香港睡眠醫學會
THE HONG KONG SOCIETY OF SLEEP MEDICINE

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阻塞性睡眠窒息症影響不分年齡
延誤治療或成健康計時炸彈

二零一三年三月十七日

新聞發布會

香港睡眠醫學會
THE HONG KONG SOCIETY OF SLEEP MEDICINE

第一部分
介紹 香港睡眠醫學會

香港睡眠醫學會會長 兼 呼吸系統科專科醫生
林頌眉醫生

香港睡眠醫學會
THE HONG KONG SOCIETY OF SLEEP MEDICINE

- 成立於1993年
- 成員包括了精神科專科、兒科專科、呼吸系統科專科和耳鼻喉科專科醫生
- 致力於促進及推展香港睡眠醫學的臨床實習、知識、研究及培訓
- 詳情可參閱網址 http://www.hkssm.org/main.php

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香港睡眠醫學會
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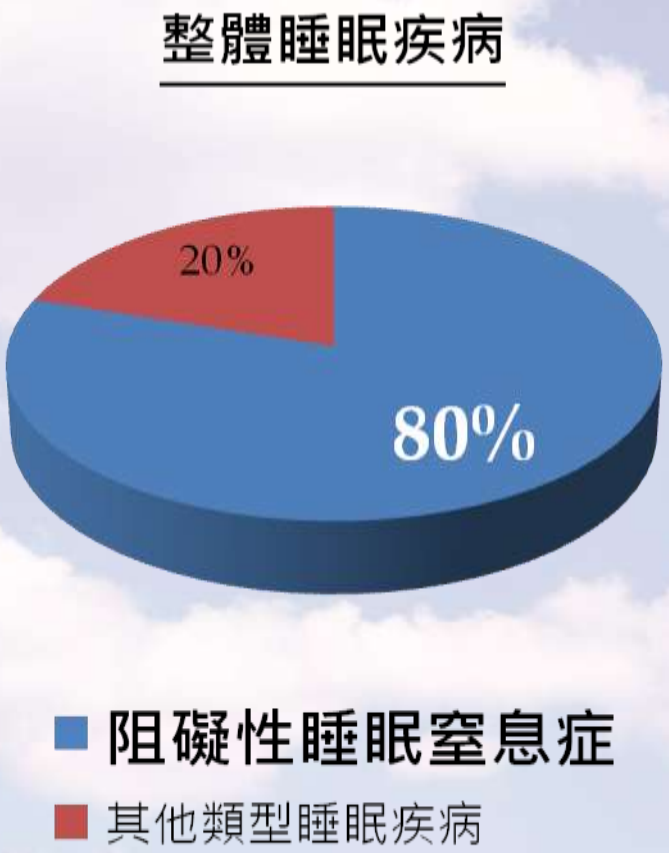
第二部分
本港阻塞性睡眠窒息症的發病情況

香港睡眠醫學會會長 兼 呼吸系統科專科醫生
林頌眉醫生

阻塞性睡眠窒息症(OSA)

- 泛指患者在睡眠期間，因各種原因出現呼吸困難，甚至窒息
- **阻塞性睡眠窒息症(OSA)**佔睡眠疾病患者的總人數**約八成**[1]



1. Lam JC, Lam B. Sleep Apnoea Hypopnoea Syndrome. Medical Progress 2004; 31:543-549.

OSA成因

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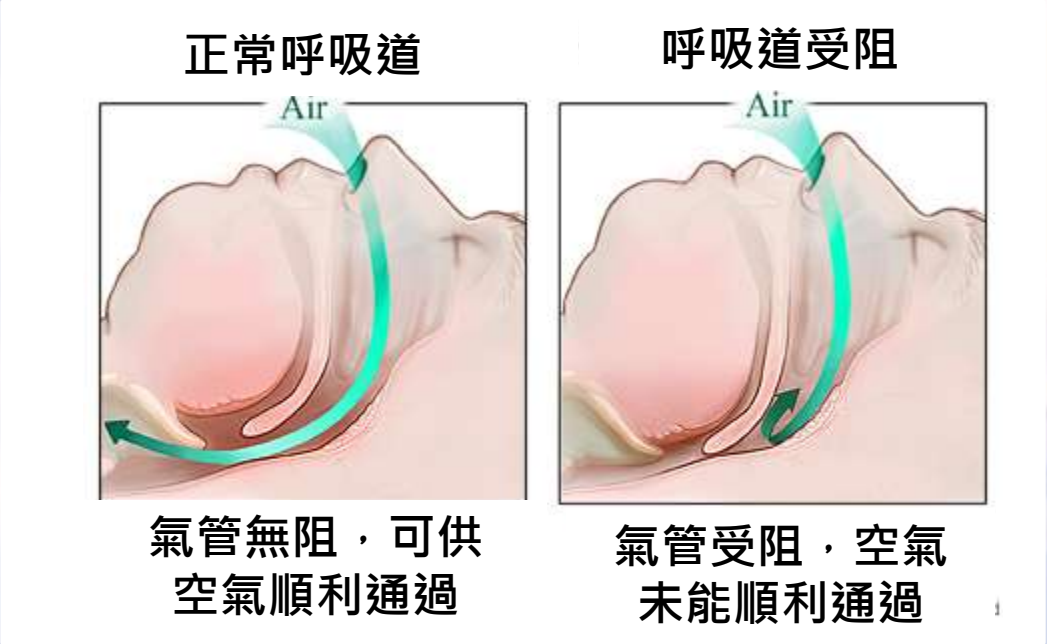


- 當進入深層睡眠狀況，肌肉便會鬆弛，引致窒息
- 引致窒息有兩大原因，包括：
  - 咽喉中的扁桃腺，或增殖體脹大
  - 肥胖和過多的軟組織令呼吸道空間收窄
- **若咽喉有過多軟組織或舌頭腫大，壓著氣管，咽牆便容易出現塌陷現象**。患者每小時可**窒息5-100次以上不等**[1]

1. Lam J et al, Indian J Med Res 2010; 131:165-170.

*網上圖片

OSA高危因素[1]

- 年長人士
- 男性
- 肥胖
- 有吸煙習慣
- 有飲酒習慣
- 顱顏結構異常 (Craniofacial Abnormality)

1.Young T et al, JAMA 2004; 291:2013-16.

OSA病徵

晚間徵狀

- 打鼻鼾
- 因窒息而喚醒
- 尿頻

日間徵狀

- 頭痛
- 疲倦
- 嗜睡

1. Ip MS, Lam B, et al. Chest 2001 Jan;119(1):62-9.
2. Ip MS, Lam B, et al. Chest 2004 Jan;125(1):127-34.

OSA 困擾港人

- 現時本港分別有**4.1%**[1]和**2.1%**[2]的中年男性和女性受OSA困擾
- 當中以**身材肥胖**和**年紀較大**之人士為多

但公眾對OSA的病徵及影響尚有不少誤解

認知不足 誤以為長期打鼻鼾為正常

- 大部分患者在睡眠時會有**鼻鼾聲**
- 在睡覺時，大腦會因間歇性的窒息而喚醒身體。**睡眠質素下降**，令患者**日間容易疲倦**及**打瞌睡**

*網上圖片

延誤診治的情況普遍

- 研究指出，OSA患者並無主動提出受相關症狀困擾，以致：

	平均延誤診斷年期
成年患者[1]	**7年**
兒童患者[2]	**3.3年**

由此可見，延誤診治的情況令人擔憂

1. Rahaghi F et al. Sleep Breath. 1999;3(4):119-124.
2. Richards W et al. Clin Pediatr (Phila). 2000 Feb;39(2):103-8.

OSA嚴重影響患者的生活及工作安全

- OSA已經影響工作效率
- 對**職業司機**或**操作重型機器**的患者來說[1]，有機會**嚴重影響工作安全**

1. Hui DS, Ho FW et al. Respirology 2006 Nov;11(6):723-30.

*網上圖片

OSA長遠可增併發症風險

- OSA除了影響睡眠質素，更有機會引致不同併發症，包括：
  - **血壓、血糖及腰圍**皆有機會比健康人士高[1,2]
  - **代謝綜合症(Metabolic Syndrome**，即**高血壓、高血糖、高血脂及肥胖**)比一般人高出**五倍之多**[3]
  - **美國國家高血壓小組**更於2004年[4]，將OSA**例為其中一種導致高血壓的成因**

1. Marin JM, Agusti A, et al. JAMA 2012May;307(20):2169-76.
2. Aronsohn RS, Whitmore H, et al. Am J Respir Crit Care Med. 2010 Mar;181(5):507-13.
3. Lam JC, Lam B, et al. Respir med, 2006 Jun;100(6):980-7.
4. Chobanian AV, Bakris GL, et al. Hypertension. 2003 Dec;42(6):1206-52.

*網上圖片

提高認知增治療成效

- 市民有需要多留意身體及工作狀況，以及OSA對健康的長遠影響，及早診斷、進行治療

*網上圖片

OSA 嚴重性

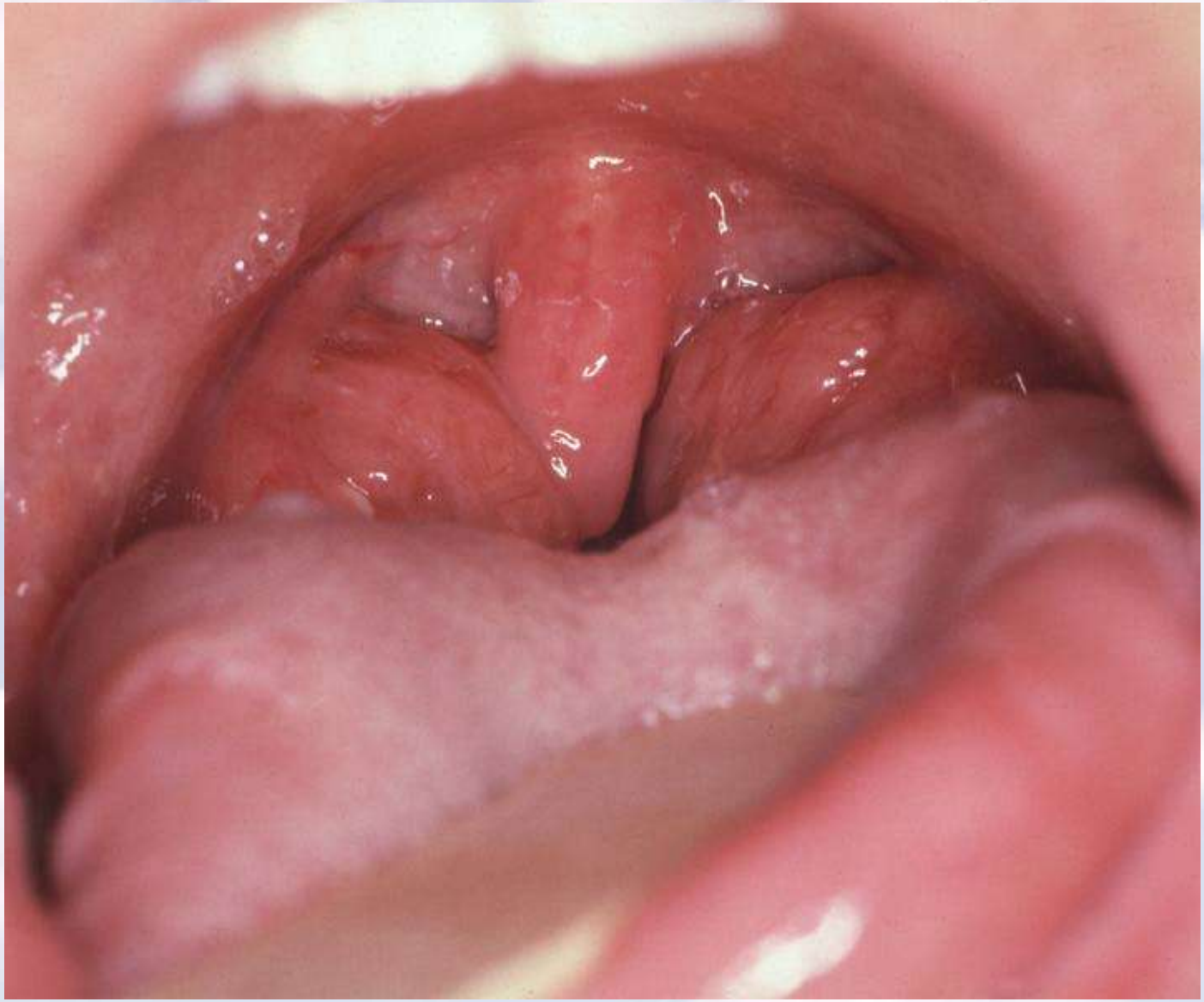
- 根據美國睡眠醫學會在1999年發出的指引，建議使用睡眠窒息指數 (Apnea Hypopnea Index, AHI)以決定疾病的嚴重性[1]：

病情嚴重性	睡眠窒息指數 (AHI)
輕度	5-15
中度	15-30
嚴重	>30

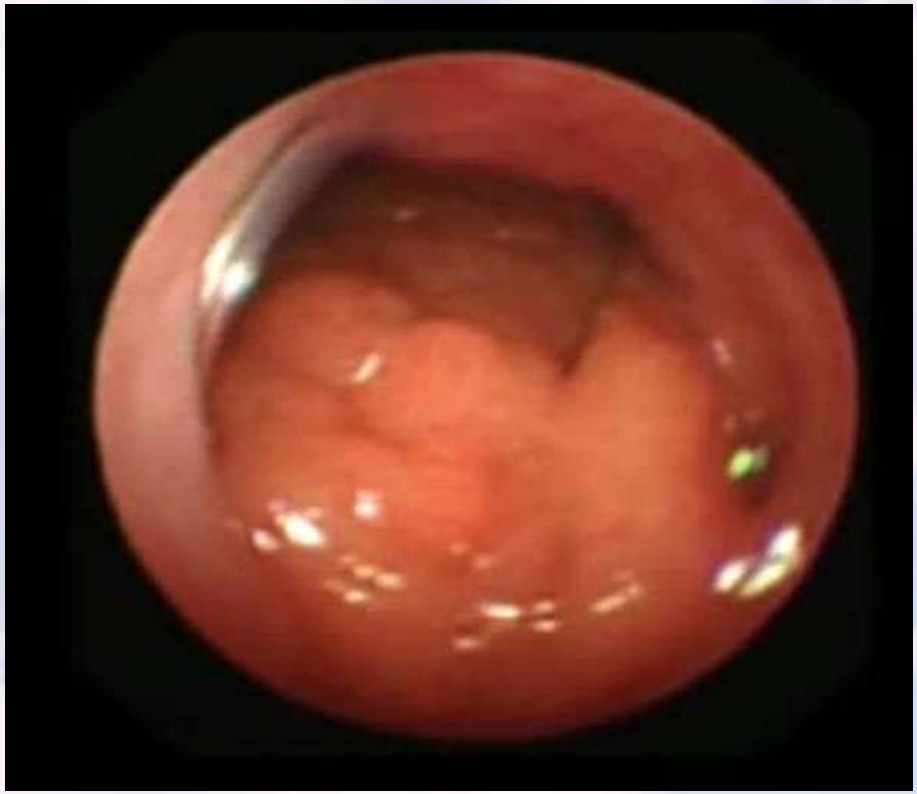
1. The Report of an American Academy of Sleep Medicine Task Force, Sleep 1999; 22: 667-689

第三部分
阻塞性睡眠窒息症對兒童的影響

香港睡眠醫學會委員 兼 兒科專科醫生
吳國強醫生



腺樣增殖體肥大



正常腺樣增殖體

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兒童睡眠窒息症

兒童OSA 臨床高危因素

Clinical Risk Factors for Obstructive Sleep Apnoea in Children

K W Chau, D K K Ng, C K L Kwok, P Y Chow, J C S Ho

ABSTRACT

Objective: To identify the clinical factor(s) that identify obstructive sleep apnoea syndrome (OSAS) in children.

Methods: A prospective study of children referred to the sleep clinic of the paediatric department was conducted in a public non-teaching regional hospital in Hong Kong. A standard questionnaire was administered and overnight sleep polysomnography was performed in a consecutive series of patients. Logistic regression analysis was performed to obtain significant risk factors for prediction of OSAS in this series of patients.

Results: Sixty-two children were enrolled into the

and daytime symptoms like sleepiness, hyperactivity, behavioural and learning problems. However, previous studies showed that clinical risk factors are not well-related to OSAS[4-6]. Among the snoring children, only about 10 to 30% of them[1,7-10] were actually found to have OSAS as diagnosed by the sleep polysomnograph (PSG). Given the potentially serious sequel of untreated OSAS, e.g. cor pulmonale, respiratory failure and intellectual impairment[11], and the expenses of performing PSG, identification of significant clinical risk factors in different population remains an important task. This study aims at identification of clinical risk factors for OSAS in Chinese children in Hong Kong.

METHODS

Sixty-two children were referred to our sleep clinic

Chau KW, et al. Singapore Med J 2003 Vol 44(11) : 570-573

Table I. Demographic data of 62 children with and without OSAS.

	OSAS	Non-OSAS	p-value
Male: Female	12:10	24:16	0.79
Age, mean+/-S.D.	6.24 yrs +/- 3.15 yrs	6.98yrs+/- 3.45 yrs	0.35

Table III. Logistic regression analysis of significance of various factors in relation to OSAS.

Effect	Significance (p)
Difficult breathing	0.966
Observed apnoea	0.055
Regular snoring	<0.001
Restlessness during sleep	0.317
Obesity	0.300
Poor academic performance	0.066
Enlarged tonsils	0.722

Chau KW, et al. Singapore Med J 2003 Vol 44(11) : 570-573

習慣性打鼻鼾

- 2002 年電話訪問 3,047 名 6 至 12 歲小學學生

Prevalence of Sleep Problems in Hong Kong Primary School Children*

A Community-Based Telephone Survey

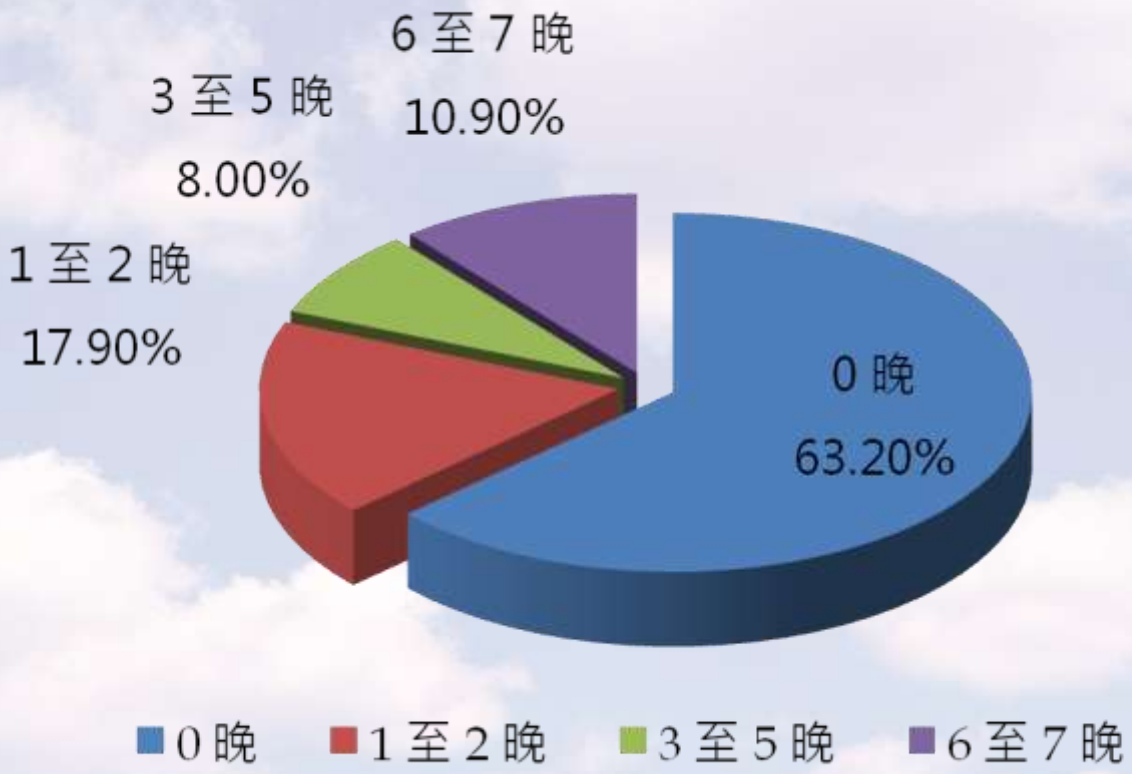
Daniel K. Ng, FRCP; Ka-li Kwok, FHKAM(Paed);
Josephine M. Cheung, RPSGT; Shuk-yu Leung; Pok-yu Chow, FHKAM(Paed);
Wilfred H. Wong, MSc; Chung-hong Chan, BSc; and Jackson C. Ho, FRCR

Study objectives: **To estimate the prevalence of snoring, witnessed sleep apnea, teeth grinding, primary and secondary nocturnal enuresis, and sleep duration in Hong Kong primary school children.**
Design: **Cross-sectional telephone questionnaire survey in a community.**
Participants: **A total of 3,047 6- to 12-year-old apparently healthy children.**
Intervention: **Those who agreed to the study were contacted by telephone. Survey questions were asked about the symptoms of the different sleep disorders, and the frequency of each positive symptom was noted for the preceding 1 week.**
Outcome measures: **Prevalence and risk factors of sleep disorders in Hong Kong primary school children**

Ng D, et al. Chest 2005;128(3):1315-1323

習慣性打鼻鼾的盛行率

(每星期打鼻鼾多少晚?)



Ng D, et al. Chest 2005;128(3):1315-1323

睡眠時有呼吸暫停

- 45位兒童有睡眠時呼吸暫停, 佔總人數1.5%

Ng D, et al. Chest 2005;128(3):1315-1323

睡眠呼吸暫停 高危因素

Table 3—*Significant Risks Factors for Witnessed Apnea**

Factors	β	p Value	Adjusted OR (95% CI)
Habitual snoring (打鼻鼾)	1.330	> 0.001	3.79 (2.01–7.14)
EDS (日間渴睡)	0.118	0.043	2.26 (1.03–4.97)
Allergic rhinitis (鼻敏感)	0.783	0.024	2.19 (1.11–4.32)
Tiredness on rising† (早上起床時疲倦)	0.606	0.084	1.83 (0.92–3.65)

*Other confounding factors have been adjusted by this model but have not emerged as significant risk factors: gender, teeth grinding, mouth breathing, asthma, family history of sleep apnea, and sleep duration.

†Approaching significance.

Ng D, et al. Chest 2005;128(3):1315-1323

肥胖與睡眠窒息

The Correlation Among Obesity, Apnea-Hypopnea Index, and Tonsil Size in Children*

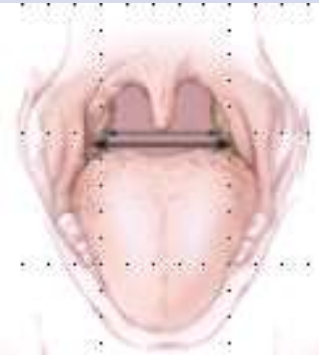
Yuen-yu Lam, FHKAM(Paed); Eric Y.T. Chan, MRCPCH; Daniel K. Ng, FHKAM(Paed); Chung-hong Chan, BSc; Josephine M.Y. Cheung, RPSGT; Shuk-yu Leung; Pok-yu Chow, FHKAM(Paed); and Ka-li Kwok, FHKAM(Paed)

Background: **The correlation between obesity and severity of obstructive sleep apnea (OSA) is well established in adults, but data are inconsistent in children. We hypothesized that there is a significant correlation between the degree of obesity and the severity of OSA in children.**
Methods: **We retrospectively reviewed records of weight, height, history, and polysomnography of all 1- to 15- year-old children referred to our sleep laboratory. Children with known anomalies and repeated polysomnography were excluded from this study. Obesity was defined as body mass index z score (BMI Z score) > 1.96. The correlation between BMI Z score and apnea-hypopnea index (AHI) was assessed. Possible confounding factors, *ie*, age, gender, and tonsil size, were adjusted by multiple linear regression.**
Results: **Four hundred eighty-two children were included in this study. Obese children had a significantly higher AHI (median, 1.5; interquartile range [IQR], 0.2 to 7.0) than the AHI of nonobese children (median, 0.7; IQR, 0.0 to 2.5). BMI Z score was significantly correlated with log-transformed AHI (Ln[AHI]) [$r = 0.156$, $p = 0.003$]. BMI Z score and tonsil size were still correlated with Ln(AHI) even after adjusted for other confounding factors ($p = 0.001$).**
Conclusion: **Degree of obesity as measured by BMI Z score and tonsil size are significantly related to severity of OSA as reflected by the AHI, although the correlation is mild.**

Lam Y, et al. Chest 2006;130;1751-1756

14.7倍

(95% CI = 1.8 至 120.4)



Lam Y, et al. Chest 2006;130;1751-1756

OSA可引致日間渴睡

Modified Epworth Sleepiness Scale in Chinese children with obstructive sleep apnea: a retrospective study

Eric Y. T. Chan · Daniel K. Ng · Chung-hong Chan · Ka-li Kwok · Pok-yu Chow · Josephine M. Cheung · Suk-yu Leung

Received: 20 February 2008 / Revised: 24 May 2008 / Accepted: 26 May 2008

Abstract

Background and objective The purpose of this study is to assess whether *Chinese* children with high apnea–hypopnea index (AHI) are sleepier by a modified Epworth Sleepiness Scale (ESS).

Materials and methods Records were retrospectively reviewed. We included children who were between 3 and 12 years old, admitted for overnight polysomnogram because of suspected obstructive sleep apnea syndrome (OSAS). A modified ESS was used to assess excessive daytime sleepiness (EDS) of the children.

Results One hundred ninety-two *Chinese* children were included. Children with high AHI, defined as AHI>5.0, were sleepier than children with AHI less than or equal to higher odds ratio of having high AHI. Increased sleepiness is a specific but not a sensitive symptom in snoring children with high AHI. Screening for EDS in snoring children may help us identify those with high AHI and prioritize the management of those children.

Keywords Sleep deprivation · Sleep apnea · Obstructive · Child · Epworth Sleepiness Scale · *Chinese*

Introduction

In adults, excessive daytime sleepiness (EDS) is an important symptom in sleep disordered breathing (SDB)

Chan E, at el. Sleep Breath 2009; 13: 59-63

睡眠窒息可影響血壓

Twenty-Four–Hour Ambulatory BP in Snoring Children With Obstructive Sleep Apnea Syndrome*

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Daniel K. Ng, FHKAM (Paed), MMedSc;
Michael W. Lau, FHKAM (Paed), MRCP; Chung-hong Chan, BSc;
Ka-li Kwok, FHKAM (Paed), FRCP; Pok-yu Chow, FHKAM (Paed), MRCP;
Josephine M.Y. Cheung, RN, RPSGT, MSc (Nurs)

Introduction: Obstructive sleep apnea syndrome (OSAS) is a known risk factor for hypertension in adults. This relationship is less clear in childhood OSAS.
Objective: This study examined the relationship between OSAS and 24-h ambulatory BP (ABP), a more accurate assessment than casual BP, in children with snoring.
Methods: Snoring children aged 6 to 15 years who underwent polysomnography in the sleep laboratory were recruited.
Measurement: Twenty-four–hour ABP monitoring was initiated a few hours before polysomnography. The children were classified into two groups: a high apnea-hypopnea index (AHI) group (obstructive AHI > 5/h), and a low-AHI group (AHI ≤ 5/h). Mean sleep, wake, and 24-h systolic BP (SBP) and diastolic BP (DBP) were recorded. A child was considered a "nondipper" if his or her mean SBP and DBP did not decrease by ≥ 10% during sleep.
Results: Ninety-six children (mean age ± SD, 9.4 ± 2.8 years) were recruited. Forty-one children were obese. When awake, the high-AHI group children had a significantly higher SBP. When asleep, both SBP and DBP were higher in the high-AHI group. Age, body mass index (BMI) z score, and desaturation index (DI) were significant predictors for elevated sleep DBP. BMI z score was the only significant predictor for wake and sleep SBP. Sixteen children (17%) had hypertension, and all were nondippers. Obese children in the high-AHI group had a significantly higher prevalence of hypertension than obese children in the low-AHI group. This relationship was not found in nonobese children.
Conclusion: The current study shows that increased DI contributed to the elevation of sleep DBP elevation.
(CHEST 2006; 130:1009–1017)

Leung L, et al. Chest 2006;130(4):1009-1018

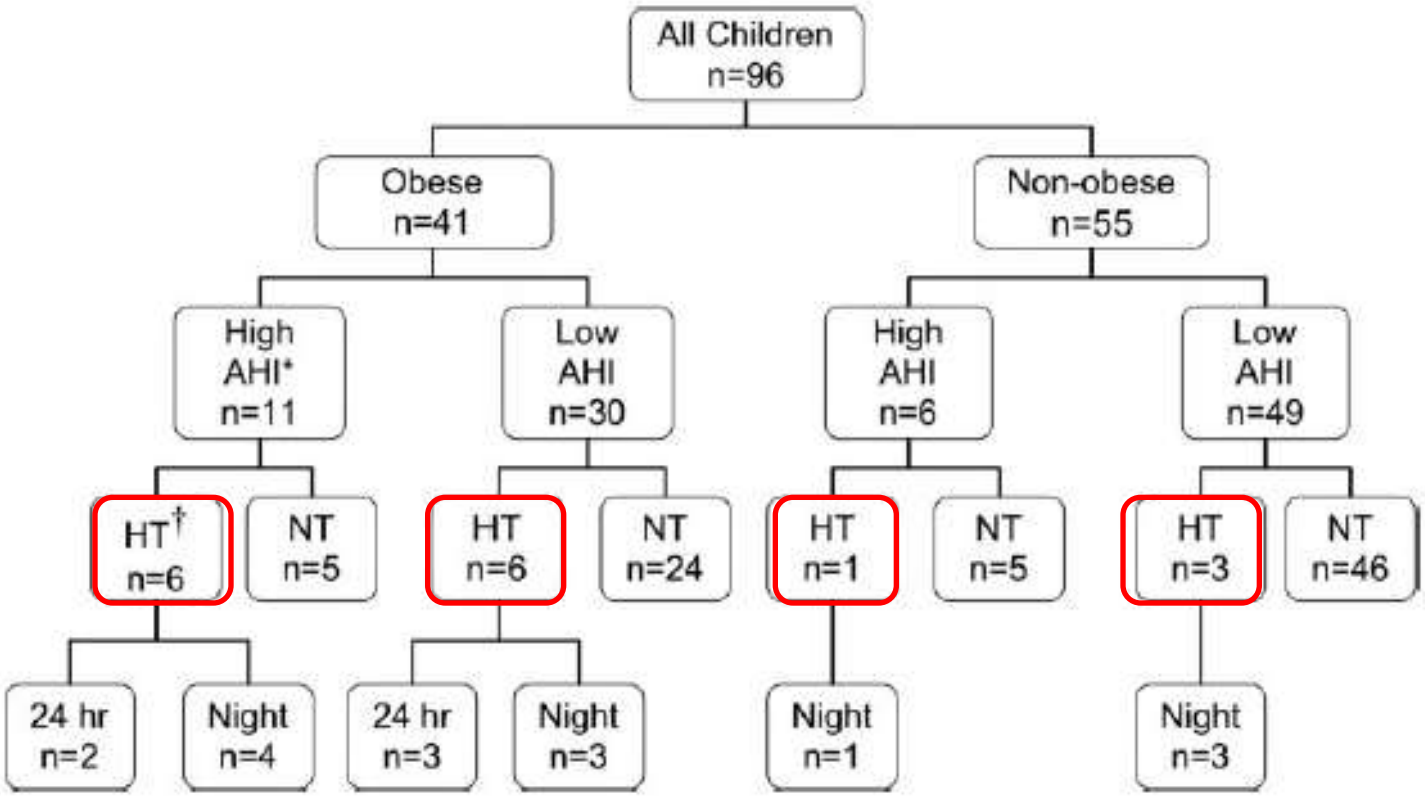


FIGURE 1. Relationship between OSAS and hypertension in 96 subjects completing 24-h ABP recording. HT = hypertension; NT = normotension; 24 hr = 24-h hypertension; Night = nocturnal hypertension. *The proportion of obese children in the high-AHI group was significantly higher than nonobese children ($p = 0.0003$; OR, 5.712; 95% CI, 1.858 to 17.554). †Among obese children, those in the high-AHI group had a higher incidence of hypertension than the low-AHI group (OR, 6.667; 95% CI, 1.004 to 44.284).

(註: HT = 高血壓, NT = 正常血壓)

Leung L, et al. Chest 2006;130(4):1009-1018

Table 3—*Predictors of ABP in 96 Children*

Predictors	Wake SBP		Wake DBP		Sleep SBP		Sleep DBP	
	β Coefficient	p Value	β Coefficient	p Value	β Coefficient	p Value	β Coefficient	p Value
Log AHI	2.313	0.300	1.619	0.323	− 0.053	0.981	− 1.575	0.315
Log arousal index	− 2.169	0.495	− 0.708	0.762	− 1.773	0.581	2.233	0.319
Log DI	− 0.692	0.511	− 0.237	0.759	1.243	0.245	1.922	0.012*
Age	0.203	0.618	− 0.158	0.598	− 0.508	0.220	− 0.855	0.004*
BMI z score	2.431	0.020*	0.729	0.331	2.877	0.007*	1.544	0.034*
Male gender	0.117	0.963	0.486	0.794	− 0.400	0.876	1.393	0.434
Intercept	− 18.396	< 0.001*	− 13.734	< 0.001*	− 4.311	0.392	− 3.453	0.325

*Statistically significant predictor of ABP parameters.

Leung L, et al. Chest 2006;130(4):1009-1018

睡眠時間與中學生學習成績

Sleep duration, wake/sleep symptoms, and academic performance in Hong Kong Secondary School Children

E. P. Ng · D. K. Ng · C. H. Chan

Received: 4 November 2008 / Revised: 16 March 2009 / Accepted: 20 March 2009

Abstract
Background Sleep deprivation is common among teenagers. The aim of this study was to investigate the relationship between sleep duration, wake/sleep symptoms, and academic performance among Hong Kong students.
Materials and methods The sleep habit questionnaires were distributed to all Year 11 students at an international school that catered to different ethnic groups in Hong Kong. Analysis of various parameters of academic performance and sleep habits and their relationships were undertaken.
during third and fourth lessons were associated with poorer grades in Mathematics and English. Excessive daytime sleepiness was reported in 25% of students. Bruxism and snoring were associated with excessive daytime sleepiness.

Keywords Sleep · Cognition · Adolescents · Sleep deprivation · Snoring

Introduction

Ng E, et al. Sleep Breath 2009; 13: 59-63

Table 1 Basic characteristics of subjects

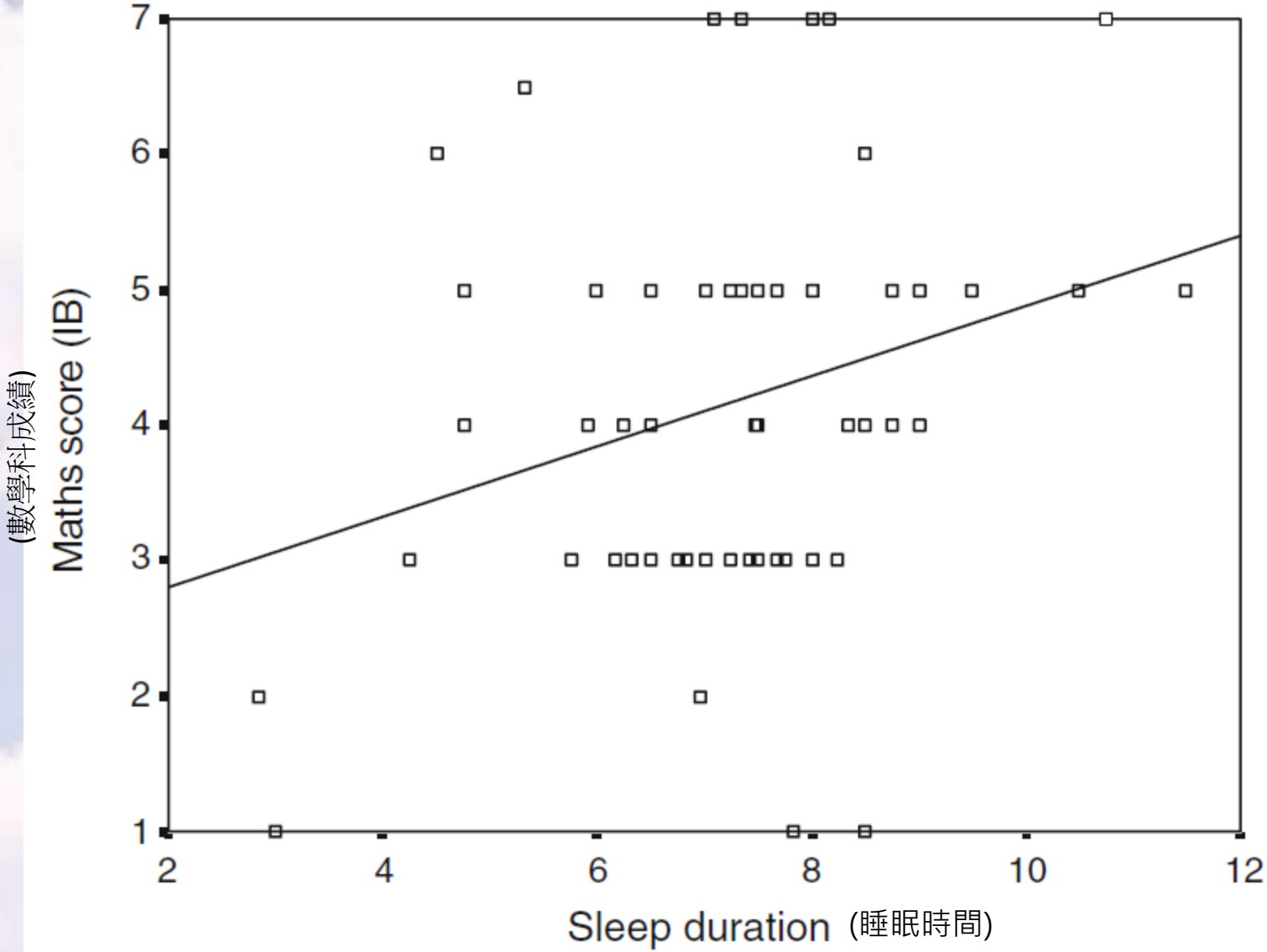
Subjects, *n*	59
Age (year) mean (SD)	16.5 (0.594)
Sex, female, *n* (%)	28 (47.5%)
Ethnicity, *n* (%)	
Chinese	30 (50.8%)
Caucasian	22 (37.3%)
South Asian	2 (3.4%)
Others	5 (8.5%)
BMI, mean (SD)	21.9 (3.6)
Sleep duration, mean (SD)	7.23 (1.62)
ESS score, mean (SD)	7.6 (4.2)
Mathematics score, mean (SD)	4.16 (1.48)
English score, mean (SD)	4.15 (1.01)

Ng E, et al. Sleep Breath 2009; 13: 59-63

睡眠時間

- 48%中學生睡少於7.3小時
- 12%中學生 睡少於6小時
- 華裔學生平均睡7小時
  - 上床時間是23:54
- 非華裔學生平均睡7.5小時
  - 上床時間是23:08

Ng E, et al. Sleep Breath 2009; 13: 59-63



(數學科成績與睡眠時間關係)

Fig. 1 Correlation between math score and sleep duration

Ng E, et al. Sleep Breath 2009; 13: 59-63

香港睡眠醫學會
THE HONG KONG SOCIETY OF SLEEP MEDICINE

第四部分
現時治療阻塞性睡眠窒息症的新趨勢

香港睡眠醫學會會長 兼 呼吸系統科專科醫生
林頌眉醫生

睡眠測試有助診斷病情

- 若市民有OSA病徵，或**睡眠質素未如理想**，應及早求醫並接受睡眠測試

*網上圖片

睡眠測試

- **先進行睡眠問卷評估**，繼而於**院內進行多頻道睡眠檢查**(Polysomnography)
- 期間收集不同數據，如**腦電圖、眼電圖、心電圖和肌電圖**，以了解睡眠時身體的狀況

治療睡眠窒息症的方法

良好生活習慣

正氣壓睡眠呼吸機

牙膠矯正器

手術治療
(多用於兒童患者，如扁桃腺切除手術)

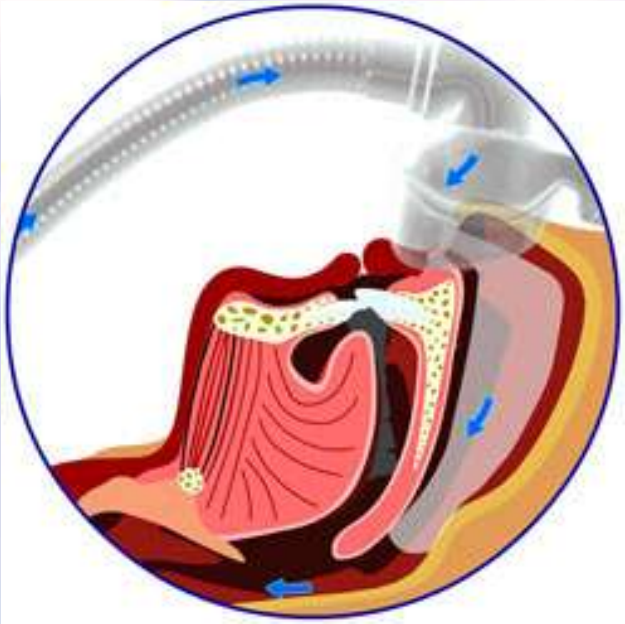
連續正氣壓睡眠呼吸機
Continuous Positive Airway Pressure, CPAP

國際權威醫學組織美國睡眠學會
(American Academy of Sleep Medicine)
發出的指引中建議[1]，中度至嚴重的OSA患者
應使用CPAP為標準治療，
以減低患者睡眠時氣管阻塞的頻率

1. CA Kushida, MR Littner, et al. SLEEP 2006;29(3):375-80.

*網上圖片

CPAP運作原理



- 只需要在**睡眠前**，戴上正氣壓睡眠呼吸機鼻罩
- CPAP機便會輸送正氣壓將患者的**呼吸道打開**，紓緩窒息情況

*網上圖片

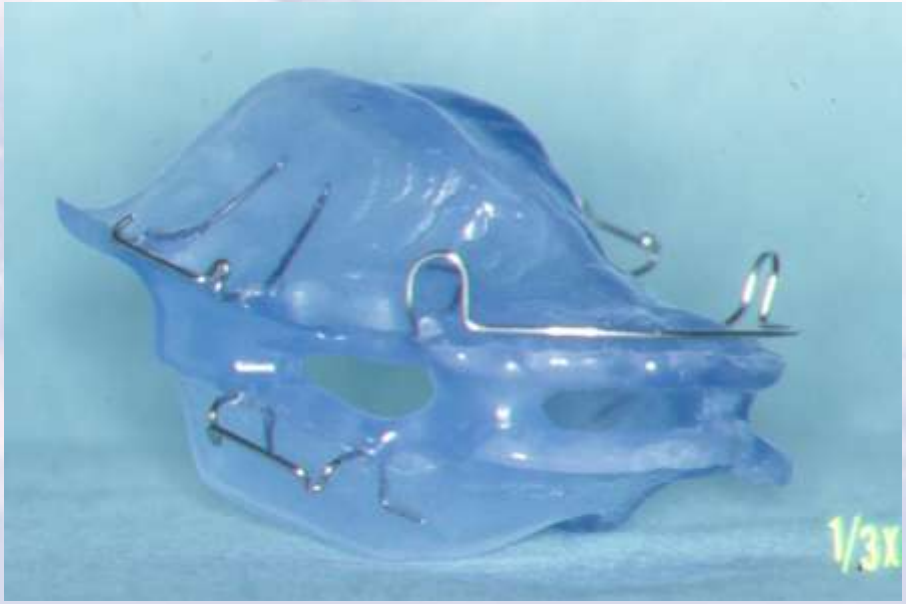
CPAP的治療成效

- 研究顯示[1]，接受為期**十二周的CPAP治療**後，成年患者每小時窒息**次數大幅下降98%**
- **血壓、血膽固醇、血脂**等水平皆比治療前有著**顯著改善**

1. Lam JC, Lam B, et al. Eur Respir J. 2010 Jan;35(1):138-45.

*網上圖片

牙膠矯正器



- 經牙齒矯正科專科醫生評估後，為合適患者度身訂造牙膠托
- 需要在睡覺時戴上牙托，保持呼吸道張開，但並非所有患者都適用

特別鳴謝：香港大學牙科學院菲臘牙科醫院提供相片

第五部分
總結及建議

香港睡眠醫學會會長 兼 呼吸系統科專科醫生
林頌眉醫生

總結及建議 (一)

- 阻塞性睡眠窒息症影響所有年齡層
- 除了睡眠質素受影響，更可增加長遠的健康風險，如代謝綜合症、心血管病、糖尿病和中風等，實在不容忽視

總結及建議 (二)

- 香港睡眠醫學會呼籲，若市民出現以下情況，應及早求醫：
  - 打鼻鼾
  - 睡眠質素下降
  - 日間容易疲倦
- 如有需要，應接受**院內睡眠測試**，以診斷是否患有此症
- 採取適合的治療：
  - 良好生活習慣、正氣壓睡眠呼吸機、牙膠矯正器

第六部分
個案分享

個案(一) 吳先生

- 吳先生現年54歲，任職商人
- 由於工作關係，吳先生經常會自行駕駛穿梭中、港兩地
- 吳先生本身患有高血壓，他表示在十年前起，已經有打鼻鼾習慣，有時候甚至會出現窒息，睡眠質素、精神及脾氣一直受到影響，
- 他曾擔心因為精神不佳而影響駕駛安全，但當時未有主動求醫

個案(一) 吳先生

- 吳先生於零六年因中風入院，診斷後，確診為阻塞性睡眠窒息症
- 當時病情已屬於嚴重，每小時持續10秒的窒息次數高達75次
- 醫生建議他使用正氣壓睡眠呼吸機，改善病情
- 吳先生表示，治療至今，睡眠質素、精神及脾氣有明顯改善，變得更加開朗和樂觀

個案(二) Henry

- Henry現年11歲，就讀小學六年級
- Henry的媽媽(梁太)表示，半年前開始，發現他會不自覺地坐起來睡覺
- 另外， Henry平日亦容易在日間不自覺地睡著，當初梁太誤以為他只是一般的疲倦，未有理會
- Henry自己亦表示，上課學習亦受到嗜睡影響。他將參加升中派位的呈分試，亦擔心因健康問題而影響成績

個案(二) Henry

- 及後，梁太開始意識到兒子的嗜睡情況，遂攜同兒子求醫
- 睡眠測試後，確診Henry患上阻塞性睡眠窒息症，當時他的病情已屬嚴重，每小時持續10秒的窒息次數超過100次
- 現時醫生已為他安排使用正氣壓睡眠呼吸機。Henry形容使用後，整體精神明顯改善
- Henry亦將於本年年中，接受扁桃腺切除手術以改善病情

第七部分
問答環節