

# Pain Medicine and Palliative Care Division

## Introduction

The Pain Medicine and Palliative Care Division was established in June 1, 1999. Our goal is to relieve cancer pain and to manage other symptoms in cancer patients such as dyspnea, nausea, itching, and hiccups. Treatments for cancer pain follow the WHO analgesic ladder. Opioids and adjuvant analgesics (anti-convulsants, anti-depressants, NMDA receptor antagonists) are the main pharmacological treatments. We also use nerve blocks with local anesthetics for transient analgesia and those with neurolytic agents for permanent analgesia. As other non-pharmacological means, we use transcutaneous electrical stimulation (TENS), acupuncture, low power laser and superlizer. Our themes are 1) patient care, 2) patient education, and 3) research in palliative medicine. We have a resident and a chief resident course to foster palliative care specialists. Presently we have two chief residents in the program. We are a part of the palliative care team, which started its operation on July 1, 1999. Other members of the palliative care team include one oncologist, two psychiatrists, two specialized nurse, two pharmacists and two social workers.

## Routine activities

We routinely manage about 40 patients who have pain and other sufferings due to cancer itself or cancer treatment in the hospital. Most of the patients are referred to us by their oncologists. We make rounds everyday to these patients. We also see about 20 out patients with cancer pain and/or other symptoms due to cancer every afternoon. We occasionally give second opinions to patients and families from other hospitals. We also accept questions from other hospitals by e-mail and phone. Our specialty is

treating neuropathic pain due to cancer itself, cancer chemotherapy and surgery. We are also engaged in basic and clinical researches on neuropathic pain.

## Research activities

### (1) Clinical Research

We have developed an adjuvant analgesic ladder for neuropathic cancer pain using anti-convulsants, anti-depressants, anti-arrhythmic drugs and N-methyl-D-Aspartate (NMDA) receptor antagonist, by which doctors who do not specialize in pain treatment can treat neuropathic cancer pain. We have started studies on the roles of clonazepam and amoxapine in the adjuvant analgesic ladder. We have also started studies on the effectiveness of continuous epidural block on motion pain with bone metastasis. Research on analgesic methods for both procedure pain and pain induced by cancer treatments such as surgical operations, chemotherapies and radiation therapies is also underway. In addition we are performing gene-analysis of patients who take opioids, to assess whether genetic background affects side effects of opioids.

### (2) Basic research

In basic research, we collaborate with the Department of Physiology of Chiba University Medical Graduate School, Department of Pharmacology of Cornell University Medical College in U.S.A., and Laboratory of Chemical Biology and Peptide Research of Clinical Research Institute of Montreal. We have developed a novel mouse model of neuropathic cancer pain by tumor implantation, which mimics human neuropathic cancer pain (Shimoyama, M. et al., Pain 2002). In this model, we characterized the changes in the peripheral nerve and change of dorsal horn neurochemistry as a step to determine the mechanism of neuropathic cancer pain

(Shimoyama, M. et al., Pain, in press). Furthermore we have started studies on analgesic drugs using this model. We also examined the effects of spinal NMDA receptor antisense on formalin-induced persistent pain, which decreases the number of NMDA receptors in the spinal cord of rats (Shimoyama, N. et al., J. Pharmacol. Exp. Ther., in press).

## Clinical Trials

We are conducting phase II trials of oral transmucosal fentanyl preparations (fentanyl lollypop) and immediate release oxycodone. We have also started a phase II trial of a new fentanyl patch (matrix type).

● N.Shimoyama ●

Origin of patients consulted to the team (2004.1-12)

Medical Oncology	N	Surgical Oncology	N
Breast	122	Urology	53
GI	117	Head and Neck	38
Thoracic	93	Orthopedic	36
Stem cell transplantation	91	Hepatobiliary	35
Hepatobiliary	65	Gynecology	21
Hematology	60	Gastric	21
Pediatric	16	Colorectal	20
		Thoracic	20
		Esophageal	17
		Neurosurgery	11
		Breast	7
		Ophthalmology	3
Total	554	Total	300