

HCFI Dr KK Aggarwal Research Fund

HCFI Round Table Environment Expert Zoom Meeting on “World Environment Day – Only One Earth: Benefits of Native Trees and Medicinal Plants”

June 5, 2022 (Sunday, 12 noon - 1 pm)

- This year marks the golden jubilee of the first World Environment Day held in Stockholm in 1972. The theme for this year is “Only One Earth” with the focus on “Living Sustainably in Harmony with Nature”. This was also the theme in 1972.
- The Oslo Protocol, Helsinki Protocol and Montreal Protocol have proved that man-made challenges can be addressed. There has been consistent effort to protect biodiversity and climate change concerns.
- A Supreme Court-appointed Committee has submitted in a report that a tree’s monetary worth is its age multiplied by ₹ 74,500.
- Out of this, the cost of oxygen alone is ₹ 45,000, followed by cost of bio-fertilizers, which are worth ₹ 20,000.
- A fully grown tree in lifespan of 60 years could be valued at about ₹ 50 lakhs.
- A heritage tree with a lifespan of well over 100 years could be valued at more than ₹ 1 crore.
- Native trees are already adapted to the environment and so do not need extra water or nutrients.
- They provide food, medicinal benefits and shade. They also contribute to nutrient recycling, absorbing nutrients from intensive agriculture, improve air quality and are vital for stabilizing soils, reducing sedimentation moderating erosion. They provide greater indigenous biodiversity, meaning greater resilience and a bigger range of functions within our ecosystem.
- Peepal, Bargad, Ber, Arjun Jamun, Neem, Mango, Bel are few examples of native species, which can combat pollution.
- There is a Triple Planetary Emergency that of climate change, Nature and biodiversity loss and pollution and waste.
- Biodiversity loss is an offshoot of the unsustainable path of development and is an emergency for everyone across the globe.
- An immense quantity of nano-/microplastics is in circulation in water, which is consumed by us and in turn affect health and out of pocket expenditure. This is an immediate challenge that needs to be addressed.
- Climate change is also overall related to the concept of well-being. Delhi recently experienced a temperature of nearly 50°C for the first time.
- Due to the high temperatures, a huge amount of water is needed to irrigate food crops, which is a challenge to the farmers. Crop failures also occur.
- A medicinal plant is any plant which, in one or more of its organs, contains substances that can be used for therapeutic purposes or which are precursors for the synthesis of useful drugs.
- Medicinal plants are integral to human society for curing diseases as well as well-being well before the modern system of medicine came into existence. Because of overexploitation, much of it is getting drained from our natural system. Indigenous and tribal communities are very closely linked to medicinal plants.
- Studies have been carried out globally to verify their efficacy and some of the findings have led to the production of plant-based medicines.
- Shift from overexploitation to sustainable resource development is required.
- Arjun, Ashwagandha, Giloy, Neem, Aloe vera, Tulsi, Patharchatta, Punarnava, Brahmi, Shatavar, Shankhapushpi are few examples of medicinal plants, which have been extensively studied for their health benefits. All of us should try to grow some medicinal plants in our homes and/or plant some trees.
- The Skand Purana speaks of planting eight trees – Bodhi tree, Neem, Banyan tree, Tamarind tree, Kaith, Bilva, Indian gooseberry and Mango.
- The group of five trees – Peepal, Bel, Banyan, Amla and Ashok trees – is called Panchvati. These have immense medicinal benefits.
- We have started to become disconnected with our ancient culture with globalization. It is time to rediscover our ancient traditions. We have to restore our local indigenous, native tree and plant communities.

- Just tree planting is not the answer; tree community plantation is the answer as our aim is restoration of the ecosystem.
- Keeping green areas in cities is very essential. The quality of green cover is very important.
- The Green Delhi campaign started in 2017 and today Delhi has 23% of its geographical area under green cover.
- The Corona pandemic has taught us the challenge of managing real resources. We have suffered from the absence of open and green spaces during the pandemic.
- Many viruses are hiding in nature and many are dormant. With climate change and melting of the permafrost, new viruses may come up.
- There is a possibility of viruses jumping from forests to human areas and vice versa due to climate change.
- All plants, animals and humans should live in coexistence in a mutually beneficial manner.
- The pollination deficit is currently 25%; this has led to reduction in potential crops.
- These challenges are going to be very severe in cities than in the rural areas.
- Conflicts can lead to food crisis.
- We have to be resilient and be nonconflicting with nature.
- The rate of consumption of resources is 1.5 times the earth's resources. A huge amount of waste, particularly plastic waste, is also generated, which existing systems cannot handle.
- The dimension of forest health, which is quite prevalent in countries like South Korea must be promoted.
- Indigenous trees can withstand climate change and so should be encouraged throughout the country. They have more potential than imported species.
- Natural resources should be used appropriately without wasting any so that they are available and in good condition for the next generations to come.
- As scientists, we also have a social responsibility to see how research can help the society, especially the underprivileged.
- Biodiversity is essential for sustainable development.
- The chances of infectious diseases increase with extinction of biodiversity.
- The Aichi biodiversity targets should be implemented.
- Industry of Pharma plants can be developed.

Participants: Dr Anil Kumar, Mr Vivek Kumar, Mr Rajesh S, Mr Neeraj Tyagi, Mr Pradeep Khandelwal, Dr SK Tyagi, Dr Sanjeev Agrawal, Mr Mukul Chand, Mr BC Sabat, Mr RN Jindal, Dr S Sharma

Minutes of an International Weekly Meeting held by HCFI Dr KK Aggarwal Research Fund

Topic: Role of Radiology in COVID-19 Management. The Challenges Faced, the Solutions Offered and What We Learnt!!

Speaker: Dr Abhishek Bansal, Consultant, Dept. of Radiology & Interventional Oncology, Rajiv Gandhi Cancer Institute & Research Centre, New Delhi

June 4, 2022 (Saturday, 9.30-11)

- On 31st December, 2019, COVID-19 was reported to WHO China office. On 30th January, 2020, a public health emergency was declared and on the same day, India reported its first case of COVID-19 in Kerala. On 11th March, 2020, WHO declared the outbreak as a pandemic.
- Angiotensin-converting enzyme 2 (ACE2) is a functional reservoir for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). ACE2 is highly expressed in pulmonary epithelial cells.
- The global outbreak disrupted the steady world of health care and a vast proportion of health care resources were dedicated to the pandemic.
- The main challenge was the diversity of the virus. We didn't know how to manage these patients.
- The guidelines kept on changing. Many existing drugs were tried including plasma therapy. There is conflicting data about plasma therapy. It was realized that collaboration of multi-specialty clinical teams improves patient outcomes.
- Compared to the previous viral pandemics, for the first time, radiology was taking an active interest in diagnosing and also in managing these patients.
- There was a tsunami of COVID-19 publications even in Radiology journals.
- There was a huge demand for chest CT scans as aid to diagnosis of COVID-19 as there was a long waiting time for (reverse transcription-polymerase chain reaction [RT-PCR]).
- A human challenge vaccine trial was going on to look for a reliable vaccine. Then came the news about COVID dogs – medical sniffer dogs who could detect the infection. The UK government sanctioned 5,00,000 pounds on this.

- There was a sudden huge workload on radiology services as the number of chest CT scans in a day rose sharply.
- Lot of awareness had to be created to reduce the panic. There was a simultaneous impact on the economy.
- There was limited manpower and resources in the radiology departments. The scanners had to be sanitized after each scan.
- At Rajiv Gandhi Cancer Institute (RGCI), there was overall a 61.7% decline in workload between April 2019 and April 2020. A drastic drop was seen in mammography (89% drop) and interventional radiology (27% drop).
- It was then scary not just for the patients, but for the families of health care staff as well. Even now the pandemic is not over. Cases keep on coming and going but cases now do not have a serious presentation as seen previously.
- The total number of cases is around 4.32 crore and total deaths are 5.25 lakhs.
- Vaccination changed the course of the pandemic. 64.5% of population in India is fully vaccinated. Globally, 60.7% is fully vaccinated.
- Chest X-ray was the first imaging modality and was useful in serial monitoring of the patients. In acute infection, unilateral/bilateral basal consolidation with hazy opacification was seen on chest X-ray.
- CT scan has been the workhorse. COVID has highlighted the importance of CT amongst radiologists and also among the general physicians and the public. It changed how COVID was managed by informing the early features as well as the worse prognostic features so that these patients could be managed early.
- The typical CT findings in COVID-19 are peripherally distributed multifocal ground-glass opacities (GGOs) with lower lobe predilection. Increasing numbers, extent and density of GGOs on CT indicate disease progression. Thin-slice chest CT plays a vital role.
- Ultrasonography (USG) was useful for bedside evaluation of pleural effusion. Magnetic resonance imaging (MRI) was less useful and more time-consuming.
- It was difficult to manage cancer patients especially the hematological malignancy patients. Timely diagnosis and timely intervention are crucial to managing such patients.
- The Fleischner Society guideline says that look for pre-test probability. If there is moderate to high pre-test probability and there are risk factors for progression, then imaging is indicated. If there is worsening of respiratory symptoms, then again imaging is indicated. But CT scan is not a substitute for RT-PCR.
- In long COVID cases, the patches are seen to persist on CT scan. Fibrotic strands, some interstitial thickening and some nodules are also seen.
- Omicron cases usually did not undergo a CT scan, but those patients who had severe symptoms had a CT scan done and GGOs were still present.
- CT findings have always positively correlated with clinical findings.
- If D-dimers are very high and there is a high risk of pulmonary embolism (PE), then not just high-resolution computed tomography (HRCT) but a contrast CT is advised to look for PE.
- In a patient with moderate-to-severe symptoms, a CT scan would tell about the severity of the disease and serve to guide the treatment.
- COVID changed how the radiology department functioned. COVID screening clinics were outside the hospital; COVID test was necessary before interventional radiology; the entire CT room was sanitized after each CT scan. All precautions were taken such as staff wearing PPE kits. The timings were staggered; there were two teams on alternate days, minimal handling of the patient and working from home. Now, there is lot of gap between reporting stations.
- Physical academic meetings were a complete 'no'. Social distancing introduced us to the world of webinars. This was something new to us, but is here to stay. It brought people across the globe much closer to each other than before.
- India had a mobile app (Arogya Setu) for Bluetooth and GPS tracking.
- The pandemic has taught us that we have to be ready for the next variant/peak/pandemic. COVID-19 cannot be taken lightly yet.
- Along with lab upgradation, radiology infrastructure also needs to be upgraded. Most hospitals now have their own CT scanners and have integrated radiology as part of their routine clinical work. The existing upgraded radiological infrastructure has to be maintained.

- Radiological services play an important role in the multidisciplinary management of COVID-19 or other pandemics that may strike the human race. There have to be adequate training opportunities and telemedicine is going to stay at least for follow-ups.
 - The way forward is to continue with the vaccination drive to cover the whole world and invest in health care suitably. Adequately sized hospitals should have full-fledged radiology departments. COVID appropriate behavior should stay with us.
 - Chest imaging should be used cautiously. It is not indicated in suspected COVID-19 and mild clinical features unless patients are at risk for disease progression. Imaging is indicated in COVID-19 and worsening symptoms.
 - In resource-constrained environment, imaging is indicated for medical triage of patients with suspected COVID-19 who present with moderate-severe clinical features.
 - Rural areas have poor penetration of health care facilities as well as diagnostic radiological facilities. Without radiology it becomes difficult to diagnose and prognosticate these patients.
 - Radiologists were also treating these patients, not directly, but indirectly by managing conditions that arose because of it such as pleural fluid aspiration, pericardiocentesis, management of PE, catheter thrombolysis, embolization, inferior vena cava (IVC) filter placements, etc. Percutaneous jejunostomy under LA was another procedure done during the peak when surgeons/anesthetists were not available and oxygen was in short supply.
 - The biggest problem during the Delta peak was a dedicated oxygen supply. All elective surgeries were postponed. Radiology was playing a supportive role in the management of these patients.
 - Modern day CT scanners are so optimally built that the radiation is very trivial.
 - In a chest CT scan, the radiation dose varies from 2 to 3 milliSievert (mSv); in contrast CT scan, it is 10 mSv. In HRCT, the dose is 3 mSv. This is the average amount of radiation that a person receives from the cosmic world in a single year, though this varies in a range depending on geographical location. With this dose, side effects are not anticipated but the impact will be known only in few years. Follow-up is important.
 - The risk has to be weighed against the benefits. But there should be no unnecessary CT scans.
 - Radiologists work on the principle of ALARA, i.e., as low as reasonably achievable.
 - In a shift from the earlier “no threshold theory” where any amount of radiation was harmful, a new developing “threshold theory” is being debated, which suggests that small radiation doses (≤ 50 mSv) are not harmful.
- Participants – Member, National Medical Associations:** Dr Yeh Woei Chong, Singapore, Chair CMAAO; Dr Alvin Yee-Shing Chan, Hong Kong, Treasurer-CMAAO; Dr Marthanda Pillai, India-Member World Medical Council, Advisor-CMAAO; Dr Ravi Naidu, Malaysia; Dr Akhtar Hussain, South Africa; Dr Qaiser Sajjad, Pakistan; Dr Mvuyisi Mzukwa, South Africa; Dr Md Jamal Uddin Chowdhury, Bangladesh
- Invitees:** Dr Russell D’Souza, Australia UNESCO Chair in Bioethics; Dr Monica Vasudev, USA; Dr Abhishek Bansal; Dr Arvind Chaturvedi; Dr Anil Bansal; Dr Varun Sehrawat; Dr PK Tiwari; Dr PC Pahwa; Dr Yeo Khoon Hui; Dr Carol Lim; Dr EC Ng; Dr Rajiv Gupta; Dr Brij Bajaj; Dr Rajesh G Parthsarthi
- Moderator:** Mr Saurabh Aggarwal

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