The Precision Times

American Oncology Institute supports World Cancer Prevention and Treatment Goals; AOI Differentiators Enable The Resolve

As individuals and communities across the world came together to spread and raise awareness about cancer, we hope that occasion like this will ensure optimal awareness and significantly reduce illness and deaths caused by cancer. World Cancer Day is the one singular initiative under which the entire world can unite together in the fight against the global cancer epidemic. Under the campaign theme 'We can. I can.,' World Cancer Day aims to save millions of preventable deaths each year by raising awareness and education about cancer, and pressing governments and individuals across the world to take action against the disease.

American Oncology Institute extends full support to the Union for International Cancer Control (UICC) and has been doing our bit to achieve the overall goal of optimal awareness and significantly reduce illness and deaths caused by cancer.

American Oncology Institute (AOI) was founded by a team of leading Oncologists at the University of Pittsburgh Medical Centre in USA. AOI brings to its network of super specialty cancer hospitals in India and South Asia standardized cancer treatment protocols and pathways as followed in the leading Oncology centers in the US.

AOI follows a comprehensive approach to prevention and cancer treatment through its dedicated team of medical, surgical and radiation oncologists who work together to optimize patient care backed by new generation technology in diagnostics, day care chemotherapy, operating rooms and radiation therapy.

AOI Differentiators

Commitment to evidence-based clinical pathways for treatment planning: At American Oncology Institute, doctors practice evidence-based medicine. This means, we approach every patient’s care in the same scientific manner and use a clinical pathways software to prepare ‘road maps’ that direct care for all of our patients. Transparent, evidence-based and clinically proven…every aspect of treatment at AOI is based on the strength of the latest clinical data, scientific research and therapeutic options.

Advanced technology: AOI supports every aspect of the treatment process with the latest machines and an advanced IT network. Equipped with the world’s latest medical equipment manned by expert technicians, American Oncology Institute stands at the forefront of cancer care excellence. AOI has introduced the world’s most powerful cancer treatment infrastructure and expertise to India, including the TrueBeam Linear Accelerator, the Calypso System etc.

Multi-disciplinary treatment planning approach: Multidisciplinary treatment planning at AOI allows coordinated approach that brings together multiple cancer specialists as well as other clinicians and professionals to plan the appropriate treatment and other integral services for a cancer patient once a confirmed diagnosis is made (e.g., through surgery or biopsy). Multidisciplinary treatment planning occurs before initiating the required complex, multi-modality therapies.

Weekly virtual tumor board with international oncologists: At AOI, most of the cases are reviewed by an International Tumor Board, a consortium of distinguished experts from different medical specialties from across the globe. They meet once a week through video conferencing to review the medical condition of the patient and recommend treatment options for the cancer type as per NCCN (National Comprehensive Cancer Network) guidelines. The Board collaborates and discusses cases at length to ensure that the most precise treatment is suggested in case of every patient.

Patient-centric approach comparable to US service level: American Oncology Institute gives utmost priority to understand the needs of the patients, collaborate with them and create a relaxed and comfortable environment for treatment. Our approach enables enhanced knowledge and understanding among patients of their own health, wellbeing, and healthcare choices, leading to improved care. By collaborating and engaging with patients in the decision-making process, we make better decisions regarding a patient’s health.
Primary peritoneal cancer, such as malignant mesothelioma and pseudomyxoma peritonei (PMP) are uncommon. However, every year thousands of patients around the world are diagnosed with peritoneal cancer originating from a primary tumor located elsewhere in the body, such as colon cancer, gastric cancer or ovarian cancer. If left untreated, the median survival time for peritoneal cancer patients may be as short as six to six months. These patients are offered palliative chemotherapy which at best improves survival by another 6-9months.

Hyperthermic intraperitoneal chemotherapy (HIPEC) following a cytoreductive surgery (CRS) is a novel treatment to improve survival of these patients and give them a chance of cure. The procedure involves a laparotomy to remove the entire tumor surgically along with the entire peritoneum (peritonectomy) after which heated chemotherapy is circulated in the abdominal cavity to take care of any residual microscopic disease.

Tumor cells are more sensitive to heat and cannot tolerate temperatures above 42°C, whereas normal cells can tolerate temperatures up to 46°C. So a highly concentrated chemotherapy is heated to 42°C and circulated in the abdominal cavity for 60-90 min.

WHO CAN BENEFIT:
- Patients with mesothelioma, pseudomyxoma peritonei
- Patients with peritoneal cancer derived from a colorectal cancer, Ovarian cancer
- Other cancers like stomach, endometrium, sarcomas are still investigational
- The peritoneal cancer index (PCI) is used to assess the extent of peritoneal cancer throughout the peritoneal cavity. PCI should be less than 15
- No disease outside the abdomen
- Patients must be in good clinical condition to endure this treatment

OUR EXPERIENCE:
A prospective observational study is done at the institute from Jan 2015 to present.

A total of 27 patients met the inclusion criteria. Of them, 23 (85%) are female and 4 (15%) are male. Mean age is 59 yrs (Range 42-74yrs). Their primary histologies include 18 patients (66.67%) of recurrent ovarian carcinoma, 5 patients (18.5%) of pseudomyxoma peritonei, 3 patients (11%) of colorectal carcinoma and 1 patient (3.7%) of endometrial carcinoma.

After a follow up of 3 years, 5 patients (18.51%) had recurrence of which 3 (11.1%) had peritoneal recurrence, one patient had stable disease (3.7%) and one (3.7%) had liver metastasis. The rest of the 82% of the pts are free of disease.

CONCLUSIONS:
CRS+HIPEC has acceptable morbidity and mortality rates on par with any other supra-major surgeries.

CRS+HIPEC prolongs survival in selected patients with stage IV cancer patients with peritoneal cancer and gives them a chance of cure.

Dr. Ravi Chander Veligeti
Consultant Surgical Oncologist

A 42-year patient with Chronic Myeloid Leukemia on IMINITAB therapy for 16 years presented with pain in the neck for 2 months, clumsiness of both hands for 1 month and weakness of lower limbs for 15 days. The pain started spontaneously in the lower neck, localized, progressive, and continuous and aggravated with movements. He noticed weakness of the grips (Rt>Lt) since a month which was also progressive.

Later he found difficulty in holding objects, mix and eat food. He started feeling tightness in both his legs followed by difficulty in getting up from chair and could not walk without support. There was no bowel or bladder disturbance. There was no history of trauma or fever. There were no other comorbidities associated, other than CML.

On clinical examination, he had quadriaparesis [4/5] and MRI of cervical spine showed spinal SOL measuring about 3.6x3.5x4.3 cm at C7/D1/D2 level. He was advised to undergo surgery but did not undergo the surgery. He later came back in a month with worsening of symptoms, quadriaparesis with power of [3/5] and repeat MRI showed progression of the lesion in size extending from level C4/C5 to D7 causing compression on the cord mostly towards left side.

He was admitted and taken up for surgery. He underwent Surgical Decompression of the lesion and biopsy of the lesion was done on 15/02/2017. The lesion was pinkish, highly vascular diffuse tumor plastered to the duramater extending from C5/C6 to D6/7 level. At C7/D1, there was bony infiltration and sclerotic changes of the bones were noted.
Frozen section reported polymorphous population of singly scattered marrow elements (myeloid cells, megakaryocytes and plasma cells). No definite glial/meningeal tumor was seen.

Histopathological samples were taken from multiple locations. Reports of all specimens showed similar histological features. There were fragmented bony trabeculae with interspersed hypercellular marrow tissue (>80-85% cellularity) displaying preponderance of cells of myeloid lineage.

Few dyspoietic megakaryocytes, increase in fibrous tissue and crush artefacts noted. Fibroadipose tissue, striated muscle tissue fragments also noted in specimen from ‘C7/D1’ level.

He remained neurologically stable and was discharged. During follow up, there was relief of radicular pain and patient could walk with support.

**DISCUSSION:** There was significant haemopoietic tissue in the spinal canal without malignant conversion. Though the extent of the tumor was spanning large anatomical region, there was no invasion of the tissues in proximity like dura mater or other ligaments and bony elements. The probability in such scenario could be that there was a traumatic breach to periosteum at C6 or C7 level through which the tissue found new anatomical planes to spread. The proliferation trickled down the spinal canal with the rich blood supply available from the dural circulation probably making it more adherent to the dura mater itself.

**THYROID CANCER IN WOMEN**

Thyroid cancer is about three times more common in women than in men. About two thirds of thyroid cancers are diagnosed in women between the age of 20 and 55. Types of thyroid cancer are: Papillary thyroid cancer, Hürthle cell carcinoma, Follicular carcinoma, Medullary thyroid cancers (MTCs), Anaplastic thyroid cancer, Lymphoma and Sarcoma.

In India, thyroid cancer has a widespread distribution with certain subtypes, notably papillary carcinoma, occurring in coastal areas of Tamil Nadu, Andhra Pradesh and Kerala which are iodine rich. The iodine content of soil modifies development of these cancers.

Early diagnosis and treatment remain the cornerstone of thyroid cancer management. The US National Cancer Institute recommends that women who received head or neck radiation in childhood be examined every one to two years to detect potential thyroid cancer.

In women, certain factors such as the size of the family, the use of oral contraception, late age of first childbirth (above 30 years) are considered to constitute an increased risk. Thyroid cancers can be caused by a number of environmental factors. Exposure to ionizing radiation plays a significant role. Rates of thyroid cancer increased following the Chernobyl, Fukushima, Kyshtym, and Windscale nuclear disasters. Genetic causes include family history of a group of disorders associated with tumors of the endocrine system.

Women with thyroid cancer may experience a lump in the front of the neck, swollen glands in the neck, difficulty in swallowing, difficulty in breathing, pain in the throat or neck and a cough that persists and is not caused by a cold. If you have any of these signs or symptoms, talk to your doctor right away.

Thyroid cancers can be diagnosed by routine examination of the neck or are found by x-rays or other imaging scans such as ultrasound. There are several types of blood tests such as CEA, TSH, Tg & TgAb, and MTC for diagnosis and determination of staging of thyroid cancer.

Staging of this type of cancer is based upon three criteria:

- **T** = the condition of the large main tumor when it is found.
- **N** = presence and location of lymph nodes.
- **M** = determining whether the malignancy has metastasized to other body parts.

While treatment requires a combined approach from head & neck surgeon and nuclear medicine, most of this type of cancer requires surgery to get rid of the tumor. Hemithyroidectomy, Total thyroidectomy, and Lymph node resection are some options. Hemithyroidectomy involves removing the affected lobe. Total thyroidectomy is complete removal of the gland, and Lymph node resection, as the name implies, removal of affected lymph nodes recognized during surgery.

Surgery of thyroid gland involves close dissection around the voice nerves (recurrent laryngeal nerves). Damage to these nerves causes permanent voice loss and may require a tracheostomy to maintain breathing. At AOI in all thyroid surgeries an advanced nerve monitoring system (NIM) is used to continuously monitor the status, thereby significantly decreasing the chances of damage to it.
OUR EXPERT PANEL OF DOCTORS

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MEDICAL ONCOLOGY

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- **Dr. Sudha Sinha**
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- **Dr. Surendra Bathula**
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- **Dr. S. K. Gupta**
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- **Dr. Parinitha Gutha**
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SURGICAL ONCOLOGY

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NEURO ONCOLOGY

- **Dr. Ajay Reddy**
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NUCLEAR MEDICINE

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