

# What the Cardiologist needs to know about...

# Sleep

**“ People with Untreated Sleep Apnoea have 5 times the risk of Cardiovascular Mortality”**

## WHO NEEDS A SLEEP STUDY?

RESISTANT HYPERTENSION

DIFFICULT ATRIAL FIBRILLATION

CORONARY ARTERY DISEASE OR HISTORY OF MYOCARDIAL INFARCTION

PULMONARY HYPERTENSION WITHOUT OBVIOUS CAUSE

MULTIPLE RISK FACTORS FOR CVD

HISTORY OF CEREBRO-VASCULAR DISEASE

NOCTURNAL ARRHYTHMIA

CARDIAC FAILURE



## A Good night's Sleep is Good for the Heart

### Difficult to control hypertension

- Multiple observational studies have shown that sleep disordered breathing exists in more than 70 % of patients with difficult-to-treat or resistant hypertension

*(“ Refractory hypertension and sleep apnoea: effect of CPAP on blood pressure ” Eur Respir J 2003*

*“Obstructive sleep apnea and resistant hypertension” Chest. 2007*

*“High prevalence of unrecognized sleep apnoea in drug-resistant hypertension” J Hypertens. 2001)*

- Treatment with CPAP can effectively reduced BP (average of approximately 5mmHg) in patients with hypertension and OSA syndrome.

*(“Ambulatory blood pressure after therapeutic and subtherapeutic nasal CPAP: a randomised parallel trial” Lancet 2002*

*“Effect of nasal continuous positive airway pressure treatment on blood pressure in patients with obstructive sleep apnea” Circulation 2003*

*“The impact of continuous positive airway pressure on blood pressure in patients with obstructive sleep apnea syndrome: evidence from a meta-analysis of placebo-controlled randomized trials” Arch Intern Med. 2007)*

### AF that's difficult to control or no obvious cause found

- The prevalence of OSA among patients with AF is strikingly high, estimated to be 40-50%

*(Association of atrial fibrillation and obstructive sleep apnea. Circulation 2004)*

- OSA may also be associated with recurrent AF. In an observational study of 130 patients who had been electrically cardioverted from AF, the rate of recurrent AF in patients with untreated OSA, with treated OSA, and without OSA was 82, 42, and 53 percent, respectively.

*(“Obstructive sleep apnea and the recurrence of atrial fibrillation”. Circulation 2003);*

### Arrhythmia notably worse or symptomatic at night

- Independent risk for nocturnal arrhythmias such as AF, NSVT and bradyarrhythmias.
- Therapy with positive airway pressure abolishes nocturnal ventricular asystole and bradycardia in most patients with OSA

*(Association of nocturnal arrhythmias with sleep-disordered breathing: The Sleep Heart Health Study. Am J Respir Crit Care Med 2006)*

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### Pulmonary hypertension

- An independent cause as outlined in the new WHO classification of pulmonary HTn. Most studies indicate PHT prevalence approximately 20% in OSA and much higher with hypoventilation syndromes. It is usually mild-moderate in severity.
- CPAP reduces Pulmonary Artery pressure significantly (mean approx 25%).

*("Pulmonary hypertension in obstructive sleep apnoea: effects of CPAP: A randomized, controlled cross-over study. Eur Heart J. 2006)*

### Cardiac failure

- The incidence of OSA is about 30% and Chayne-Stokes respiration (Central Sleep Apnea) 40%. Both have clear documented adverse prognostic implications.
- 3 RCT have looked at use of CPAP in this setting and show a clear improvement in Ejection Fraction (5-9%).

*(Cardiovascular effects of CPAP in patients patients with heart failure and obstructive sleep apnea N Eng J Med 2003  
Randomized trial of CPAP treatment in obstructive sleep apnea in heart failure. Am J Respir Crit Care Med 2004)*

- 2 long term controlled studies with CPAP have shown reduced cardiovascular events and mortality. This however needs larger studies for confirmation but the results look encouraging.

*(CPAP treatment of mild to moderate obstructive sleep apnea reduces cardiovascular risk. Am J Respir Crit Care Med 2007  
Suppression of central sleep apnea by CPAP and transplant free survival in heart failure. Circulation 2007)*

### Coronary Heart disease

- There is increasing evidence that severe OSA might be a cause of cardiovascular morbidity related to coronary artery disease

*(Long-term cardiovascular outcomes in men with obstructive sleep apnoea-hypopnoea with or without treatment with continuous positive airway pressure: an observational study. Lancet 200. Observational study of 1500 patients concluded "severe obstructive sleep apnoea-hypopnoea significantly increases the risk of fatal and non-fatal cardiovascular events. CPAP treatment reduces this risk"*

- Prevalence of OSA very high in those with IHD (60%) and the risks of major events were 12 times higher in these patients, in a controlled study of 89 patients followed up for a mean of 226 days.

*(Impact of obstructive sleep apnea on clinical and angiographic outcomes following percutaneous coronary intervention in patients with acute coronary syndrome. Am J Cardiol. 2007)*

- Treatment with CPAP appears to reduce the incidence of cardiovascular events, including those related to coronary artery disease. A prospective cohort study followed 449 patients with OSA for a median of six years and showed a reduction of the likelihood of a cardiovascular event (myocardial infarction, stroke, or ACS) by 65%.

### Metabolic syndrome and high risk patients for IHD

- Severe OSA is now well proven to be a primary risk factor for IHD (OR 3-5) with indications that CPAP reduces the risk.

*(Increased incidence of coronary artery disease in sleep apnoea: a long-term follow-up. Eur Respir J. 2006)*

**"OSA is common, mostly unrecognised and a very important risk for CVD"**



**"Fast, convenient & easy testing is now available"**



**"Treatment is safe & extremely effective"**

