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ภาวะฉุกเฉินทางโรคมะเร็งในโรงพยาบาลศรีนครินทร์: ข้อมูลย้อนหลัง 10 ปี

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Oncologic Emergencies in Srinagarind Hospital: A 10 Years Period of Hospital Records

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หลักการและวัตถุประสงค์: ภาวะฉุกเฉินทางโรคมะเร็งเป็นภาวะที่ก่อให้เกิดภาวะทุพพลภาพและเสียชีวิตในผู้ป่วยโรคมะเร็ง โดยเฉพาะหากได้รับการวินิจฉัยและการรักษาที่ล่าช้า วัตถุประสงค์ของการศึกษานี้เพื่อทบทวนลักษณะทางคลินิกและสาเหตุของภาวะฉุกเฉินทางโรคมะเร็ง ได้แก่ การอุดตันของเส้นเลือดดำใหญ่ superior vena cava ภาวะไขกระดูกถูกกดทับจากโรคมะเร็ง และภาวะระดับแคลเซียมสูงจากโรคมะเร็ง

วิธีการศึกษา: ทำการศึกษาในผู้ป่วยโรคมะเร็งที่ได้รับการวินิจฉัยภาวะฉุกเฉินทางโรคมะเร็ง ได้แก่ การอุดตันของเส้นเลือดดำใหญ่ superior vena cava ภาวะไขกระดูกถูกกดทับจากโรคมะเร็ง และภาวะระดับแคลเซียมสูงจากโรคมะเร็งที่ลงทะเบียนในโรงพยาบาลศรีนครินทร์ ระหว่าง 1 มกราคม ค.ศ. 2001 ถึง 31 ธันวาคม ค.ศ. 2010

ผลการศึกษา: จำนวนผู้ป่วยโรคมะเร็งที่อยู่ในช่วงการศึกษาดังกล่าว ทั้งหมด คือ 46,264 ราย พบผู้ป่วยที่มีการอุดตันของเส้นเลือดดำใหญ่ superior vena cava จำนวน 82 ราย (ร้อยละ 0.18) ภาวะไขกระดูกถูกกดทับจากโรคมะเร็ง จำนวน 71 ราย (ร้อยละ 0.15) และภาวะระดับแคลเซียมสูงจากโรคมะเร็ง จำนวน 81 ราย (ร้อยละ 0.18) อุบัติการณ์ของภาวะฉุกเฉินทางโรคมะเร็งสูงสุดในผู้ป่วยช่วงอายุ 41-60 ปี พบมะเร็งปอดเป็นสาเหตุที่ก่อให้เกิดภาวะฉุกเฉินทางโรคมะเร็งมากที่สุด ผู้ป่วยที่มีการอุดตันของเส้นเลือดดำใหญ่ superior vena cava มีอาการที่พบได้บ่อย คือ ใบหน้าบวม (ร้อยละ 76.83) และหายใจไม่อิ่ม (ร้อยละ 59.76) กล้ามเนื้ออ่อนแรงเป็นอาการที่พบบ่อยในภาวะไขกระดูกถูกกดทับจากโรคมะเร็ง (ร้อยละ 88.73) สำหรับผู้ป่วยที่มีระดับ

Background and Objective: Oncologic emergency occurring in cancer patients leads to a high chance of morbidity and/or mortality, especially, when the diagnosis and specific treatment are delayed. This study aims to study the clinical presentations and causes of oncologic emergency in Srinagarind hospital such as superior vena cava (SVC) obstruction, malignant spinal cord compression (MSCC) and hypercalcemia of malignancy (HCM).

Methods: All new cancer patients with oncologic emergency diagnosed SVC obstruction, MSCC and HCM, who are registered in Srinagarind hospital between January 1st, 2001 and December 31st, 2010, were enrolled in this study.

Results: This study revealed that the number of cancer patients were 46,264 cases. Cancer patients with SVC obstruction were accounted for 82 (0.18%), additionally, such patients with MSCC and HCM were 71 (0.15%) and 81 (0.18%), respectively. The highest incidence of oncologic emergency was presented at the age of 41-60 years. The results showed that the primary lung cancer frequently leaded to oncologic emergency such as SVC obstruction, MSCC and HCM. Malignancy patients with SVC obstruction frequently presented with facial swelling (76.83%) and dyspnea (59.76%). Additionally, motor muscle weakness was the most common clinical presentation of MSCC (88.73%). Basically, cancer

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แคลเซียมสูงจากโรคมะเร็งโดยมากมีภาวะความรู้สึกตัวลดลง (ร้อยละ 61.73)

สรุป: ภาวะฉุกเฉินทางโรคมะเร็งเป็นภาวะที่พบได้ไม่บ่อย แต่ก่อให้เกิดภาวะทุพพลภาพและเสียชีวิตได้ ดังนั้น ภาวะนี้ควรได้รับการตระหนักเพื่อได้รับการวินิจฉัยตั้งแต่ระยะเริ่มต้น รวมทั้งผู้ป่วยโรคมะเร็งควรได้รับคำแนะนำในการเฝ้าระวังตนเองจากภาวะฉุกเฉินทางโรคมะเร็ง

คำสำคัญ: ภาวะฉุกเฉินทางโรคมะเร็ง, การอุดตันของเส้นเลือดดำใหญ่ superior vena cava, ภาวะไขกระดูกถูกกดทับจากโรคมะเร็ง

patients with HCM prominently showed lethargy (61.73%).

Conclusion : The oncologic emergency is a rare condition. However, this condition can cause devastating morbidity and mortality in malignancy patients. Therefore, this condition should be primarily concerned to provide early diagnosis. Additionally, patients with malignancy should be advised to carefully aware the occurrence of oncologic emergency.

Key words: Oncologic emergency, Superior vena cava obstruction, Hypercalcemia, malignant cord compression

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Introduction

Oncologic emergency occurring in cancer patients is rare condition, however; many cancer patients, who have poor prognosis, usually suffer from this condition leading to having a high chance of morbidity and/or mortality, especially, when the diagnosis and specific treatment are delayed[1]. Common causes of oncologic emergency are classified into three groups of disease. The first group is the effects of tumor compression on adjacent organs such as superior vena cava obstruction (SVC obstruction), malignant spinal cord compression (MSCC), airway obstruction and bowel obstruction. The second group is abnormal metabolism and this usually results from paraneoplastic syndrome such as hyponatremia from SIADH and hypercalcemia from parathyroid hormone related peptide (PTH-rP), tumor lysis syndrome from destruction of cancer cells after chemotherapeutic treatment resulting in abnormal extracellular electrolytes. The last group is the seqaulae after chemotherapeutic treatment such as febrile neutropenia and infusion reaction from intravenous chemotherapy or molecular targeted therapy. The most common oncologic emergency frequently occurring in cancer patients is SVC obstruction followed by malignant spinal cord compression (MSCC) and hypercalcemia of malignancy (HCM)[2].

SVC obstruction is caused from the compression effects of mediastinal mass influencing on SVC and this causes high back pressure to blood coming back to the heart (venous return). Consequently, venous drainage from head, neck and upper trunk are obstructed and the venous blood is difficult to enter the right atrium. These result in swelling face, neck and upper extremities and dyspnea[3]. If tumor invades to spinal canal and compresses spinal cord, this leads to MSCC. The most common cause of MSCC is the distant metastasis of cancer to either spinal bone or epidural space. Patients with MSCC usually present with back pain, paraparesis or quadriparesis of muscle or paresthesia[4]. HCM is the state that cancer patients have high levels of serum calcium. The cause of HCM patients is paraneoplastic syndrome. This syndrome is resulted from increased secretion of parathyroid hormone related peptide from tumor mass or distant metastasis directly to bone leading to stimulating bone resorption. Cancer patients with malignant hypercalcemia can present with various symptoms. These patients can present with no abnormal symptom or this condition can be lethal in cancer patients. However, the typical clinical presentations of malignant hypercalcemia are polyuria, constipation and drowsiness[5].

Srinagarind Hospital is the tertiary health care center and the University hospital, which is the center for referral of all advanced and complicated cases especially malignant diseases from other regions within the Northeast Thailand. This study is the pioneer study on oncologic emergency, which has never ever been

studied in Srinagarind Hospital during the last 10 years. This study aims to study oncologic emergency in Srinagarind Hospital and reveal the causes of SVC obstruction, MSCC and HCM. The common types of cancer causing oncologic emergency were also evaluated. Additionally, the clinical features of patients with oncologic malignancy were also studied.

Material and Methods

Case definition:

All new oncologic emergency cases registered in Srinagarind hospital between January 1st, 2001 and December 31st, 2010 were included in this study. This study is officially approved by the Khon Kaen university Ethics Committee for Human Research based on the Declaration of Helsinki and the ICH Good Clinical Practice Guidelines with HE561237, HE561261, and HE561260 of reference number.

Sources of data:

Srinagarind hospital, Khon Kaen university (a thousand-bed university hospital), Khon Kaen, Thailand, is situated in the center of NE Thailand and accepts all referred cases from other health care centers in this region. Our data were obtained from Srinagarind hospital Patient Registry, which has recorded data of all patients treated in this hospital. The data are normally collected from each cancer patient including age, sex, date of birth, date of diagnosis, primary site of cancer, extension or metastasis, histology of cancer, date of last visit, clinical presentation, treatment and other necessary information. However, only relevant data were presented in this study.

Statistical Analysis

Patients' characteristics were presented as mean and percentage. The statistical analyses were performed using STATA version 10.0. The study was complete for analysis in June 2014.

Results

This study revealed that the number of patients diagnosed with malignancy was approximately 46,264 cases. Cancer patients with SVC obstruction were accounted for 82 (0.18%), additionally, the proportion of malignant patients presenting with MSCC and HCM was 71 (0.15%) and 81 (0.18%), respectively presented in Table 1. The majority of cancer patients with oncologic emergency were commonly occurred in male cancer patients. The highest incidence of oncologic emergency was presented at the age of 41-60 years. The results showed that lung cancer, which is the primary cancer, frequently leaded to the common oncologic emergency such as SVC obstruction, MSCC and HCM. Malignant patients with SVC obstruction normally presented with facial swelling (76.83%) and dyspnea (59.76%). Additionally, motor muscle weakness is the most common clinical presentation of cancer patients with MSCC (88.73%). The majority of these patients normally presented with grade 0/VI of motor power examination at the first diagnosis (56.34%). In addition, paresthesia was the second most common clinical presentation of malignant patients with MSCC (42.25%). Basically, malignant patients with HCM prominently showed the abnormality of neuromuscular system especially lethargy (61.73%). Additionally, gastrointestinal disorders were also detected in these patients. The majority of cancer patients with SVC obstruction or MSCC received radiotherapy (58.54% and 60%, respectively) whereas chemotherapy was the treatment for cancer patients with SVC obstruction only 4.94% and 20% for cancer patients with MSCC. All malignancy patients with HCM received intravenous hydration followed by furosemide (59.8%) and bisphosphanate (45.1%).

Discussion

The oncologic emergency is a serious condition leading to high rate of morbidity and mortality in patients with malignancy, however, the frequency of this condition is less compared to other disorders[6]. Malignant disease, which was commonly found oncologic emergency including SVC obstruction, MSCC or HCM, was lung

Table 1 The demographic data of cancer patients with oncologic emergency and the different treatment modalities in these patients

Variable	SVC	MSCC	HCM
N	82	71	81
Mean of Age (range)	52 (15-84)	51	56 (14-84)
Male: Female	64: 17	46: 25	49: 32
Common Types of Cancer, N(%)*			
1st	Unclassified mediastinal mass, 23 (28.05)	Lung, 8 (8.2)	Lung, 14 (17.28)
2nd	Lung, 15 (18.29)	Liver, 8 (8.2)	Multiple myeloma, 14 (17.28)
3rd	Thrombosis, 11 (13.41)	Lymphoma, 5 (5.1)	Lymphoma, 10 (12.35)
4th	Metastatic carcinoma, 8 (9.76)	Prostate, 4 (4.41)	Urothelium, 9 (11.11)
Common Symptoms at Presentation*			
1st	Facial swelling, 63 (76.83)	Motor weakness, 63 (88.73)	Lethargy, 50 (61.73)
2nd	Dyspnea, 49 (59.76)	Paresthesia, 54 (42.25)	Constipation, 8 (9.8)
3rd	Cough, 27 (32.93)	Back pain, 49 (69.01)	Polyurea, 3 (3.7)
4th	Weight loss, 14 (17.07)	Uncontrolled urination nor defication, 30 (42.25)	Nausea, 3 (3.7)
Common Signs at presentation*			
1st	Swelling of upper extremities and face, 66 (80.49)	Motor power grade 0, 40 (56.34)	Muscle weakness, 24 (29.63)
2nd	Superficial vein dilatation, 55 (67.07)	Motor power grade 2, 13 (18.31)	Coma, 12 (14.8)
3rd	Hoarsness, 14 (17.07)	Motor power grade 3, 7 (9.86)	Confusion, 8 (9.88)
4th	Horner's syndrome, 3 (3.66)	Motro power grade IV, 6 (8.45)	Renal insufficiency, 3 (3.7)
Treatment*			
1st	Radiotherapy 48 (58.54)	Radiotherapy 42 (60%)	Intravenous hydration 81 (100%)
2nd	Chemotherapy 4 (4.94)	Surgery 34(48.57%)	Furosemide 49 (59.8%)
3rd	Surgery 0 (0)	Chemotherapy 14 (20%)	Bisphosphanate 37 (45.1%)

* there are more than 1 item in each patient

cancer. Lung cancer was found at high frequency and lung cancer patients commonly presented with advanced stages of disease at the first diagnosis[7]. In addition, the biological behavior of lung cancer is very aggressive and has high capability to invade adjacent organ and spread to far organs. Therefore, the oncologic emergency was commonly found in patients with lung cancer. Additionally, lung cancer is currently presented in both male and female at a higher frequency compared to the previous decade[8]. Oncologic emergency was commonly occurred in patients at the age of 41-60 years because cancers are usually developed in patients during this age group. Basically, patients will seek for treatment and come to see the physician when obviously worse symptoms are presented. Hence, the clinical presentation of cancer patients at the first diagnosis of SVC obstruction affecting from the compression effects of tumor mass was facial swelling and dyspnea. Additionally, total weakness of motor muscle from MSCC also brought the consideration from cancer patients to seek for specific treatment. However, cancer patients still have less knowledge about oncologic emergency. Consequently, they did not realise the early abnormal signs of oncologic emergency, hence; cancer patients with oncologic emergency did not receive an appropriate self primary supportive care at home. This possibly indicates that the physician is not successful in verbal communicating with cancer patients to make them aware about the oncologic emergency. Furthermore, cancer patients with HCM could usually present with non specific symptoms. Consequently, it is difficult to

make a definite diagnosis of HCM leading to delayed diagnosis and delayed specific treatment[9]. This can seriously affect the treatment outcome and prognosis of patients.

Advantages and limitations of study

The advantage of this study is a long period of study time performed (2001-2010). However, this study is retrospective study and the data recorded were not perfectly complete especially at the beginning of cancer registration system. Additionally, oncologic emergency should be more concerned in patients with malignancy and effective medical advice should be provided for cancer patients to help these patients to aware disorders caused from oncologic emergency for early detection and treatment.

Conclusion

The oncologic emergency is a rare condition presenting in cancer patients and has less incidence compared to other disorders. However, this condition is able to cause devastating morbidity and mortality in malignant patients. Therefore, this condition should be primarily concerned in cancer patients and the early diagnosis should be made earlier. Additionally, patients with malignancy should be advised to carefully aware the occurrence of oncologic emergency.

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