

Looking to oncology care in an overseas country:

## Cancer Incidence and Medical Management in the Republic of Mauritius

The Republic of Mauritius constitutes the Island of Mauritius together with the Island of Rodrigues, covering an area of 1968 sq km. The estimated resident population as at December 2013 was 1,259,564 with a life expectancy of 70.6 years for males and 77.7 years for females. In Mauritius, there is a free health care delivery system with five regional hospitals and a population doctor ratio of 616 inhabitants per doctor. There are 12 oncologists, 40 general surgeons, 4 neurosurgeons, one pediatric surgeon and one breast cancer surgeon, and 18 pathologists practicing in the Republic of Mauritius, amongst others.

Anil Mohith and colleagues\*

### The Mauritius National Cancer Registry

The Mauritius National Cancer Registry (MNCR) was established in 1993 with French cooperation assistance. Data on cancer incidence and mortality have been collected on a continuous basis since 1989. The registry has reached population-based level since 2000 and has been maintained with WHO assistance. The milestones in the development of a National Cancer Registry in Mauritius are as follows:

- ▲ the MNCR obtained affiliation to the International Association of Cancer registries (I.A.C.R) in 1997
- ▲ CanReg4 software customized by IARC (in Lyon/France) was implemented in 2001
- ▲ MNCR hosted the 33<sup>rd</sup> Annual Meeting of IACR in Mauritius in October 2011 and
- ▲ became a member of African Cancer Registry Network (AFCRN) in 2013.

Access to MNCR computer files is limited and MNCR is registered as a data controller with Data Protection Office (DPO) of Mauritius since 2010.

Data has been collected on an annual basis retrospectively and semi-actively from various sources namely from the computerized radiotherapy register, medical records office, pathology laboratory register, overseas treatment unit (OTU), private pathologists and private clinics and the National civil status office gives us access to cancer specific mortality data.

### Cancer incidence and mortality rates

Breast, cervix, colorectal, endometrial and ovarian cancers were the commonest cancers among women. In males, colorectal, prostate, lung, stomach and oro-pharyngeal cancers were the most common in 2013. Breast cancer age standardized incidence rate (ASR(W)) was 56 per 100,000 (highest in Africa) and cervical cancer was 11.7 per 100,000 while colorectal in males was 20.1 per 100,000 and prostate cancer was 17.3 per 100,000.

For the year 2013, ASR(W)/10<sup>5</sup> for mortality of lungs in males is 18.1 and

prostate is 9.3 while for women highest rate for mortality is breast cancer with an ASR(W) /10<sup>5</sup> of 20.9, followed by colorectal with an ASR(W) /10<sup>5</sup> of 7.4. Kaposi's sarcoma and hepatocellular carcinoma are comparatively rare, in contrast to nearby African countries.

### Diagnostic and screening programs, collaborative research

At the level of the Central Health Laboratory which is the unique one for the island, we provide free services for testing of circulating tumor markers and Immunohistochemistry markers (li-

### Krebsinzidenz und onkologische Versorgung in der Republik Mauritius



Nicht nur Insel im Indischen Ozean für Traumferien: Mauritius, hier die Hauptstadt Port-Louis: Der Inselstaat mit wachsender Wirtschaft stellt sich der Herausforderung Krebs bei seiner älter werdenden Bevölkerung und zunehmend ungesunder Lebensweise. Mit einem kostenfreien Gesundheitssystem (5 Regionalspitäler, darunter 12 Onkologen und weitere Fachärzte) versucht das Gesundheitsministerium, Prävention und die bestmögliche onkologische Versorgung zu implementieren.

Dr. med. Anil, leitender Onkologe, gibt einen spannenden Überblick über Gegebenheiten und die medizinische Versorgung. (Foto: © Fotolia)

mitation of antibodies) as specialized tests. Since 1995, we have a computerised system for all our paraffin blocks; besides we have archived paraffin blocks for at least the past two decades. National screening and early detection programs exist for cervical (Pap smears) and breast cancer, (clinical palpation and diagnostic mammography) together with community-based awareness campaigns.

For breast cancer, collaborative research with AFRCN, University of Halle/Germany, and IACR have been completed. We received the visit of several international cancer experts, from France, Hungary, and U.K. who shared their experience and knowledge for the improvement of cancer care in Mauritius.

### Medical Management of Cancer in Mauritius

The surgical management of cancer is undertaken in all 5 public hospitals and all private clinics. Multidisciplinary meetings are held for cases of breast, brain and paediatric tumours. Patient are referred to the unique public Radiotherapy and Oncology Centre at Victoria Hospital for non-surgical treatment, such as radiotherapy, chemotherapy and for follow-up, which are provided free of charge to all patients. There is no private radiotherapy service in Mauritius. Diagnostic facilities include a Nuclear Medicine department offering technetium-99 isotope bone scanning. CT and MRI imaging is available in all but one regional hospital. FDG-PET scanning is not currently available in Mauritius. Immunohistochemistry is restricted to ER, PR, Ki67 and CD20 with other markers sent abroad. The number of patient episodes/attendances per year in the outpatient section of the Radiotherapy and Oncology Centre had reached a maximum of 26,000 in 2012, prior to the decentralization of outpatient chemotherapy to 3 regional chemotherapy day care units.

### Chemotherapy

The Ministry of Health provides free of charge more than 40 different chemotherapy drugs, mainly generic drugs, beyond the recommended WHO es-

sential chemotherapy list of drugs. In 2014, Trastuzumab was added to the formulary and also Rituximab for patients with CD20 positive lymphomas, according to specific criteria. The most common chemotherapy regimens used are FEC/Paclitaxel for adjuvant treatment of breast cancers, XELOX for colon cancers, Letrozole for postmenopausal breast cancers, Paclitaxel/Carboplatin for advanced lung cancers, R-CHOP for lymphomas, Sorafenib in metastatic renal cell cancers. Paediatric ALL cases are treated in a specialized 13 bedded aseptic children ward with standard FRALLE- based or MRC UKALL protocols. Bone marrow transplant is not performed locally but HLA typing is done. ESMO guidelines are followed as far as possible. Rare tumours that necessitate complex treatments are sent abroad, mainly to India and also to La Reunion, a nearby French dependency.

Clinical cancer trials are not yet undertaken but several epidemiological studies have been published in abstract forms, in collaboration with the University of Mauritius.

### Radiotherapy

The Radiotherapy and Oncology Centre currently has 1 linear accelerator (which needs to be replaced) and 2 cobalt machines for radiotherapy. The average number of cases treated with radiotherapy is 70/day. Low dose brachytherapy is available only for uterine cancers. A new Radiotherapy Centre with a new linear accelerator and facilities for conformal radiotherapy and 3D-planning with high dose brachytherapy will be built soon.

### Palliative Care

This is at present primarily hospital-based rather than community-based and centralized at the Radiotherapy and Oncology Centre. Opiates are available in oral and parenteral forms but limited to a 10-day outpatient repeat prescription by the Dangerous Drug Act. Emergency palliative radiotherapy is readily offered on a 24 hour basis. Nerve blocks and pain clinics are not readily available services.

## National Cancer Control Programme Action Plan

Mauritius is one of the few African countries to have implemented a truly National Cancer Plan since 2010 with priorities given to the prevention, early detection, diagnosis and treatment of the most common cancers and to cancer surveillance. It is planned to introduce the HPV vaccine into the general vaccination program in 2016.

### Conclusion

Mauritius, a small island state with an emerging economy, will be facing the growing burden of cancer in the decades to come, with an ageing population and the increasingly unhealthy lifestyles of its inhabitants. The Ministry of Health is committed to reduce the ascending trend of new cancer cases by putting more emphasis on the preventative aspect of cancer control and to provide the best possible care to those afflicted by this disease by investing in innovative technologies and manpower. ▲

Correspondance:

**Anil Mohith**

Consultant Medical Oncologist

Radiotherapy Unit, Victoria Hospital  
Mauritius

E-Mail: amohith@doctors.org.uk

References:

1. Triennial Report 2010-2012 National Cancer Registry Republic of Mauritius.
2. Mauritius National Cancer Control Programme 2010-2014. [www.health.govmu.org/English/Documents/cancer-ap.pdf](http://www.health.govmu.org/English/Documents/cancer-ap.pdf)

Co-authors:

\* **Shyam Shunker Manraj**, Director of Laboratory Services/MNCR Coordinator, Central Health Laboratory, Candos

**Shashi Sewurn**, Consultant in charge, Radiotherapy Unit, Victoria Hospital

**Nilufer Jasmine Selimah Fauzee**, Medical & Health Officer, Central Health Laboratory, Candos

**Anil Deelchand**, Director Health Services, Ministry of Health & Quality of Life, Republic of Mauritius

**Keyvoobalan Pauvaday**, Director General Health Services, Ministry of Health & Quality of Life, Republic of Mauritius.