the ends of bones in your joints gradually deteriorate. Cartilage is a firm, slippery tissue that enables nearly frictionless joint motion. Eventually, if the cartilage wears down completely, one bone will directly rub on the other. Transplantation (in the case of knee) is the only way ahead if your wear and tear is at the final stage.

As for youngsters, his golden advice is to follow an exercise regime regularly. "Eat less but ensure you have healthy food. Avoid junk food. Exercise daily and take care of your body mass index," Mohan gives that unique smile of a successful man – both in profession and life!
HEALTH TIPS FOR THE MANAGEMENT OF ARTHRITIS

Arthritis is basically the inflammation of the joints. It can affect multiple joints. Two of the most common types of arthritis are Osteoarthritis (OA) and Rheumatoid Arthritis (RA). Though, arthritis is very common, it is not well understood. Actually, ‘arthritis’ is not a single disease - it is an informal way of referring to joint pain or joint disease. People of all ages, sexes and races can and do have arthritis and it is the leading cause of disability worldwide. More than 50 million adults and 300,000 children have some type of arthritis in the US alone. It is most common among women and occurs more frequently as people get older.

Dr. C S Satheesh Kumar, Sr. Vice President-Supply Chain Management, AGAPPE., (Retd. Drugs Controller, Kerala)

Types of Arthritis

Degenerative Arthritis - Osteoarthritis is the most common type of arthritis. When the joint symptoms of osteoarthritis are mild or moderate, they can be managed by balancing activity with rest, using hot and cold therapies, regular physical activity, maintaining a healthy weight, strengthening the muscles around the joint for added support, using assistive devices, avoiding excessive repetitive movements etc.

If joint symptoms are severe, causing limited mobility and affecting quality of life, some of the above management strategies may be helpful, but joint replacement may be essential in some cases. Osteoarthritis can be prevented to an extent by staying active, maintaining a healthy weight and avoiding injury and repetitive movements.

Inflammatory Arthritis - A healthy immune system is protective. It generates internal inflammation to get rid of infection and prevent disease. But the immune system can go awry, mistakenly attacking the joints with uncontrolled inflammation, potentially causing joint erosion and may damage internal organs, eyes and other parts of the body. Rheumatoid arthritis and Psoriatic arthritis are examples of inflammatory arthritis. Researchers believe that a combination of genetics and environmental factors can trigger auto-immunity. Smoking is an example of
an environmental risk factor that can trigger rheumatoid arthritis in people with certain genes. For this, early diagnosis and aggressive treatment is critical. Slowing disease activity can help minimize or even prevent permanent joint damage. The goal of treatment is to reduce pain, improve function, and prevent further joint damage.

**Infectious Arthritis** - A bacterium, virus or fungus can enter the joint and trigger inflammation, for e.g. salmonella and shigella (food poisoning or contamination), chlamydia and gonorrhoea and hepatitis C, often through shared needles or transfusions. In many cases, timely treatment with antibiotics may clear the joint infection, but sometimes the arthritis becomes chronic.

**Metabolic Arthritis** - Uric acid metabolic changes can affect the joints with deposition on joints to make you immobile. In some people, the uric acid builds up and forms needle-like crystals in the joint, resulting in sudden spikes of extreme joint pain or a gout attack. Gout can come and go in episodes or if uric acid levels aren’t reduced, it can become chronic, causing ongoing pain and disability.

**What can be done to manage Arthritis?**

There are many things that can be done to preserve joint function, mobility and quality of life like making time for physical activity and maintaining a healthy weight are essential. Your weight can make a big impact on the amount of pain you experience from arthritis. Extra weight puts more pressure on your joints; especially your knees, hips and feet. Reducing the stress on your joints by losing weight will improve your mobility, decrease pain and prevent future damage to your joints. There are more benefits to exercise than just weight loss. Regular movement helps to maintain flexibility in your joints. Weight-bearing exercises such as running, walking can be damaging. Instead, we can resort to water aerobics or swimming to flex your joints without adding further stress. Long, warm showers or baths, especially in the morning, can help ease stiffness in your joints. Use moist heating pad at night to keep your joints loose. Sometimes, cold treatments are best for relieving joint pain, swelling and inflammation. Wrap a gel ice pack or a bag of frozen vegetables in a towel and apply it to painful joints for quick relief.

Omega 3 fatty acid is good for joint health and arthritis. Fish oil supplements, which are high in omega-3s, have been proven to reduce joint stiffness and pain. Another fatty acid that can help is gamma-linolenic acid or GLA. It’s found in the seeds of certain plants such as evening primrose, hemp, borage and black currants. Consumption of whole grains, fruits and vegetables, healthy oils (like olive oil), and fish is better. Ginger is reported to be very good for arthritis. There are many things that can be done to preserve joint function, mobility and quality of life like making time for physical activity and maintaining a healthy weight are essential. Your weight can make a big impact on the amount of pain you experience from arthritis.
Health Tips

reduce the use of lectins such as lentils, peanuts, tomatoes, potatoes, sugary drinks, omega-6 fatty acids, sugar, red meat, fried foods, refined carbohydrates, mono-sodium glutamate (MSG) etc., which boost inflammation. Studies proved that high fructose corn syrup, a sweetener in processed food, exacerbate gout. Always avoid refined carbs, dairy products, alcohol and tobacco, salt and preservatives, corn oil etc. for better joint care by those suffering from arthritis.

Acupuncture is an ancient Chinese medical treatment that involves inserting thin needles into specific points on your body helping to reroute energies and restore balance in your body. Acupuncture is the most researched complementary therapy, recommended by the WHO for treatment of over 100 different conditions, including arthritic pain.

Activity helps to cut the swelling and pain in your joints and it strengthens your muscles. As a good posture maintenance strategy, stand and sit up straight to protect joints from your neck down to your knees. A walk can improve your posture, too. The faster you go, the harder your muscles work to keep you upright. Exercise, especially the weight-bearing kind, like walking, makes your bones stronger and helps prevent osteoporosis. Aerobic exercise, the kind that makes your heart pump faster, can help you control your weight. It also helps protect against heart disease, another condition you’re more likely to get if you have arthritis. A workout that moves your joints and stretches your muscles can ease your stiffness and help you avoid injuries. Whatever be the activity you follow, warm up first and stretch afterwards. It’s important to be consistent.

Perform 30 minutes of aerobic exercise a day, five times a week. You can break it down into three 10-minute sessions a day if that’s easier. Always keep moving and avoid holding one position for too long. When working at a desk, for example, get up and stretch every 15 minutes. Do the same while sitting at home reading or watching television and stretch your body at times. The best thing you can do is to listen to your body. If you don’t feel your best, change the activity. If your joints are swollen or painful, take a day off or choose a move that you can manage. The important thing is to keep moving.

Yoga, breathing techniques and meditation are accepted as a combined way to boost physical and mental health in an amazing pace. Meditation and relaxation techniques are helpful to reduce pain from arthritis by reducing stress and enabling you to cope with it better. According to the National Institutes of Health (NIH), the practice of mindfulness meditation is helpful for some people with painful joints. Researchers also found that those with depression and arthritis benefitted the most from meditation. With the release of stress, inflammation, swelling and pain also drop subsequently. Massaging can act as adjuvant therapy for arthritis.

In fact, yoga is proven to improve many physical and psychological symptoms of arthritic patients. Recent scientific studies of people with various types of arthritis show that regular yoga practice can help reduce joint pain, improve joint flexibility and function and also lower stress and tension to promote better sleep. Sharon Kolasinski, MD, a professor of Clinical Medicine and a rheumatologist at the University of Pennsylvania in Philadelphia, studied the effects of yoga on people and found that those taking a 90-minute, modified Iyengar yoga classes once a week for eight weeks reported significant reductions in pain and improvements in physical function as well as noticeable improvements in joint stiffness.

Yoga poses were modified to accommodate the fact that people with knee OA may not be able to bend their joints like others and Iyengar yoga allows participants to use chairs, blocks or other aids to help them balance during poses.

Yoga can make you more comfortable to have daily activities effectively and have much more energy, with significant changes in pain and other symptoms. Stretching exercises in general help improve the range of motion, so the fact that you’re stretching in yoga will help flexibility. On days when you’re experiencing a painful arthritis flare, continuing to do some type of physical activity like yoga, if possible, can help you maintain joint flexibility. Some yoga poses may need to be modified for people with arthritis.

Downward facing dog posture, for example, involves kneeling on the floor and raising your body with your arms. People with arthritis may also need to use a chair, a block, a strap or other aids to help maintain balance during some poses. Yoga’s emphasis on introspective thought – pinpointing the sources of pain or anxiety and learning to relax them – is useful for people with arthritis, and you develop a communication with your own body that work miracles.

By and large, arthritis is a chronic ailment, which can very well be managed with proper exercise, healthy food habits, yoga and other stress-relieving techniques in a consistent manner.
Happy with Lipid Parameters
This is to certify that the Clinical Biochemistry Laboratory, JSS Hospital, Mysore, is running the lipid parameters on Toshiba Accute 400 from Agappe Diagnostics and we are satisfied with the results and their service.

Dr Suma M.N.,
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Sigma Diagnostic Lab,
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Even though the number of automated systems with intelligent software is increasing which requires minimal human interface, the proper validation of the collective report is a challenge. Automated systems in all segment irrespective to the manufacturer is having limitations based on the technology used and will give an indication or “ERROR CODE” in case of discrepancy. It is the responsibility of the respective technologist who run the test to notice such errors in the right time and take proper corrective action so that the results can be validated properly.

Sanjaymon K R, General Manager, Business Development, AGAPPE

Even though the number of automated systems with intelligent software is increasing which requires minimal human interface, the proper validation of the collective report is a challenge.

Automated systems in all segment irrespective to the manufacturer is having limitations based on the technology used and will give an indication or “ERROR CODE” in case of discrepancy. It is the responsibility of the respective technologist who run the test to notice such errors in the right time and take proper corrective action so that the results can be validated properly.

Let us consider some classical error codes as below.

In 3-part hematology systems, the WBC differential is based on size of the cell after treatment with the reagents. In case where the differential is not displayed and only an Asterix (*** sign) is seen in the report, please check the WBC histogram to understand the error.

This can be due to improper lysing of the sample, abnormality of the sample or may be due to reagent deterioration. Also look for abnormal flags in the report and correlate the same clinically. When there are very low or very high values of cell counts, kindly make sure that the result displayed falls within the acceptable detection limit of the instrument.

In case of five-part systems the WBC differential is performed using flow cytometry, kindly recheck the sample in case there is an abnormal flag along with differential results (in some instruments the letter R means the sample needs to be rechecked). Kindly recheck the sample manually if required before releasing the report. In general, if the parameter is followed by an “R”, it
means the analysis result is questionable. If you see “*****”, as opposed to the result, it means the result is invalid; if you see “+++++” as opposed to the result, it means the result is out of the display range. Kindly recheck the sample before releasing the report.

In case of report from biochemistry Automation Systems an error code “R” means rerun. This usually happens when the result is out of the detection limit and automatic rerun function is enabled in the system. In case of decreasing chemistries like SGOT/SGPT, please check for substrate depletion error code in very low results. Checking the reaction time graph of the test will give better understanding in such cases. When a rerun code is printed in the result, kindly circle the value so that the same can be cross checked while final reporting. Similarly, an Error code “CAL” stands for calibration error which may be due to the improper calibration curve or expiry of the calibration stability etc. Systems with Clot detector function, kindly check that there is no error code for clot in the printed result while validating. Cell blank error is another important error message which needs to be addressed properly. A cell blank error comes usually when the cuvettes used in the automated system becomes dirty. This indicates improper cleaning of the cuvette or may be due to damage in the cuvette. We need to also check for system water and detergent error codes frequently to see that the system is working as per the ideal conditions. In some instruments, it may display specific error code on the screen which needs to be addresses by the operator in the right time.

The volume of Specific Protein testing is growing faster, thanks to the new generation compact automation systems. With an improvement in the reagent formulation, tests like quantitative CRP, RF, ASO and Hba1c became common parameters in the laboratory. Fortunately, these parameters can be performed in Automated Biochemistry analyzers and above that there are highly compact nephelometry platforms available in the market for the testing. Specific protein testing based on antigen-antibody reactions are not a linear reaction. The calibration curve of these reactions is non-linear. Prozone effect is one of the major reasons for inaccurate results in specific protein reaction. This happens when there is an excess antigen or antibody in the reaction mixture and the effectiveness of forming immunological complex is impaired resulting in false negative results. When this happens, a high sample will be tested as negative or in sometimes a very low results will be displayed. The new generation automated systems are having intelligent reaction algorithm and in case of a prozone is suspected a letter “P” will be printed along with the results. Please make sure that there is no such error code printed along with the results in specific protein tests.

When it comes to the CLIA based systems, the important factor to be noted is substrate depletion. A result with prefix “SUB” means that there is substrate depletion suspected and needs to be repeated with a fresh substrate before releasing the results. In some CLIA systems the sign > or < is used to indicate very low and very high results. In case of high results, kindly check the linearity of the kit used and make a dilution of the sample with the diluent specified and repeat the sample so that we can confirm the result accuracy.

The above details on the error codes are specific for some models available in the respective market segment and individual laboratories should make the list of critical error codes of the system they are using with the help of the instrument and reagent manufacturer. This error codes needs to be displayed along the side of the instrument along with the corrective action to be taken so that we can make sure that the result obtained from the automated system is an error free report.
**Engagements**

Team Agappe at APFCB 2019, Jaipur.

Team Agappe at MEDICA 2019, Germany.

Team Agappe at AGAPCON 2019, Srilanka.
Team Agappe at LAB EXPO 2019, Nepal.

Team Agappe at APCON 2019, Chandigarh.

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Tel: +91 484 2867000.
agappe@agappe.in

REGISTERED OFFICE
Jaisingh Business Centre, 119, Sahar Road, Parsiwada, Andheri (East), Mumbai, India.
Tel: 022-4300 8000.
mumbaioffice@agappe.in

INTERNATIONAL OFFICE
AGAPPE DIAGNOSTICS SWITZERLAND GmbH,
Kronauerstrasse 54 - 6330, Cham - Switzerland
Tel: +41 41 780 60 10
info@agappeswiss.com

BRANCHES: MUMBAI | DELHI | KOLKATA | BANGALORE
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