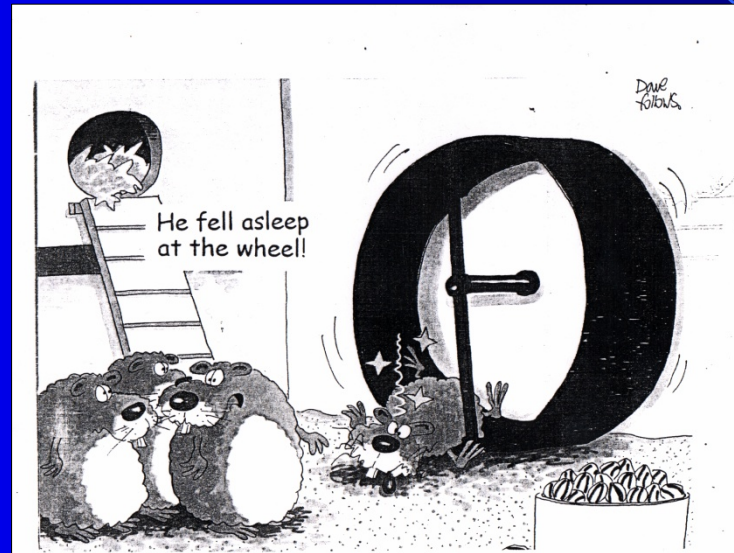


Management of Sleep Disorders



GP CME Conference
Rotorua 2009

Programme.

Initial test

The structure of sleep

Insomnia

Obstructive sleep apnoea

Case studies

Repeat test

Sleep Disorder Quiz Questions

What is the optimal time for a 'power nap'?

- a) 5 minutes
- b) 15 minutes
- c) 30 minutes
- d) 45 minutes

Growth hormone is produced during what phase of sleep?

- a) REM
- b) Non REM

Delayed Sleep Phase Syndrome is more common in:

- a) Teenage
- b) Middle age
- c) Old age

Obstructive Sleep Apnoea is not associated with:

- a) Hypertension
- b) Atrial Fibrillation
- c) Insulin Resistance
- d) Hypothyroidism

What is the most useful investigation for Insomnia?

Actigraphy

Polysomnography

Sleep Diary

What is the half life of Zopiclone?

a) 4-6 hours

b) 6-8 hours

c) 8-10 hours

Night terrors are associated with

a) Sleep walking

b) Frightening dreams

c) REM sleep

What is the prevalence of Obstructive Sleep Apnoea Syndrome in men?

a) 2%

b) 4%

c) 6%

What is the most commonly successful treatment for OSA in children?

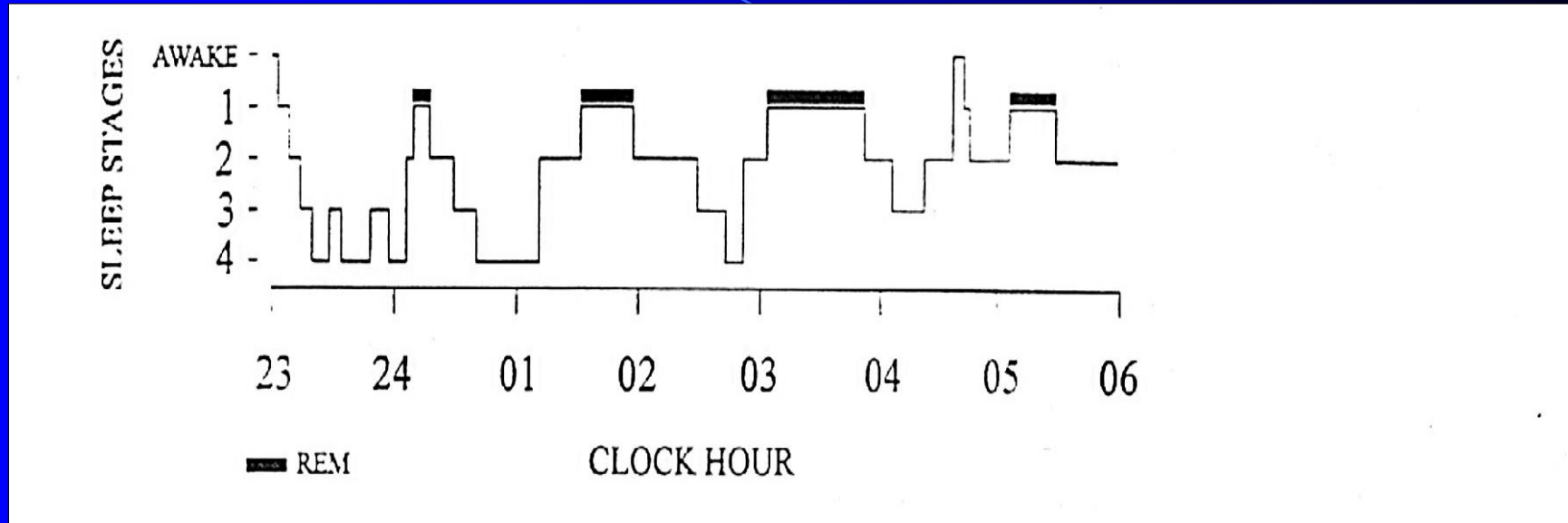
CPAP

- a) Adenotonsillectomy
- b) Mandibular Advancement Splint
- c) Weight reduction

REM Sleep Behaviour Disorder occurs predominantly in:

- a) Young men
- b) Menopausal women
- c) Older men

Sleep Architecture



REM Rapid Eye Movement

NREM Non-Rapid Eye Movement

Stages 1 and 2 light sleep

Stages 3 and 4 'deep sleep' or 'slow wave sleep'

25% REM, 50% Stage 2 and 25% stages 3 and 4

Non REM – Physical well-being

REM – Mental and emotional well-being

Symptoms of Sleep Loss

Cognitive

- Impaired decision making
- Poor motivation
- Less attention to detail
- Faulty judgment (especially about how sleepy they are!)
- Increased irritability and lower stress tolerance
- Decreased libido

Symptoms of Sleep Loss

Physical

- Slowed reaction time (especially when driving)
- Increased sensitivity to pain
- Increased risk taking

Two most common sleep disorders are...

1) Insomnia

10 – 15% of adults suffer from chronic and severe insomnia

2) Snoring and Obstructive Sleep Apnoea (OSA)

*Snoring – up to 60% adults snore regularly
OSAS – 4% of males, 2% females over 40*

Insomnia

Often a symptom of an underlying disorder

Initial insomnia

- Anxiety and Stress
- Chemical Stimulation
- Physical Activity
- Teenage

Interrupted Insomnia

- Pain
- Respiratory Illness
- Habit
- Jet Lag
- Shiftwork

Early Morning Wakening

- Older age
- Depression

Insomnia (treatments)

CHEMICAL

Herbal
Allopathic

BEHAVIOURAL

Cognitive/behavioral therapy for
insomnia (CBTI)

Sleep hygiene
Stimulus control
Sleep restriction

Sleep Hygiene

for those with insomnia

- **Stress management**
 - Write down emotional thoughts and diary
 - Progressive muscle relaxation
 - Abdominal breathing
 - Visualisation
- **Stimulants**
 - Caffeine (5-8 hour half life)
 - Cigarettes
 - Alcohol (initially sedative, later stimulant)

Sleep Hygiene

- **Routine** - **Both daytime and pre-bedtime are important**
- **Exercise** - **Keep fit**
- **No vigorous exercise within 3-4 hours of bed**
- **Food** - **Avoid a large meal within 3 hours of bedtime**
A small carbohydrate intake before bed may be helpful i.e. milky drink, banana

Sleep Hygiene

- **Temperature**
 - Avoid extremes of temperature
 - Cooling will keep sleep
- **Light**
 - Light stimulates serotonin and inhibits melatonin and sleep.
 - Be outside in the day as much as possible
- **Dark**
 - Stimulates production of melatonin that helps sleep therefore keep bedroom dark at night

Sleep Hygiene

Noise

- Sudden noise awakens. A constant low intensity noise may be helpful for sleep

The bed

- Firmer and larger rather than sagging and small
- Avoid synthetic sheets
- Use feather or down unless allergic to house dust mite

Stimulus Control

- **In Bed**
 - If awake after 20 minutes or your mind is alert or anxious, get up for 20-30 minutes
 - use time out of bed to “wind down” and prepare again for sleep (*warm, dim light, write down what is on your mind, light reading material, comfortable chair*)
 - *Avoid working or playing in bedroom*
 - *The bedroom is for sleep and sex only*

INSOMNIA

STIMULUS CONTROL THERAPY

- **Go to bed when sleepy**
- **Do not watch TV, read, eat or worry while in bed**
- **Do not nap during the day**
- **Set regular wake up/get up time – including weekends**
- **No visible clocks at night**
- **Get out of bed if unable to fall asleep in 15 – 20 minutes**
Return to bed after 20-30 minutes. Repeat as often as necessary

INSOMNIA

SLEEP RESTRICTION THERAPY

- **Average the time asleep over 2 weeks**
- **Add 0 - 1/2 Hour**
- **Restrict time in bed to that amount of time**
- **Increase time in bed slowly, in 15 minute increments, when sleeping becomes consolidated**

The Agony or the Ecstasy



Familiar?

SNORING

IT'S NO JOKE!



He died in his sleep

**Sleep Apnoea ~
a sleep disorder.**

The Epworth Sleepiness Scale

How likely are you to doze off or fall asleep in the following situations, in contrast to just feeling tired?

This refers to your usual way of life in recent times.

Even if you have not done some of these things recently, try to work out how they would have affected you.

Use the following scale to choose the most appropriate number for each situation:

0 = would never doze

1 = slight chance of dozing

2 = moderate chance of dozing

3 = high chance of dozing

It is important that you put a number (0 to 3) in *each* of the eight boxes.

Situation

(0 – 3)

Sitting and reading

Watching TV

Sitting, inactive in a public place (eg a theatre or a meeting)

As a passenger in a car for an hour without a break.....

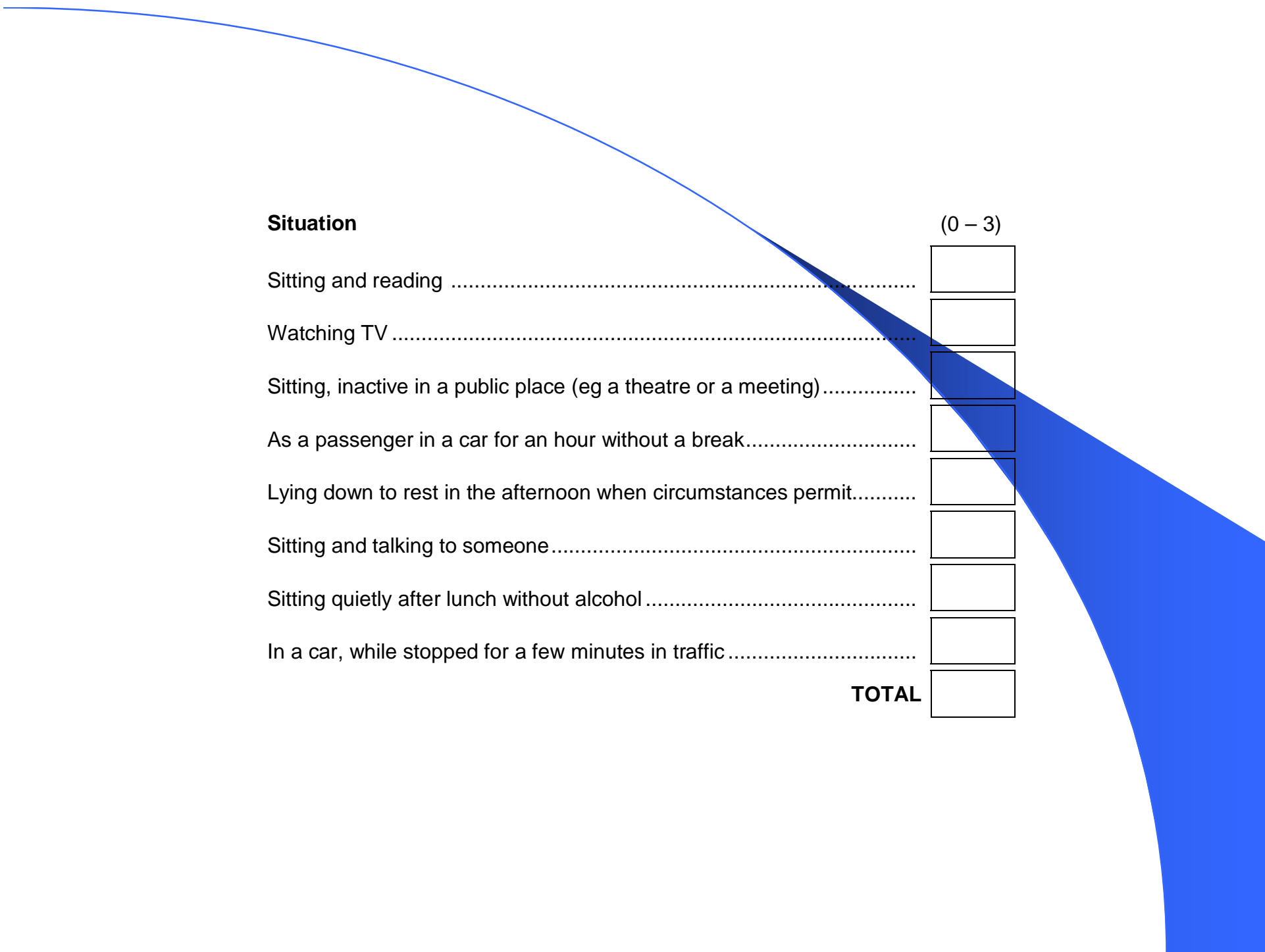
Lying down to rest in the afternoon when circumstances permit.....

Sitting and talking to someone

Sitting quietly after lunch without alcohol

In a car, while stopped for a few minutes in traffic

TOTAL



Snoring Related Complaints

Drives wife from bedroom

Girlfriend won't marry me

Shakes entire house

Ask me to leave movies and church

Has had to leave boat so friends could sleep

Fall asleep at traffic lights waiting for red
light to change

History Taking (If Possible With Partner)

Sleepy vs non-sleepy

Smoking / alcohol

Recent weight gain

Consistency of snoring

- Every night

- Every position

- Periods of apnoea

Examination

BMI

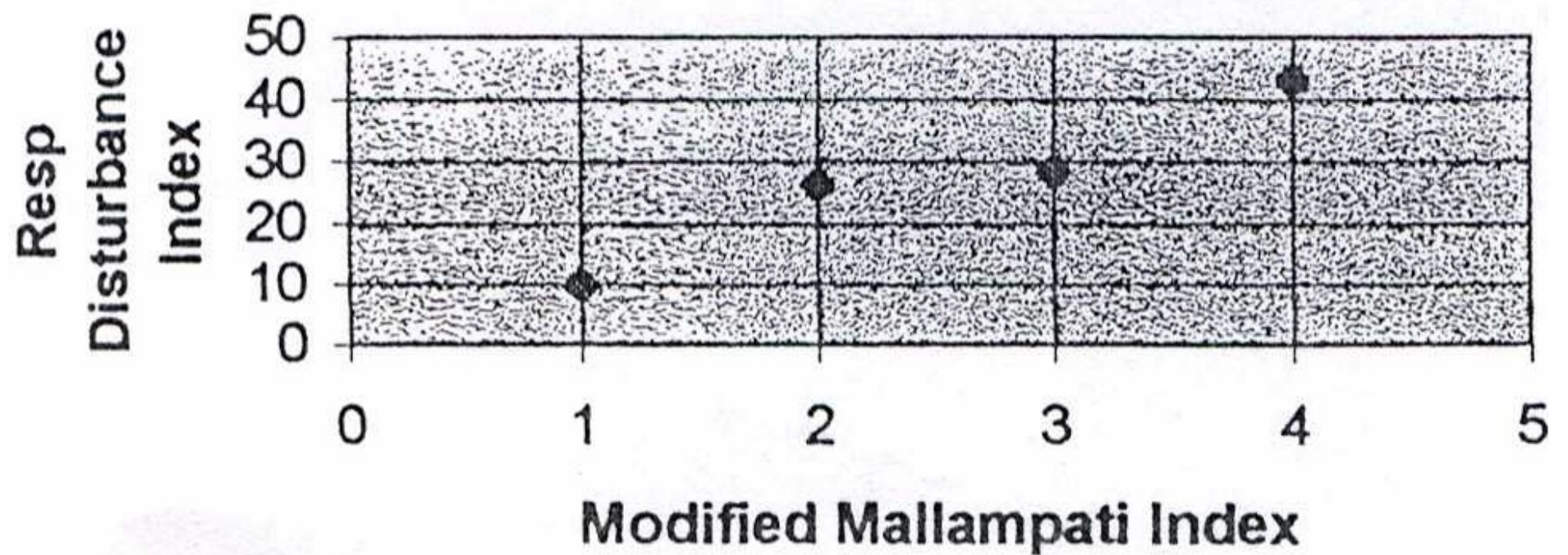
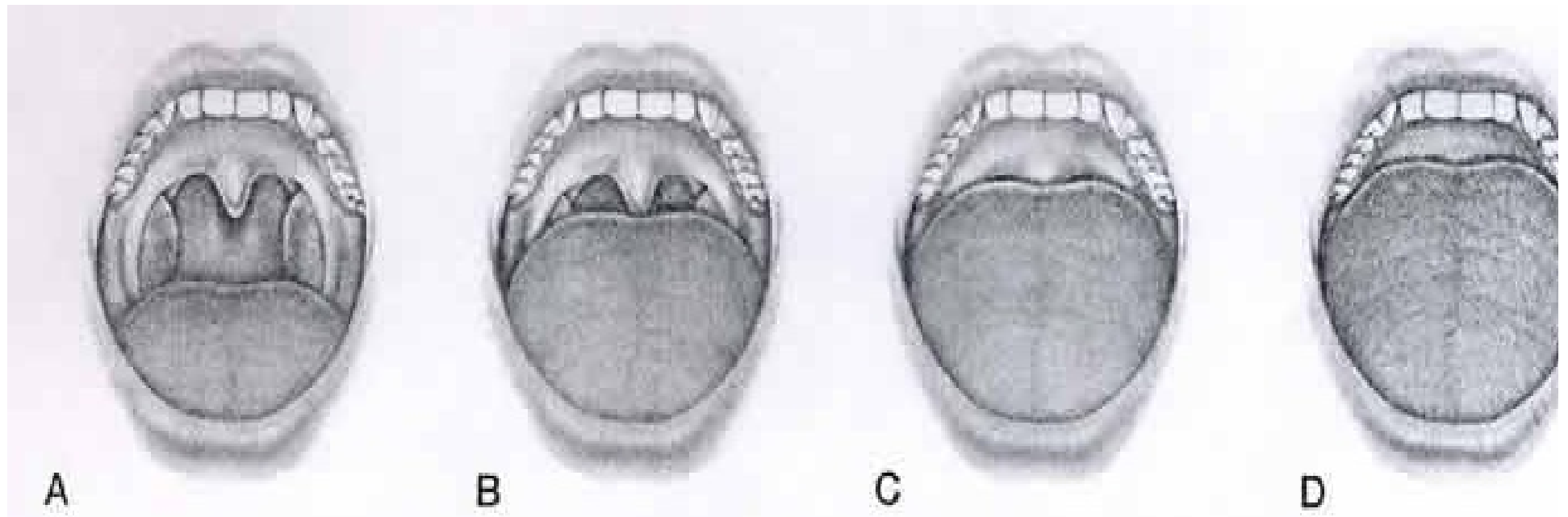
Neck circumference

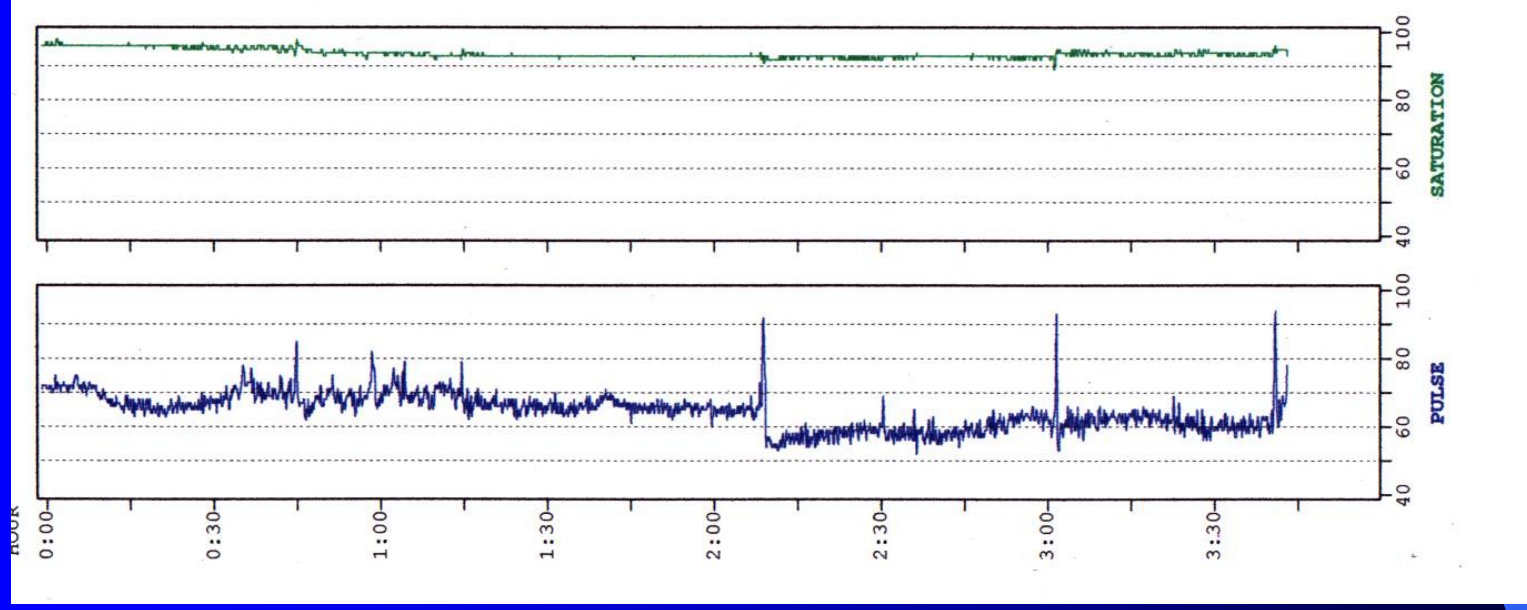
Nasal airway: septum/ valves

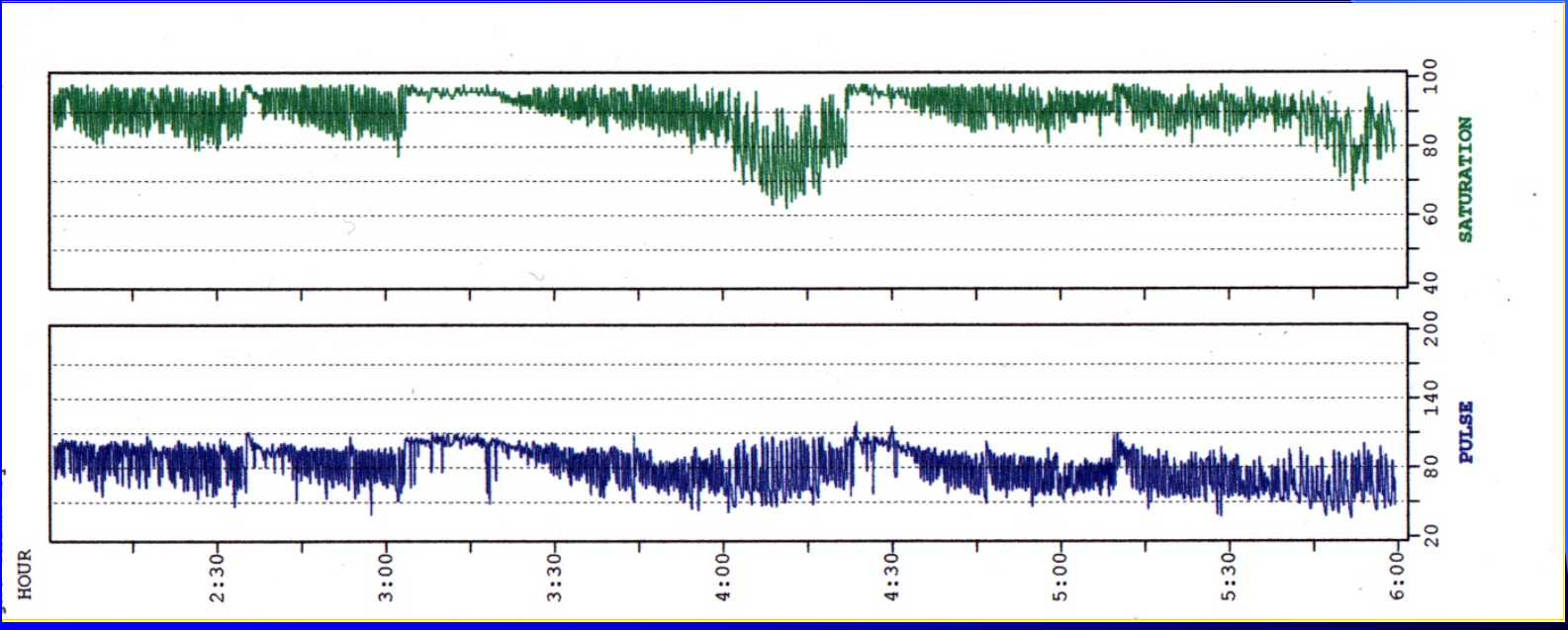
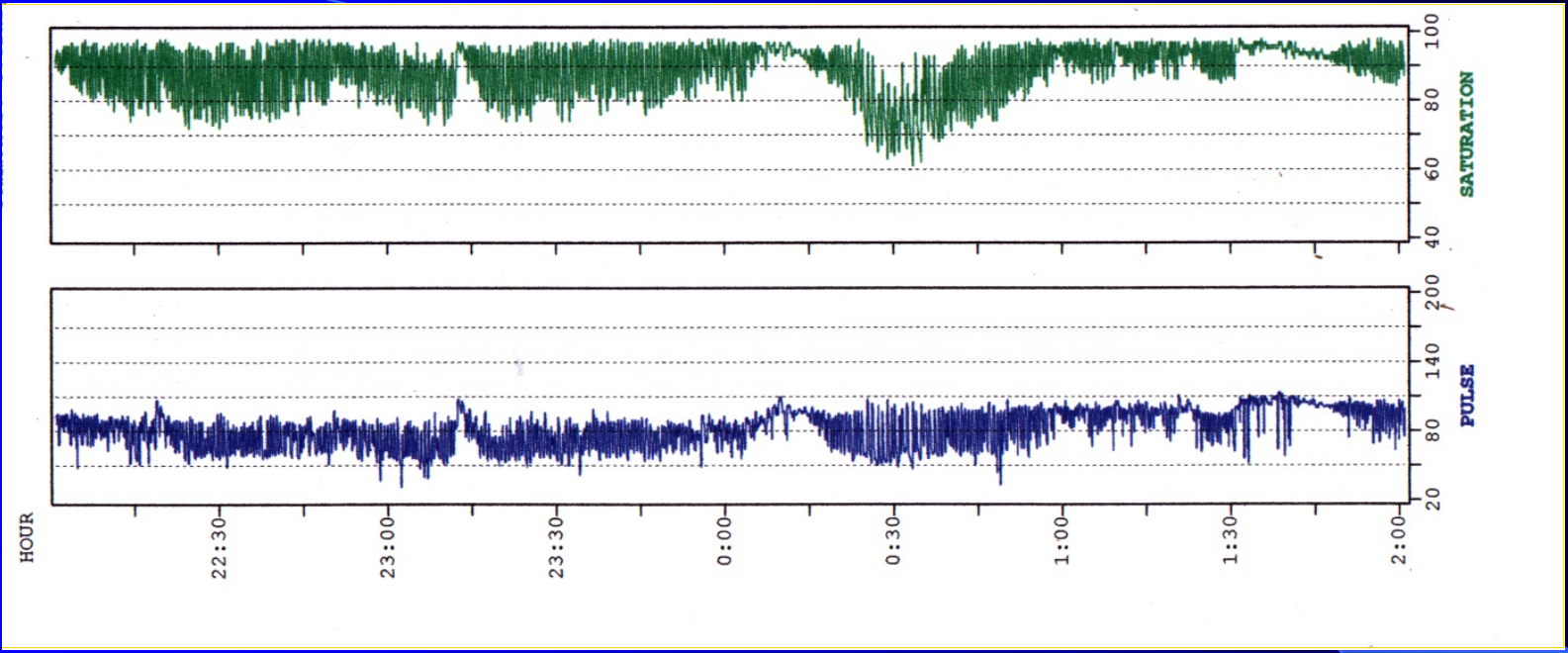
Tonsil size / soft palate

Soft palate oedema

Base of tongue







Managements:

1. Continuous Positive Air Pressure
(CPAP)

Managements:

2. Mandibular advancement prostheses/splints (MAP/S)

Fixed (Snorex device)

Mobile (MDSA device, Somnomed)

- Tongue stabilizing devices

Loth et al. Better quality of life when nasal breathing of snoring men is improved at night. Arch Otolaryngol Head Neck Surg 1999;125; 64-67

Managements

Lifestyle

Sleep position, i.e. Side
 Upright

Control of Obesity

Avoidance of alcohol and drugs (especially BDZ's)

Surgery

Adenotonsilectomy

Uvulopalatopharyngoplasty (UPPP)

Nasal surgery

Palatal surgery

Other surgeries

Tracheostomy

Weight loss surgery

Conservative:

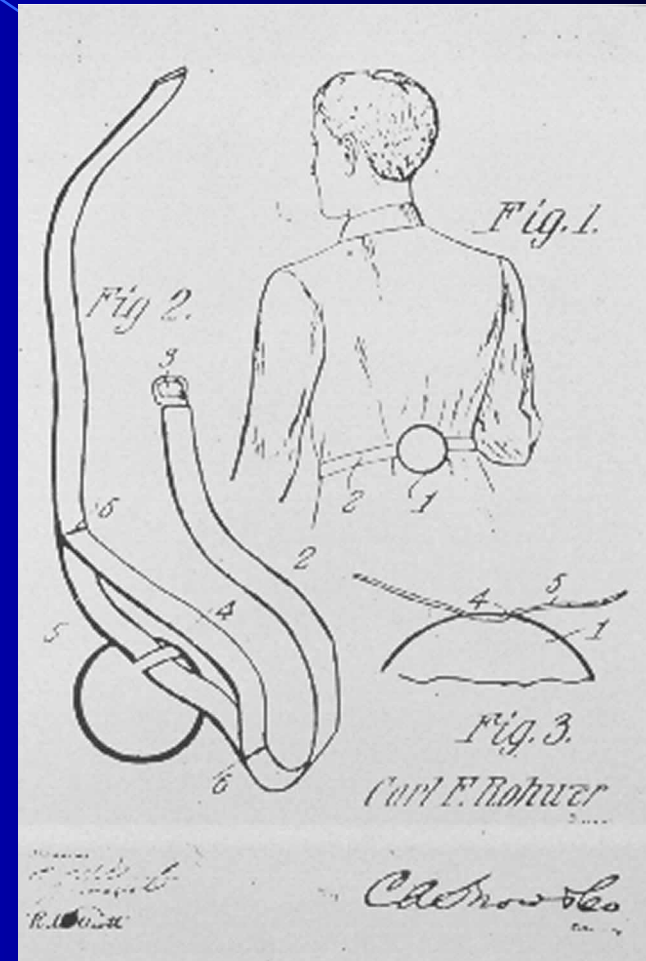
Weight loss

Alcohol avoidance

Stopping smoking

Sleeping tablets

Keep off back



Consequences of untreated OSA

1. The patient:

- Excessive Daytime Sleepiness
- Road accidents
- Impaired cognitive function
- Impaired quality of life

2. The bed partner:

- Disturbed sleep (even when asleep)
- Sleep deprivation
- Deafness!

Consequences of untreated OSA

3. Medical Consequences

- Hypertension
- Insulin resistance
- Atrial Fibrillation
- Heart attack
- Stroke
- Nocturia
- Morning headache
- Depression
- Impotence
- Insomnia

Laugh and the world laughs with you...

...snore and you sleep alone.

Mr J.F. Age 22

Presents with tiredness and fatigue that is severely affecting his ability to concentrate on his research, lectures, and both reading and writing at home. He is now considering quitting his studies as a result. Feeling very distressed, and irritable, and having frequent arguments with his partner. His appointment was made for 4.30pm.

History

John has always been fit and well. He cruised through school up to the sixth form when he began having trouble getting up for school. This became less of a problem when he began university because he arranged course lectures for later in the morning, or the afternoon. As a part time job, he worked the evening shift at McDonalds. He had increasing difficulty getting to sleep, usually not until 2 or 3am. If left, he could sleep through to midday or later. He has tried staying in on Friday and Saturday nights, but he still cannot sleep until 2 am.

He is a non-smoker, and now only drinks moderately at week-ends. Because of his irregular lifestyle, he tends to snack throughout the day. This is usually not particularly healthy food.

He was a keen sportsman, but now too tired to participate.

Past History

Nil of significance.

Specifically, no history of asthma, diabetes, recent viral illness, or psychiatric illness.

Family History

Parents both alive and well. Father is a night shift worker, and always described as an owl. No siblings

Examination

A tired, thin Caucasian, with no abnormal features.

BMI 21

BP 115/75

Cardiovascular, and Respiratory examination, all normal

Differential Diagnosis

Depression

Poor diet/anaemia.

Malabsorption syndrome

Sleep disturbance

Delayed Sleep Phase Syndrome

Investigation

Bloods

? Overnight sleep study, (Oximetry, PSG.)

Sleep Diary

At follow up

Bloods all normal

Sleep diary confirms 'initial insomnia' with a long 'sleep in' when not woken with alarm.

Treatments

Light therapy (Phototherapy)

Chronotherapy

Melatonin

Mr JM Age 56

John is a registered plumber who now owns his own company, and has 10 people working for him. He presents with increasing tiredness and headaches, especially in the morning, and not coping well at work.

History

He had been fit and well as a 20 to 30 year old. Played squash until 40. Since then he had attributed his tiredness to work stress with increased responsibility, and his teenage children! He has difficulty with concentrating in meetings, especially in the afternoon. He is now concerned that he is frequently falling asleep in the evenings.

In the evening he will share a bottle of wine with his wife, although he does not drink after his meal.

He is a non-smoker.

His wife complains that he is increasingly irritable and argumentative, and they now sleep in separate rooms because he is so fidgety at night, and he snores.

Sleeps well – very quickly, but still tired, often with headaches in the morning. Some Gastroesophageal reflux (GORD) at night. Occasionally wakes with a cough.

Gets up to the toilet x 2 or 3 at night.

Past History

Nil of significance.

Specifically, no history of hypertension, asthma, diabetes, or psychiatric illness.

Family History

Father died of an MI at 62 and was an heroic snorer. Mother is alive and well. He has one brother who is rather obese and suffers from angina.

Examination

BP 150/90 Weight 101.6 Kg BMI 32

Differential Diagnoses

Depression

Alcoholism

Diabetes

Sleep Disordered Breathing

Others

Investigation

CBC Ferritin TSH GGT

Fasting glucose and Lipids, HbA1c

Overnight sleep test (Oximetry/PSG)

At follow up

BP 145/90

Bloods all normal, except Fasting glucose 6.4

Total Chol 5.9 HDL 0.9 LDL 2.4

Oximetry: Desaturation index:- 21 desaturations >10 seconds/hr. Lowest SpO2 79%

Treatment

CPAP / MAS / Surgery

Weight reduction

Increase exercise

Discuss alcohol consumption

Mrs CB Age 48

Cathy presents with exhaustion and insomnia “I can’t sleep and I’m getting exhausted and unable to function properly at work.”

History

Cathy slept well in her early 20’s, and needed 8 hours sleep to function well. Normal Chronotype
She had her first child at 25, second at 27 and third at 28 years old. All seemed to have difficulty sleeping, and her sleep was constantly broken. This lasted until the youngest was 2 years old. i.e. 5 years in total. Since that time sleep has never been the same. All the children have now left home, but her sleep is still broken.

Sleep now interrupted with hot flushes during the night.

She has becoming irritable, with poor motivation, indecisive, not coping well at work and “can’t be bothered.” She has zero libido.

Past History

Diagnosis of Post Natal Depression with the first child. Treated with antidepressants for 6 months.

Family History

Both parents alive and well, though mother in her 80’s has been on sleeping tablets for years. Cathy does not want to get into that habit.

Examination (if thought necessary)

BP 120/85 Weight 50kg BMI 20

Cardiovascular and Respiratory – normal

No lymphadenopathy or thyroid enlargement

ESS 1

Differential Diagnosis

Depressed
Menopausal
Psychophysiological insomnia

Investigation

Bloods
Sleep Diary
Actigraphy

Treatment

CBTI - Sleep Hygiene
- Stimulus Control
- Sleep Restriction

Melatonin
SSRI or Sedative TCI
HRT

Alice S Age 4 years

Alice was brought in by mother because of her disruptive behaviour at preschool, and her teacher thought she might be deaf. Mother commented that her behaviour is not much better at home with tantrums and tiredness.

History

Alice was delivered by a normal vaginal delivery at term.

Her development was normal.

From about 2 years old her behaviour began to deteriorate. This was attributed to the birth of her brother.

She was often snuffly.

Alice was always a fussy eater, but increasingly she began to gain weight. NB Mother is obese. Alice is a poor sleeper. There are always bedtime tantrums, she wakes at night, and constantly disturbs her exhausted parents.

In the morning she wake irritable, and struggles to get up. All day she seems tired, rubbing her eyes, pulling at her ears, and yawning.

During the day her behaviour deteriorates.

She hasn't had an afternoon nap for the past 2 years.

Sleep Pattern

She is always a noisy breather

Occasionally stops and starts breathing at night.

She has had episodes of waking screaming and sweating.

Her bed clothes are invariably off the bed in the morning, and she may be found sleeping with head over the side of the bed.

Examination

All normal apart from enlarged tonsils, and obesity. She is a mouth breather.



Treatment

Adenotonsilectomy

Miss J.N. Age 28

Jan presented with tiredness and fatigue that is severely affecting her ability to concentrate at work. She finally decided to come to the surgery because of a 'near miss' driving accident. Whilst driving to work, she was listening to the radio, began to laugh at a joke, and suddenly lost control of the car for a couple of seconds, nearly missing the oncoming traffic. She had been struggling with her work increasingly for the past two years.

History

Jan had always been fit and well. She was bright at school up to the sixth form when she began suffering bouts of extreme tiredness. She had been taken to the doctor when she was 18, who prescribed an iron supplement, and discussed the possibility of emerging depression. Her bouts of fatigue continued. Jan was managing her sleepiness with occasional naps in her lunch break, and at weekends. She is a non-smoker, and now only drinks occasionally at weekends.

Jan had become quite socially withdrawn because of her constant fatigue. Despite Jan's severe sleepiness, she sleeps poorly, waking several times in the night.

Past History

Nil of significance.

Specifically, no history of asthma, diabetes, recent viral illness, or psychiatric illness.

Family History

Parents both alive and well. Her grandmother had a similar history, and had always been looked upon as lazy. She had never been in paid employment.

Examination

Nil remarkable.

BMI 23

BP 115/75

Cardiovascular, and Respiratory examination, all normal

ESS 21

Differential Diagnosis

Insomnia
Depression
Poor diet/anaemia.
Malabsorption syndrome
Sleep disturbance of some sort

Investigation

Bloods
? Overnight sleep study (PSG.+ MSLT)
? Sleep Diary

At follow up

Bloods all normal
Sleep diary confirms fragmented sleep pattern.

Treatments

Methylphenidate
Dexamphetamine
Modafinil

Mrs EB Age 52

Liz presented with increasing daytime sleepiness, and insomnia “I can’t settle and get to sleep, and I’m having to take time off work.”

History

She slept well in early 20’s, and used to need 7.5 hours of sleep to function well. As a child she remembers some difficulty with sleeping, and was diagnosed with ‘growing pains’. Mother would spend time massaging her legs when she was trying to go to sleep. During her first and only pregnancy, she experienced difficulty getting to sleep because of ‘fidgety legs’. However straight after the birth this resolved, and she thought no more of it. On a recent flight to Europe she had been unable to sleep because she was unable to sit comfortably, and spent much of the trip walking up and down the corridors.

Past History

A diagnosis of Depression had been made 2 years previously, and treated with Fluoxetine. Unfortunately this had not been very successful, and her sleep had become worse.

Family History

Father was alive and well, but mother had committed suicide in her 40’s.

Examination

BP 120/85 Weight 65 Kg BMI 27
Cardiovascular and Respiratory – normal
No lymphadenopathy or thyroid enlargement
Neurological examination was normal

Differential Diagnosis

Psychophysiological insomnia

Depressed

Menopausal

Restless Leg Syndrome (RLS)/Periodic Limb Movements in Sleep(PLMS)

Investigation

Bloods (especially Ferritin, and Renal function)

Actigraphy (or PSG)

Follow up

Ferritin - 40

Renal function - Normal

Treatment

Clonazepam

L/Dopa

Dopamine agonists (Pergolide/Ropinerole)

Iron

Magnesium

Sleep Disorder Quiz Questions

What is the optimal time for a 'power nap'?

- a) 5 minutes
- b) 15 minutes
- c) 30 minutes
- d) 45 minutes

Growth hormone is produced during what phase of sleep?

- a) REM
- b) Non REM

Delayed Sleep Phase Syndrome is more common in:

- a) Teenage
- b) Middle age
- c) Old age

Obstructive Sleep Apnoea is not associated with:

- a) Hypertension
- b) Atrial Fibrillation
- c) Insulin Resistance
- d) Hypothyroidism

What is the most useful investigation for Insomnia?

- a) Actigraphy
- b) Polysomnography
- c) Sleep Diary

What is the half life of Zopiclone?

- a) 4-6 hours
- b) 6-8 hours
- c) 8-10 hours

Night terrors are associated with

- a) Sleep walking
- b) Frightening dreams
- c) REM sleep

What is the prevalence of Obstructive Sleep Apnoea Syndrome in men?

- a) 2%
- b) 4%
- c) 6%

What is the most commonly successful treatment for OSA in children?

- a) CPAP
- b) Adenotonsillectomy
- c) Mandibular Advancement Splint
- d) Weight reduction

REM Sleep Behaviour Disorder occurs predominantly in:

- a) Young men
- b) Menopausal women
- c) Older men

Thank You

Dr Alex Bartle

The SLEEP WELL Clinic

Auckland Christchurch Wellington

Tauranga Whangarei

www.sleepwellclinic.co.nz

Ph 0800 227533

