Indian Journal of Surgical Oncology (February 2019) 10 (Suppl 1):S29–S32
https://doi.org/10.1007/s13193-018-0858-z

REVIEW ARTICLE

Current Status of Peritoneal Surface Malignancy in Thailand

Chayanit Sirisai[1] · Asada Methasate[2]

Received: 9 November 2018 / Accepted: 4 December 2018 / Published online: 18 December 2018

Abstract
Peritoneal dissemination negatively affects the survival of cancer patients. Comprehensive treatment comprising of cytoreductive surgery and hyperthermic intraperitoneal chemotherapy (HIPEC) introduced by Dr. Paul H. Sugarbaker in 1980 has shown a benefit in survival especially in patients with gastrointestinal cancer and ovarian cancer. Thailand started to perform this integrated treatment in 2012. A modification of the heart–lung machine was used as the hyperthermic pump for the first few years. Until now, 240 cases have been treated in 7 centers. Although the Thai health care system covers all areas and is easy to access, many surgeons still doubt the benefit and safety of this treatment. This coupled with difficulty in procuring the equipment, and high procedural cost has resulted in few surgeons offering this treatment and fewer patients availing of it. The small group of peritoneal surface malignancy (PSM) surgeons tries to educate all health care providers to understand how it works in an advanced-stage cancer patient and to make this procedure be covered by the national health care policy.

Keywords Peritoneal surface · Malignancy · HIPEC · Thailand

Introduction

Peritoneal dissemination indicates an advanced stage of cancer and/or non-curable disease. It is also an important factor that affects the long-term survival of cancer patients. A complex combined modality treatment was introduced in 1980 by Dr. Paul H. Sugarbaker [1] which comprises of cytoreductive surgery (CRS) and hyperthermic intraperitoneal chemotherapy (HIPEC). These treatments caused a change in the oncologist's concept of peritoneal metastasis, increased the cure rate, and significantly improved the quality of life of patients [2–4]. Over the last three decades, oncologists all over the world have learnt how to treat peritoneal metastases more effectively and are more aware of the outcomes of this treatment. In Thailand, this treatment has been available for 6 years but there were only a few peritoneal surface malignancy (PSM) surgeons. However, many researches have reported the benefit of HIPEC on a gastrointestinal and ovarian cancer patient. This impact changed the attitude of many doctors, resulting in increased awareness and more patients referred to the available center. This article shows the setting up of HIPEC in Thailand and the trend of PSM treatment in Thailand.

Past

HIPEC was introduced to Thailand by Dr. Asada Methasate at Siriraj hospital in 2012. After he returned from training with Dr. Yutaka Yonemura, one of the pioneers of this treatment in the world, he performed CRS and HIPEC for a patient with gastric cancer. During the early period, he used the HIPEC machine adapted from the circuit of heart–lung machine. It comprised of a membrane oxygenator, a rolling pump, and a warmer device (Fig. 1). The machine could run hyperthermic chemotherapy smoothly maintaining a steady temperature during the procedure and yielded satisfactory result. However, it took a longer time to set up compared to the ready-made commercial machine; therefore, after 15 cases, it was changed to a commercial one. The health care providers/workers in the hospital were educated about this procedure, safe handling of chemotherapeutic agents, and handling of spills.

✉ Chayanit Sirisai
schanyt@gmail.com

[1] Division of Peritoneal Surface Malignancy, Department of Gastrointestinal Surgery, National Cancer Institute of Thailand, 268/1 Rama VI road Rajathewi, Bangkok 10400, Thailand

[2] Division of Minimal Invasive Surgery, Department of Surgery, Faculty of Medicine, Siriraj Hospital, Mahidol University, Bangkok, Thailand

Fig. 1 **a** The heart-lung machine that was used as the hyperthermic pump for HIPEC comprised of membrane oxygenator, rolling pump, and warmer devices. This machine was used for the first case of HIPEC in Thailand. **b** Another view of HIPEC machine

For the first few years after starting the HIPEC program, this surgery was performed at a university hospital. Some doctors continue to be apprehensive about the morbidity and mortality and are not convinced about the benefit of this treatment in patients with peritoneal metastases. In addition to performing this complex surgery, controlling the morbidity and mortality, Dr. Methasate had another issue to deal with such as making the equipment available to other centers in the country and disseminating knowledge and information in the medical fraternity. His efforts were successful to an extent but the surgical procedures were still performed only at the university hospital and few patients were referred for this treatment.

Thai Health Care System

There are 3 health care systems in Thailand managed by the ministry of public health, the Civil Servant Medical Benefit Scheme (CSMBS) that covers 9% of the population, the Social Security Scheme (SSS) that covers 16%, and Universal Coverage Scheme (UCS) that covers nearly 75% of the Thai population [5]. All these schemes are funded by the Thai government through the revenue generated from taxes. Patients can get health care consultation at a nominal cost per consultation (30 baht or 0.9 USD), whereas for the inpatient unit, most of the expense is also borne by the government fund and the patients only pay a token fee. Normally, the patient will not pay for each admission except for some advanced treatment and for equipment or drugs that are not listed in the available list by the government. For example, for CRS and HIPEC, all the cost of CRS is borne by the government but not the consumables and drugs used for HIPEC—patients have to pay for the disposable kit and specific chemotherapeutic agents used during the procedure. There are 1332 referral medical centers including government and private centers that cover all the geographic area of Thailand [6]. Thus, it is very easy for any citizen to reach a health care center. Patients can also get private insurance to cover the expenses of hospitalization.

Present

Nowadays, there are 7 centers that can perform this complicated operation (Fig. 2). Four centers are located in Bangkok, two centers in the southern part, and one in the northern part of Thailand. Six of the seven are university hospitals under the jurisdiction of the Ministry of education (MoE), and the National Cancer Institute of Thailand (NCI) is the only one hospital that is under the control of Ministry of public health (MoPH). There was no difference in treatment and management of diseases but the budget for each case is a little bit lower in the case of MoPH care. There are 5 surgeons who regularly perform CRS and HIPEC. Ninety percent of CRS and HIPEC in Thailand are performed in a university hospital providing the opportunity to teach surgical resident about PSM. From the past few years, young-blood surgeons know more about this technique and indication to perform the operation.

Problems

There are some obstacles to increase the number of PSM surgeons. First, some doctors still doubt the benefit of treatment despite the fact that many studies showing good results are published every year. They still believe that for patients with peritoneal metastases, supportive treatment has a better quality of life than surgery. Some surgeons do not have the confidence to perform such complex procedures and are not familiar with many of the procedures involved in cytoreductive surgery. Not all surgeons are accustomed to treating malignancies and may refer patients to another hospital. Surgeons practicing sub-specialty in oncology are few and confined to the urban areas. Some others are concerned about the safety of contact with chemotherapeutic agents for themselves and ancillary staff though all protective equipment is available. Most importantly, though patients have to pay only 20% of the procedural cost, it amounts to more than the monthly income of most of them since the per capita income

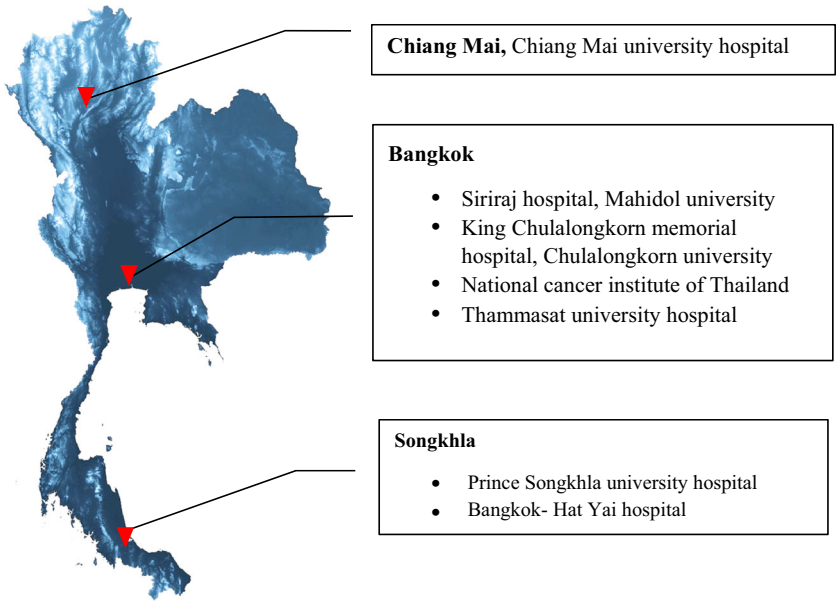

Fig. 2 Hospitals that can perform CRS and HIPEC in Thailand

in the country is low. Lastly, patients from rural areas have to travel to urban areas to avail of this treatment.

Thai Cancer Registry

There is a Thai cancer registry which registers all of the cancer cases that are treated at NCI since 2007 and brings out an annual publication of the same. As this registry includes all malignancies, the details of patients with PM and its treatment are not captured and many important variables are missing. Each group of surgeons has created their own registry such as the colorectal cancer registry that is run by the colorectal royal college of Thailand. The registry for PSM has not been established yet but there is a plan to do so in the future.

Future

Since 2012, 240 CRS and HIPEC procedures have been performed in Thailand. There is one clinical study underway, pertaining to gastric peritoneal metastases, the results of which are expected to be published this year.

The group of PSM surgeons has been trying to push the course of PSM in many of the national conferences in the past few years and also invite experts from overseas to inspire young surgeons. The topics proposed are to make surgeons understand the real benefit of CRS and HIPEC and safety from chemotherapeutic agents' contamination. A live surgical demonstration is organized to show how to perform a peritonectomy. Although the conference cannot increase in number of PSM surgeons, CRS and HIPEC have been gradually recognized and accepted.

NCI has a mission to push all new standard treatment into government policy. CRS and HIPEC were included officially in February 2018. Now, we performed 18 cases of CRS and HIPEC for various primary cancers. Sixty percent of the cases had peritoneal dissemination from colorectal cancer. There was no 60-day mortality and 17% of patients have grade 4 complications. We are continuing this work to confirm its benefit and possibility of becoming widely acceptable and being listed in the procedures covered by the national health care policy. Another mission is educating another hospital to understand and recognize this procedure by organizing a conference and a live surgical demonstration.

It is important to train surgeons in the country itself and give them hands-on experience. With a case load of 1–2 per month, it is not a viable option now. A training center is important to provide good surgical skill and knowledge of HIPEC. But a systematic training program will be organized once the case load increases.

Conclusion

Although CRS and HIPEC were started many years ago in Thailand, doubt about its benefit persists in the medical fraternity. The cost of the procedure and lack of availability of equipment add to the problems faced by surgeons. A group of PSM surgeons is striving to include CRS and HIPEC in the national health care policy so that more patients can avail of its benefits.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

References

1. Sugarbaker PH (1995) Peritoneal procedure. Annal of Surgery 221(1):29–42
2. Li Y, Zhou YF, Liang H, Wang HQ, Hao JH, Zhu ZG et al (2016) Chinese expert consensus on cytoreductive surgery and hyperthermic intraperitoneal chemotherapy for peritoneal malignancies. World J Gastroenterol 22(30):6906–6916
3. Bushat M, Rovers KP, Sommariva A, Sugarbaker PH, Morris DL, Yonemura Y et al (2018) The current practice of cytoreductive surgery and HIPEC for colorectal peritoneal metastases: results of a worldwide web-based survey of the Peritoneal Surface Oncology Group International (PSOGI). In: European journal of surgical oncology
4. Passot G, Bakrin N, Roux AS, Vaudoyer D, Gilly FN, Glehen O et al (2014) Quality of life after cytoreductive surgery plus hyperthermic intraperitoneal chemotherapy: a prospective study of 216 patients. EJSO 40:529–535
5. WHO (2015) The kingdom of Thailand health system review. WHO Regional Office for the Western Pacific, Manila
6. annual report fiscal year NSHO (2017) National Health Security Office. In: 2018