

# 109 年「Breakthrough pain and cachexia: What can we do more?」研討會

主辦單位：台灣安寧緩和醫學會

協同主辦：台灣疼痛醫學會、社團法人臺灣臨床藥學會、中華民國癌症醫學會

協辦單位：台灣東洋藥品工業股份有限公司

時間：3 月 14 日(星期六)下午 1 時 30 分至 4 時 40 分

地點：台大公衛學院 201 室(台北市中正區徐州路 17 號)

Time	Topic	Speaker	Moderator
13:00-13:30	報 到		
13:30-13:40	Opening	蔡兆勳 理事長 台灣安寧緩和醫學學會	
13:40-14:20	Keys to slow down the process of cancer cachexia	陳國維醫師 振興醫院血腫科	高偉堯 主任 台灣安寧緩和醫學學會
14:20-15:10	The etiology of breakthrough pain: what do we miss?	吳志成主任 臺中榮總疼痛科	
15:10-15:25	Coffee Break		
15:25-16:05	The art of pain control: how to optimize the use of Rapid-onset-opioids?	邵幼雲醫師 台大醫院腫瘤醫學部	王正旭教授 基隆長庚醫院血腫科
16:05-16:30	Panel discussion	王正旭教授 基隆長庚醫院血腫科	
16:30-16:40	Closing	蔡兆勳理事長 台灣安寧緩和醫學學會	

# 振興醫院

## 陳國維醫師

### 個人簡歷



- 現職
- 振興醫院血液腫瘤科主治醫師

- 學歷
- 1997-2004 國立陽明大學醫學系畢業

- 經歷
- 2004-2005 中華民國空軍少尉醫官
- 2006.06-2009.07 台北榮總內科住院醫師訓練
- 2009.08-2012.07 台北榮總血液腫瘤科總住院醫師訓練
- 2012.08-2013.07 國立陽明大學附設醫院內科部約用主治醫師/台北榮總進修醫師

- 專長

#### 證照

- 2009- 台灣內科醫學會內科專科醫師
- 2011- 台灣血液病學會專科醫師
- 2011- 台灣血液暨骨髓移植學會專科醫師
- 2012- 中華民國癌症醫學會腫瘤內科專科醫師
- 2012- 台灣癌症安寧緩和醫學會專科醫師

#### 學會

- 台灣內科醫學會
- 台灣血液病學會
- 台灣血液暨骨髓移植學會
- 中華民國癌症醫學會
- 台灣癌症安寧緩和醫學會

- 其他

#### 文獻發表

1. Chen KW, Liu CJ, Lu HJ, Tzeng CH, Liu JH, Chiou TJ, Yen CC, Wang WS, Chao TC, Teng HW, Chen MH, Liu CY, Chang PM, Yang MH. Evaluation of prognostic factors and the role of chemotherapy in unfavorable carcinoma of unknown primary site: A 10-year cohort study. BMC Res Notes. 2012 Jan 26;5(1):70.
2. Chen KW, Yang CF, Huang CT, Chiou TJ, Liu CY. Molluscum contagiosum in a patient with adult T-cell leukaemia/lymphoma. Br J Haematol. 2011 Nov;155(3):286.

# Curriculum Vitae 簡歷

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## Education and Training:

1986/09-1993/06	醫學士	中國醫藥學院
1992/07-1993/06	實習醫師	台灣大學醫學院附設醫院
1993/12-1997/06	住院醫師	台中榮民總醫院麻醉科
1997/07-1998/12	總醫師	台中榮民總醫院麻醉科
1998/12-2013/11	主治醫師	台中榮民總醫院麻醉科
2013/11-	主治醫師	台中榮民總醫院麻醉部
2006/08-2009/06	碩士	國立中興大學醫科所
2006-2013/12	主任	台中榮民總醫院疼痛科(任務編組)
2014/01-	主任	台中榮民總醫院疼痛科

## Academic Appointment:

國防醫學院醫學系臨床副教授 (105 年起)

教育部部定助理教授(104/05 起)

## 專科醫師:

Taiwan Society of Anesthesiologists	台灣麻醉醫學會
Taiwan Pain Society	台灣疼痛醫學會
Taiwan Society of Critical Care Medicine	台灣重症醫學會
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Taiwan Society of Cardiac Anesthesia	台灣心臟麻醉醫學會
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## 學會職務:

台灣疼痛醫學會 第十一屆監事(98-100)  
台灣疼痛醫學會 第十二屆理事(100-102)  
台灣疼痛醫學會 第十三屆監事(102-104)  
台灣疼痛醫學會 第十四屆監事(104-106)  
台灣疼痛醫學會 第十五屆祕書長(106-108)

## Publications : (近五年)

1. **Wu CC, Hung CJ, Shen CH, Chen WY, Chang CY, Pan HC, Liao SL, Chen CJ.** Prenatal buprenorphine exposure decreases neurogenesis in rats. *Toxicology Letters* 225 (2014) 92– 101.
2. **Tung H1, Liao YC, Wu CC, Chang MH, Chen CC, Chen PL, Chen HC.** Usefulness of phase-contrast magnetic resonance imaging for diagnosis and treatment evaluation in patients with SIH. *Cephalalgia*. 2014 ;10;34(8):584-593.
3. **Pan PH, Lin SY, Wang YY, Chen WY, Chuang YH, Wu CC, Chen CJ.** Protective effects of rutin on liver injury induced by biliary obstruction in rats. *Free Radic Biol Med*. 2014 Aug;73:106-16.
4. **Chang CY, Kuan YH, Ou YC, Li JR, Wu CC, Pan PH, Chen WY, Huang HY, Chen CJ.** Autophagy contributes to gefitinib-induced glioma cell growth inhibition. *Exp Cell Res*. 2014 May 2014; 327: 102-112.
5. **Lee SY, Hung CJ, Chen CC, Wu CC. (correspondent).** Survival analysis of postoperative nausea and vomiting in patients receiving patient-controlled epidural analgesia. *J Chin Med Assoc*. 2014 Sep; 77: 589-593.
6. **Huang JH, Hung CJ, Wu CC.** Accidental pleural puncture by thoracic epidural catheterization. *Asian Cardiovasc Thorac Ann*. 2015 Mar;23(3):343.
7. **Chang CY, Li JR, Chen WY, Ou YC, Lai CY, Hu YH, Wu CC, Chang CJ, Chen CJ.** Disruption of in vitro endothelial barrier integrity by Japanese encephalitis virus-Infected astrocytes. *Glia*. 2015; 63(11): 1915-1932.
8. **Tzeng CY, Chang SL, Wu CC, Chang CL, Chen WG, Tong KM, Huang KC, Hsieh CL.** Single-blinded, randomised preliminary study evaluating the effects of 2 Hz electroacupuncture for postoperative pain in patients with total knee arthroplasty. *Acupunct Med*. 2015 ;33(4):284-8.
9. **Chang CY, Li JR, Wu CC, Ou YC, Chen WY, Kuan YH, Wang WY, Chen CJ.** *IUBMB Life*. 2015;67(11):869-79. Valproic acid sensitizes human glioma cells to gefitinib-induced autophagy.
10. **Chang CY, Li JR, Chen WY, Ou YC, Lai CY, Hu YH, Wu CC, Chang CJ, Chen CJ.** *GLIA* 2015;63:1915–1932. Disruption of In Vitro Endothelial

Barrier Integrity by Japanese Encephalitis Virus-Infected Astrocytes.

11. Chen WY, Mao FC, Liu CH, Kuan YH, Lai NW, **Wu CC**, Chen CJ. *Metab Brain Dis.* 2016 ;31(2):289-97. Chromium supplementation improved post-stroke brain infarction and hyperglycemia.
12. Chang YT, **Wu CC**, Tang TY, Lu CT, Lai CS, Shen CH. *PLoS One.* 2016 Feb 5;11(2):e0147713. Differences between Total Intravenous Anesthesia and Inhalation Anesthesia in Free Flap Surgery of Head and Neck Cancer.
13. Li JR, **Wu CC**, Chang CY, Ou YC, Lin SY, Wang YY, Chen WY, Raung SL, Liao SL, Chen CJ. *IUBMB Life.* 2017;69(2):79-87. Susceptibility of naïve and differentiated PC12 cells to Japanese encephalitis virus infection.
14. Wang YY, Lin SY, Chen WY, Liao SL, **Wu CC**, Pan PH, Chou ST, Chen CJ. *J Ethnopharmacol.* 2017;204:58-66. *Glechoma hederacea* extracts attenuate cholestatic liver injury in a bile duct-ligated rat model.
15. **Wu CC**, Hung CJ, Lin SY, Wang YY, Chang CY, Chen WY, Liao SL, Raung SL, Yang CP, Chen CJ. *Neurochem Int.* 2017;110:91-100. Treadmill exercise alleviated prenatal buprenorphine exposure-induced depression in rats.
16. Chang CY, Li JR, **Wu CC**, Wang JD, Yang CP, Chen WY, Wang WY, Chen CJ. *Exp Cell Res.* 2018;365(1):66-77. Indomethacin induced glioma apoptosis involving ceramide signals.
17. Chen WY, Chang CY, Li JR, Wang JD, **Wu CC**, Kuan YH, Liao SL, Wang WY, Chen CJ. *Int J Mol Sci.* 2018;19(11):E3678. Anti-inflammatory and Neuroprotective Effects of Fungal Immunomodulatory Protein Involving Microglial Inhibition.
18. Li JR, Ou YC, **Wu CC**, Wang JD, Lin SY, Wang YY, Chen WY, Chen CJ. . *IUBMB Life.* 2019;71(3):321-329. Ischemic preconditioning improved renal ischemia/reperfusion injury and hyperglycemia.

**Curriculum Vitae**

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	修畢	台灣大學醫學院基因體醫學學程	2003
現職及經歷	職稱	工作地點	期間
	助理教授	台灣大學醫學院腫瘤醫學研究所	2015/8-
	主治醫師	台大醫院腫瘤醫學部	2011/8-
	主治醫師	台大醫院雲林分院腫瘤醫學部	2009/7-2011/6
	總醫師	台大醫院腫瘤醫學部	2006 Jul-2009 Jun
	住院醫師	台大醫院內科部	2003 Jul-2006 Jun
專科			年度
	癌症安寧緩和醫學		2009-
	腫瘤內科		2008-
	內科		2006-
Honors	中華民國癌症醫學會年輕研究者癌症研究傑出獎		2018
	AACR Scholar-in-Training Award		2009

**著作****A. 專書**

1. **Yu-Yun Shao**, Ann-Lii Cheng, Chi-Hong Hsu: Clinical Activity of Metronomic Chemotherapy in Liver Cancers, in Bocci G and Francia G (ed): Metronomic Chemotherapy: Pharmacology and Clinical Applications. New York, NY, Springer, 2014, pp 189-202

**B. 五年內重要 SCI 期刊論文 (#SCI):**

1. Tzu-Hsuan Lin\*, **Yu-Yun Shao**\*, Soa-Yu Chan, Chung-Yi Huang, Chih-Hung Hsu, and Ann-Lii Cheng. High Serum Transforming Growth Factor- $\beta$ 1 Levels Predict Outcome in Hepatocellular Carcinoma Patients Treated with Sorafenib. Clin Cancer Research 2015 Aug; 21: 3678-3684 (\***co-first authors**)<sup>#</sup>

2. **Yu-Yun Shao**, Chih-Hung Hsu and Ann-Lii Cheng. Predictive biomarkers of sorafenib efficacy in advanced hepatocellular carcinoma: Are we getting there? *World J Gastroenterol* 2015 Sep; 21: 10336-10347<sup>#</sup>
3. Chih-Peng Lin, Chih-Hung Hsu, Wen-Mei Fu, Ho-Min Chen, Ying-Hui Lee, Mei-Shu Lai, **Yu-Yun Shao**. Key Opioid Prescription Concerns in Cancer Patients: A Nationwide Study. *Acta Anaesthesiologica Taiwanica* 2016 Jun; 54: 51-56 (corresponding author)
4. **Yu-Yun Shao**, Tsung-Hao Liu, Ying-Hui Lee, Chih-Hung Hsu, Ann-Lii Cheng. Modified CLIP with Objective Liver Reserve Assessment Retains Prognosis Prediction for Patients with Advanced Hepatocellular Carcinoma. *J Gastroenterol Hepatol* 2016 Jul; 31: 1336-1341<sup>#</sup>
5. Yi-Hsin Liang, Chih-Hsin Wei, Wen-Hui Hsu, **Yu-Yun Shao**, Ya-Chin Lin, Pei-Chun Chou, Ann-Lii Cheng, Kun-Huei Yeh. Do-not-resuscitate consent signed by patients indicates a more favorable quality of end-of-life care for patients with advanced cancer. *Support Care Cancer* 2017 Feb; 25: 533-539<sup>#</sup>
6. Li-Chun Lu, Pei-Jer Chen, Yi-Chun Yeh, Chih-Hung Hsu, Ho-Min Chen, Mei-Shu Lai, **Yu-Yun Shao**, and Ann-Lii Cheng. Prescription Patterns of Sorafenib and Outcomes of Patients with Advanced Hepatocellular Carcinoma: A National Population Study. *Anticancer Research* 2017 May; 37: 2593-2599<sup>#</sup>  
(Corresponding author)
7. **Yu-Yun Shao**,\* Emily Han-Chung Hsiue,\* Chih-Hung Hsu, Chien-An Yao, Ho-Min Chen, Mei-Shu Lai, Ann-Lii Cheng. National Policies Fostering Hospice Care Increased Hospice Utilization and Reduced the Invasiveness of End-of-Life Care for Cancer Patients. *The Oncologist* 2017 Jul;22:843–849<sup>#</sup> (\*co-first authors)
8. Wen-Chi Shen, Jen-Shi Chen, **Yu-Yun Shao**, Kuan-Der Lee, Tzeon-Jye Chiou, Yung-Chuan Sung, Kun-Ming Rau, Chia-Jui Yen, Yu-Min Liao, Ta-Chih Liu, Ming-Fang Wu, Ming-Yang Lee, Ming-Sun Yu, Wen-Li Hwang, Pang-Yu Lai, Cheng-Shyong Chang, Wen-Chi Chou, and Ruey-Kuen Hsieh. Impact of Undertreatment of Cancer Pain with Analgesic Drugs on Patient Outcomes: A Nationwide Survey of Outpatient Cancer Patient Care in Taiwan. *Journal of Pain and Symptom Management* 2017 Jul;54: 55-65<sup>#</sup>
9. Wen-Ying Lin, Chih-Peng Lin, Chih-Hung Hsu, Ying-Hui Lee, Yi-Ting Lin, Meng-Chi Hsu, **Yu-Yun Shao**. Right or Left? Side Selection for a Totally Implantable Vascular Access Device: A Randomized Observational Study. *British Journal of Cancer* 2017 Sep; 117: 932-937 (Corresponding author)<sup>#</sup>
10. **Yu-Yun Shao**, Bang-Bin Chen, Da-Liang Ou, Zhong-Zhe Lin, Chih-Hung Hsu, Miao-Jen Wang; Ann-Lii Cheng, Chiun Hsu. Lenalidomide as Second-Line

Therapy for Advanced Hepatocellular Carcinoma: Exploration of Biomarkers for Treatment Efficacy. *Alimentary Pharmacology & Therapeutics* 2017 Oct; 46: 722-730<sup>#</sup>

11. **Yu-Yun Shao**, Hang Lin, Yong-Shi Li, Ying-Hui Lee, Ho-Min Chen, Ann-Lii Cheng, Chih-Hung Hsu. High Plasma Interleukin-6 Levels Associated with Poor Prognosis of Patients with Advanced Hepatocellular Carcinoma. *Japanese Journal of Clinical Oncology* 2017 Oct; 47: 949-953<sup>#</sup>
12. Tsung-Hao Liu, Chih-Hung Hsu, **Yu-Yun Shao**. Successful Hepatic Arterial Infusion of Chemotherapy in a Patient with Advanced Hepatocellular Carcinoma and Impending Liver Failure. *Liver Cancer* 2018 May; 7: 205-208 (corresponding author)<sup>#</sup>
13. Huai-Hsuan Chiu, Hsiao-Wei Liao, **Yu-Yun Shao**, Yen-Shen Lu, Ching-Hung Lin, I-Lin Tsai, Ching-Hua Kuo. Development of a general method for quantifying IgG-based therapeutic monoclonal antibodies in human plasma using protein G purification coupled with a two internal standard calibration strategy using LC-MS/MS. *Analytica Chimica Acta* 2018 Aug; 1019: 93-102<sup>#</sup>
14. Li-Chun Lu, Yi-Hsuan Lee, Chun-Jung Chang, Chia-Tung Shun, Chih-Yeu Fang, **Yu-Yun Shao**, Tsung-Hao Liu, Ann-Lii Cheng, Chih-Hung Hsu. Increased Expression of Programmed Death-Ligand 1 in Infiltrating Immune Cells in Hepatocellular Carcinoma Tissues after Sorafenib Treatment. *Liver Cancer* 2019 Mar; 8:110–120<sup>#</sup>
15. Tony O'Brien, Jin Seok Ahn, Richard Chye, Brian Le, Henry Lu, Gabriel Olarte, Mariana Palladini, Amar Salti, Yu-Yun Shao, Hayati Yaakup, Kristal Cielo Buemio, Consuelo Gutierrez Colin, Yacine Hadjiat. Understanding Transdermal Buprenorphine and a Practical Guide to its Use for Chronic Cancer and Non-Cancer Pain Management. *Journal of Opioid Management* 2019 Mar; 15: 147-158
16. Tsung-Hao Liu, **Yu-Yun Shao**, Li-Chun Lu, Ying-Chun Shen, Chiun Hsu, Zhong-Zhe Lin, Chih-Hung Hsu & Ann-Lii Cheng. Considerations of heterogeneity in clinical trials for hepatocellular carcinoma. *Expert Review of Gastroenterology & Hepatology* 2019 May; 13:7, 615-621<sup>#</sup>
17. **Yu-Yun Shao**, Yong-Shi Li, Hung-Wei Hsu, Hang Lin, Han-Yu Wang, Rita Wo, Ann-Lii Cheng, Chih-Hung Hsu. Potent Activity of Composite Cyclin Dependent Kinase Inhibition against Hepatocellular Carcinoma. *Cancers* 2019 Sep; 11: 1433.<sup>#</sup>
18. **Yu-Yun Shao**, Tsung-Hao Liu, Chiun Hsu, Li-Chun Lu, Yin-Chung Shen, Zhong-Zhe Lin, Ann-Lii Cheng, Chih-Hung Hsu. Early Alpha-Fetoprotein Response Associated with Treatment Efficacy of Immune Checkpoint Inhibitors



for Advanced Hepatocellular Carcinoma. *Liver International* 2019 Nov; 39: 2184-2189.<sup>#</sup>

19. Li-Chun Lu, Chiun Hsu, **Yu-Yun Shao**, Yee Chao, Chia-Jui Yen, I-Lun Shih, Yi-Ping Hung, Chun-Jung Chang, Ying-Chun Shen, Jhe-Cyuan Guo, Tsung-Hao Liu, Chih-Hung Hsu, Ann-Lii Cheng. Differential Organ-Specific Tumor Response to Immune Checkpoint Inhibitors in Hepatocellular Carcinoma. *Liver Cancer* 2019 Nov; 8:480–490
20. Johnson Lin, Ruey-Kuen Hsieh, Jen-Shi Chen, Kuan-Der Lee, Kun-Ming Rau, **Yu-Yun Shao**, Yung-Chuan Sung, Su-Peng Yeh, Cheng-Shyong Chang, Ta-Chih Liu, Ming-Fang Wu, Ming-Yang Lee, Ming-Sun Yu, Chia-Jui Yen, Pang-Yu Lai, Wen-Li Hwang, Tzeon-Jye Chiou. Satisfaction with Pain Management and Impact of Pain on Quality of Life in Cancer Patients. *Asia-Pacific Journal of Clinical Oncology* 2018 (early e-published)<sup>#</sup>

# 台灣安寧緩和醫學會

## Breakthrough pain and cachexia: What can we do more?

### Speech Abstract

#### Topic

**Keys to slow down the process of cancer cachexia 減緩癌症惡病質  
進程之關鍵性因子**

振興醫院血液腫瘤科 陳國維醫師

#### Abstract

Cachexia is a metabolic syndrome driven by inflammation and characterized by loss of muscle with or without loss of fat mass. In cancer cachexia, the tumor burden and host response induce increased inflammation, decreased anabolic tone, and suppressed appetite leading to the clinical presentation of reduced body weight and quality of life (QOL). There is no approved treatment for cancer cachexia, and commonly used nutritional and anti-inflammatory strategies alone have proven ineffective for management of symptoms. Several other pharmacological agents are currently in development and have shown promise as a clinical strategy in early-phase trials. Recently, it has been proposed that multimodal strategies, with an anabolic focus, initiated early in the disease/treatment progression may provide the most therapeutic potential for symptom management. Here we review the data from recent clinical trials in cancer cachexia including pharmacological, exercise, and nutritional interventions.

惡病質是由炎症驅動的代謝綜合症，其特徵在於肌肉的喪失同時脂肪量可能損失或沒有損失。在癌症惡病質中，腫瘤負累和宿主反應誘發炎症增加，合成代謝減弱，抑制食慾，導致體重減輕和降低生活質量（QOL）的臨床表現。癌症惡病質的治療，常用的單獨營養和抗炎策略已被證明對症狀的治療無效。目前其他幾種藥理學藥物正在開發中，作為早期臨床試驗的臨床策略已被證明是有希望的。最近，已經提出，具有針對合成代謝的多種模式治療在疾病/治療進展提早開始可能為症狀管理提供最大的治療潛力。在這裡，我們回顧近期臨床試驗中包括藥理學，運動和營養干預在內的癌症惡病質治療。

# 台灣安寧緩和醫學會

Breakthrough pain and cachexia: What can we do more?

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## Speech Abstract

Topic
Pain journey of cancer patients: knowing pains, defeating them 癌症病人與疼痛共存的旅程：了解癌痛，擊敗癌痛 台中榮民總醫院 吳志成主任
Abstract

Pain is one of the most common symptoms in cancer patients and often has a negative impact on patients' functional status and quality of life. The International Association for the Study of Pain defines pain as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage." [1]

Breakthrough cancer pain (btcp) represents an important element in the spectrum of cancer pain management. Because most btcp episodes peak in intensity within a few minutes, speed of medication onset is crucial for proper control.

Unmet needs exist in clinical practice. The onset and duration of action of oral opioids such as morphine or oxycodone may not be suitable for treating many episodes of BTcP which are of short onset and duration. [2] Although IV morphine is an effective method to provide fast analgesia for BTcP, it only can be used in the hospital or hospice care. [2,3]

The optimal cancer pain treatment should both consider the control of background pain and breakthrough cancer pain. Rapid onset opioids, a new category of analgesics, are characterized by fast onset, short duration and rapid elimination. [4] Combining long acting opioid and rapid onset opioid would be an optimal choice for cancer pain treatment.

Except for opioids, there are adjuvant analgesics for cancer pain treatment, such as anticonvulsants and antidepressants. [5] And different adjuvant analgesics help to control different types of pain. Except for opioids and adjuvant analgesics, sometimes interventional techniques for pain control are also important in several patients. Sympathetic nerve block and neurosurgical procedures are considered in patients with severe and hardly controlled pain.

#### **Reference:**

1. Merskey H, Bogduk N, eds.: Classification of Chronic Pain: Description of Chronic Pain Syndromes and Definitions of Pain Terms. 2<sup>nd</sup> ed. Seattle, Wash: IASP Press, 1994. Also available online. Last accessed April 13, 2017.
2. Mercadante S. Drugs. 2012;72(2):181-90.
3. Nersesyan H, Slavin KV. Ther Clin Risk Manag. 2007;3(3):381-400
4. Smith, H. (2012). "A comprehensive review of rapid-onset opioids for breakthrough pain." CNS Drugs 26(6): 509-535.
5. Dworkin RH et al. Arch Neurol. 2003;60:1524-1534

# 台灣安寧緩和醫學會

Breakthrough pain and cachexia: What can we do more?

## Speech Abstract

### Topic

The art of pain control: how to optimize the use of

Rapid-onset-opioids? 疼痛控制的藝術：如何最佳化超速效鴉片類藥品的治療？

臺大醫院腫瘤醫學部 邵幼雲醫師

### Abstract

Breakthrough cancer pain (BTcP) represents an important element in the spectrum of cancer pain management. Because most BTcP episodes peak in intensity within a few minutes, speed of medication onset is crucial for proper control.

Breakthrough pain (BTP) has been defined as 'a transitory exacerbation of pain experienced by the patient who has relatively stable and adequately controlled baseline pain' [1]. Breakthrough pain can be divided into spontaneous pain at rest and incident pain (either volitional or non-volitional) [2,3]. Breakthrough pain was present in 75% of cases of cancer-induced bone pain [4]. Patients with breakthrough pain had greater interference on aspects of life (mood, relationships, sleep, activity, walking ability, work, enjoyment of life) than those with no breakthrough pain ( $P < 0.01$ ) [5,6]. Almost half of breakthrough pain episodes were rapid in onset ( $< 5$  min) and short in duration ( $< 15$  min) [5,6]. Forty-four per cent of patients with breakthrough pain had pain that was unpredictable [5,6]. The short spiking characteristics of BTP episodes make the successful treatment of cancer-induced bone pain particularly challenging, which is supported by studies revealing that up to 45% of patients with cancer-induced bone pain report poor pain control [6-8].

Currently, immediate-release oral opioids are the treatment of choice for BTcP. This approach might not always offer optimal speed for onset of action and duration to match the rapid nature of an episode of BTcP. Novel transmucosal fentanyl formulations might be more appropriate for some types of BTcP, but limited access to such drugs hinders their use. In addition, the recognition of BTcP and its proper assessment, which are crucial steps toward appropriate treatment selection, remain challenging for many health care professionals.

#### **Reference:**

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