

## CHAPTER 1

### INTRODUCTION

#### **Background and significance of research problem**

Hepatocellular carcinoma (HCC) is the fourth cause of cancer deaths in the world (Dhir & Mohandas, 1998). It causes estimated 1,250,000 deaths each year in the world (Breda, Hoffman, Sher, Podesta, Rodriquez, & Petrovic, 1996). In North America and Western Europe, HCC is relatively rare, but its incidence in America is increasing (Serag, 1999). At present, its prevalence is high in several regions of the world, notably sub-Saharan Africa and Southeast Asia, where it represents up to 50% of all cancers (Breda et al., 1996; Lightdale & Daly, 1987).

In China, HCC is the second cause of all cancer deaths. It is responsible for 130,000 deaths every year (Tang, 1998). HCC became the first cause of cancer death in rural area with the mortality rate of 23.59 per 100,000 in 1994 and 24.86 per 100,000 in 1995. In urban area, its mortality rate increased from 19.98 per 100,000 in 1994 to 20.17 per 100,000 in 1995. It was the second highest mortality rate which was only lower than lung cancer (Yu, 1998). In Shanghai, its prevalence was 29.6 per 100,000, 10.0 per 100,000, and 20.0 per 100,000 among men, women, and overall population in 1994 (Chang, Yang, & Yu, 1995).

Zhongshan Hospital is one of the teaching hospitals of Shanghai Medical University (SMU). This 1000-bed hospital is a tertiary hospital controlled by the Ministry of Public Health. There were 1994 HCC patients during 1994 to 1998, with 325, 335, 359, 456, and 519 of new cases each year (Report of Zhongshan Hospital of SMU, 1994, 1995, 1996, 1997, 1998). According to such report, the number of the HCC patients was increasing every year.

Current common treatments for HCC are hepatectomy, transcatheter arterial embolization (TAE), and percutaneous ethanol injection (Makuuchi & Kawasaki, 1997). Hepatectomy is the most common treatment. It is an effective strategy that improves survival rate among the early detected cases (Tang, 1995).

Patients with HCC undergone hepatectomy are stressful. According to Lazarus and Folkman (1984), psychological stress is a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being. Any transaction between a person and the environment can be appraised whether it is stressful or not. Not stress appraisal includes irrelevant and benign-positive whereas stress appraisal includes harm/loss, threat, and challenge.

High stress appraisal among patients who were diagnosed with cancer and having the surgery is well documented (Ali & Khalil, 1991; Hanson, 1994; Krause, 1991; Krouse & Krouse, 1982). Hospitalization has also been

appraised as a stressful event by postoperative patients (Ali & Khalil, 1991; Farr, Keene, Samson, & Michael, 1984; Ross & Mackay, 1986). In this study, the events of interest were the situational events which were categorized as illness-related and hospital-related events. Illness-related events included nature of disease, postoperative condition, and financial concern, whereas hospital-related events were hospital condition and interpersonal conditions.

Cancer is one of the most dreaded diseases and is considered to be a life threatening disease. Society is conscious of the potential danger associate with it. In spite of wide publicity regarding high cure rates for many types of cancer that are detected and treated early, many people are convinced that once a diagnosis of cancer has been made, a death warrant has been signed. This is a traditional and psychologically ingrained concept of cancer (Bouchard & Owens, 1976). Fear of serious illness is a stressful event found among patients in many studies (Ali & Khalil, 1991; Connelly, 1992; Volicer & Bohannon 1975; Volicer & Burns, 1977).

Patients with cancer are subject to recurrences, complications, altered anatomy and physiology, and emotional upsets. Many patients are afraid of pain, becoming dependent on others, and death (Bouchard & Owens, 1976). Unfortunately, HCC was commonly found in people under 50 years of age (Tang, 1995; Wu, 1992). The majority of them are males and in mid-career. They are bound with many family and community responsibilities. Being diagnosed with cancer

and undergoing the treatment may influence their career progression and increase their economy burden.

Hepatectomy is a major abdominal surgery. Usually, it can be accomplished through a right subcostal incision, because it provides an excellent exposure of liver (Flint & Polk, 1988). Such incision causes severe postoperative pain. The pain has a great negative impact on breathing, sleep and rest, as well as activities of daily living among the hepatectomy patients (Chen, 1999).

In addition, liver is the largest organ in the body. It has very important physiological functions. Having HCC and resection of the liver cause the disruption of liver function that may persist for days or weeks (Beckermanns & Galloway, 1989). With the alteration of hepatic function and paralytic ileus, the postoperative patients may suffer from abdominal distention, nausea, and vomiting (Long, 1991). Weight loss, inability to eat, or difficulty in eating often present and have a profound physical and psychological impact on the individuals with cancer (Beckerman & Galloway, 1989). Fatigue was found experienced by most of the cancer patients undergone surgery (Nail & Jones, 1995; Nail & King, 1987; Piper, Lindsey, & Dodd, 1987, cited in Barnett, 1997). The majority of patients found the symptom of fatigue very distressing (Barnett, 1997). Moreover, such events may be appraised as stressful because they decreased mobility. The patients may worry about diminishing work capacity, loss of job, or inability to fulfill social role. Many HCC patients feel stressful concerning financial problem. Some of them

have to pay medical bill by themselves. Worrying about not having enough income, difficulties in keeping job/position after hospitalization might be appraised as stressful.

Having hepatectomy, HCC patients have to be hospitalized. Having hospitalization can be appraised as stressful event for most patients since it leads to many changes in daily life and activities that may result in psychological stress (Volicer & Burns, 1977). Hospital-related events include hospital condition and interpersonal event.

Hospital condition consists of unfamiliar room, bed, light, noise, temperature, and hospital schedule. Interpersonal conditions include sharing room with other patients; restricted visiting hours; relationship with nurses, doctors, or other patients; and being away from home. These events were appraised as stressful for most of the hospitalized patients (Connelly, 1992; Volicer & Bohannon, 1975).

Postoperative pain leads to inadequate gas exchange, limits mobility, decreases appetite, and interfering peaceful sleep of the patients. Immobility finally increases the liability to deep vein thrombosis, pressure sores, muscle wasting, urinary retention, and constipation (Carr, 1990; Christoph, 1994; Jurf & Nischl, 1993).

High stress has effects on physical condition of the patients, such as blood pressure, pulse rate, secretion of adrenalin, excretion of catecholamines and corticosteroids (Volicer & Burns, 1977). Farr, Keene, Samson, and Michael

(1984) found that patients have alterations in circadian excretion of urinary variables including catecholamines and 17-ketosteroids as well as physiological indicators of stress such as blood pressure, temperature, heart rate, sodium, potassium, and creatinine following surgery were found. These changes may delay wound healing, lead to potential for bleeding and electrolyte imbalance. A series of studies demonstrated that stress might alter functioning of the immune system. Kono, Sekikawa, and Matsumoto (1995) found that patients with septic complications following esophagectomy had alterations of monocyte phenotype and function due to stress. Andersen and his colleagues (1998) reported the physiologic effects of stress on inhibition of cellular immune responses that are relevant to cancer prognosis, including natural killer (NK) cell toxicity and T-cell responses. Tanabe's study reported that decrease in immunity as a result of high stress was greater among patients with gastrointestinal cancer than in those with a benign disease (Tanabe, 1993). Decreased immune function may increase the risk for postoperative infection.

Therefore, high stress among HCC patients undergone hepatectomy may cause severe pain, anxiety, depression, sleep pattern disturbance, and stop the patient from taking deep breath, having effective cough, taking enough necessary food, and engaging in activities of daily living as well as decrease immune function. With uncontrolled stress, postoperative complications may occur and the patients may need more time to recovery after the operation.

Nurses are primary care providers for HCC patients undergone hepatectomy. After the surgery, nurses should know and understand the events that are appraised as stressful and stress appraisal among the patients so that nursing care can be planned accordingly and appropriately. Yet, there is not enough information concerning such evidence. It is the purpose of this study to identify events that are appraised as stressful and stress appraisal among the patients.

#### **Objectives of the study**

1. To identify events that are appraised as stressful among HCC patients undergone hepatectomy.
2. To describe the stress appraisal among HCC patients undergone hepatectomy.

#### **Research questions**

1. What are the events that are appraised as stressful among HCC patients undergone hepatectomy?
2. What is the stress appraisal among HCC patients undergone hepatectomy?

#### **Scope of the study**

The study was conducted to investigate HCC patients undergone hepatectomy in the Zhongshan hospital, one of the teaching hospitals of Shanghai Medical University, Shanghai, China. The data collection was done during November, 1999 to February, 2000.

## Definition of terms

**Event** is defined as the encounter between person and environment that is appraised by the person whether it is taxing or exceeding the person's adaptive capacities and resources. It was measured by Stress Appraisal Scale-Hepatectomy (SAS-H), developed by the researcher based on literature review within the framework of Lazarus and Folkman's transaction model (1984).

**Stress appraisal** is the result of evaluative process that determines the meaning of a particular transaction or series of transactions between the person and environment as taxing or exceeding the person's adaptive capacities and resources (Lazarus & Folkman, 1984). It was measured by Stress Appraisal Scale-Hepatectomy (SAS-H), developed by the researcher within the framework of Lazarus and Folkman's transaction model (1984).

**HCC patients undergone hepatectomy** is an adult person who was diagnosed as hepatocellular carcinoma, and was in the first 48-72 hours after having hepatectomy.