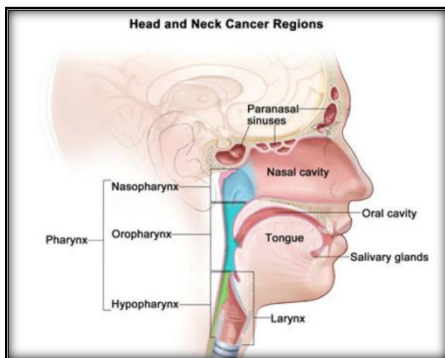


The Impact of Surgical Treatment on Physical Functions and Quality Of Life in Patients with Head and Neck Cancer (HNC): A Prospective Cohort Study

While survival remains the most important outcome in oncologic treatment, recovery of treatment-related morbidity and return to pre-treatment quality of life (QoL) for patients after head and neck cancer treatment is equally important. Currently, objective evaluation of shoulder and neck functions and fitness due to effects of multi-modality treatment in head and neck cancer patients has not been well researched in our patient population. In this interview, **A/Prof Tan Hiang Khoon**, Chairman, Division of Surgery and Surgical Oncology, Singapore General Hospital and National Cancer Centre Singapore, shared information about the causes and treatments of head and neck cancer and how his team conducted the research on evaluating the impact of surgical and adjuvant treatment on the physical functions and quality of life in head and neck cancer patients.

Q: What are head and neck cancers?



A: Cancers that are collectively called as head and neck cancers are typically cancers arising from the moist lining inside the oral cavity, nasal cavity, throat – the upper-aerodigestive tract. They are called squamous cell cancers or **squamous cell carcinoma of the head and neck region** and is the most common type of head and neck cancer. Additionally, skin cancers from the head and neck region, **thyroid gland cancers** and **salivary gland** tumours are also other types of head and neck cancer. Head and neck cancers are further classified according to the specific region they arise from, such

as: oral cavity, nasal cavity and the throat is further sub classified as nasopharynx, oropharynx, larynx (voice box) and hypopharynx. In Singapore approximately 800 new cases of head and neck cancer are diagnosed every year and the commonest head and neck cancer is **Nasopharyngeal carcinoma** (common term of reference is **Nose Cancer**); it is the 8th most common cancer amongst men.

Q: What are the causes of head and neck cancers?

A: Commonly **alcohol** and **tobacco** (this includes smoking as well as smokeless tobacco in the form of chewing tobacco). The other risk factors are infections with **Epstein Barr Virus** (nasopharyngeal cancer) and **human papilloma virus** (oral cancers), chronic trauma in the mouth from **ill-fitting dentures** resulting in chronic non-healing mouth ulcers. Previous history of **irradiation** to the head and neck region can also contribute to head and neck cancers. Additional risk factors are regular use of **mouth wash with high alcohol content**, chewing **betel nut** quid (Paan) and consumption of **salted preserved foods**. Occupational risk factors are exposure to **wood** and **nickel dust**, **asbestos** and **formaldehyde**.

Q: How are head and neck cancers treated?

A: Treatment plan for head and neck cancers depends on the site and size of cancer, extent of cancer spread to the lymph nodes in the neck and if it has also spread to other parts of the body (brain, lungs, liver, and bones etc.); these mentioned factors will decide the cancer stage. In addition, final decision will rest on the patient's general health condition to withstand the treatment and the side-effects from it. Traditionally, treatment of head and neck cancer is multimodal (that is more than one type of treatment). Gold standard is **Surgery**, with removal/resection of the tumour in the upper aerodigestive tract along with neck dissection (removal of lymph nodes in the neck). In advanced cancers of the head and neck, tissue from other parts of the body (e.g.: thigh, lower leg bone-fibula, muscular tissue from the chest) may be used to **reconstruct** and fill-in the defect of the tumor removal. The **reconstruction** aids in restoration of some form, possibly assist in function and last but not the least in improved cosmesis. After recovery from surgery, the next line of treatment is **radiation therapy** with or without **chemotherapy**. Nasopharyngeal, oropharyngeal and early cancers of the voice box can be treated by radiation therapy with or without chemotherapy. This allows preservation of function of swallowing and speech.

Q: what are the common side-effects in patients with head and neck cancer after surgery and/or subsequent adjuvant treatment?

A: Depending on the site of surgical treatment, functions of **swallowing, speech** and **breathing** can be compromised. The extent of surgery and size of tumour removed may also result in change of **facial appearance**. Usually surgery of the head and neck region may also involve removal of the lymph nodes in the neck. This can result in swelling of the neck which usually resolves and may also result in **stiffness** of the **shoulder** and **neck muscles** which can be treated by physiotherapy. Six weeks after the surgery, patients with advanced cancer stage, may need to go for radiation therapy with or without chemotherapy; this is also termed as adjuvant treatment. Some of the immediate side-effects of adjuvant treatment are **mouth ulcers, dry mouth, thickened saliva, loss of appetite and fatigue**. Long-term side effects are **nerve weakness, hearing loss, thyroid dysfunction and difficulty in swallowing and breathing**. In addition, radiation to the neck can cause irritation to the skin of the neck and commonly most patients experience some degree of **stiffness of the shoulder and neck**.

Q: Can you briefly introduce your study and what are the major research findings?

A: This study was designed to evaluate shoulder and neck muscle dysfunction which is a common side-effect of treatment of head and neck cancers. The study uses novel testing methods to measure shoulder and neck muscle function. Thus, far we have not had objective tests to measure the exact level of dysfunction in these muscle groups. The study research findings will help in understanding which patient groups may benefit from a more aggressive rehabilitation and help to improve their **quality of life**. This study tests the patient's **shoulder and neck function** on three occasions, before treatment, after surgery and after radiation treatment is completed. This is to date, the first prospective study investigating the impact of multimodality treatment on fitness and quality of life in head and neck cancer patients in a structured and predefined manner.

Q: Do you have any future research plan based on this study?

A: Our research is In line with our goals in head and cancer treatment, which is improved clinical and quality of life outcomes. This is achieved by **multi-disciplinary team** effort supported by our **Allied Health Professionals team** (comprising of **physiotherapists, speech therapists, dieticians, and onco-psychologists**). Based on the results of this study, we are considering a larger scale research focussing on improved shoulder and neck function.

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Researcher portfolio

This study was completed by the team led by A/Prof Tan Hiang Khoon, Chairman, Division of Surgery and Surgical Oncology, Singapore General Hospital and National Cancer Centre Singapore. His research Interests are health services and systems research (HSSR) and improving outcomes for head and cancer patients.

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