
Obstructive Sleep Apnoea

09

Key Points

- Sleep disordered breathing encompasses a range of disorders including obstructive sleep apnoea syndrome
- Obstructive sleep apnoea syndrome (OSAS) is increasingly recognised as a public health problem both in Ireland and internationally
- Obesity is a major risk factor for OSAS but a significant minority of affected individuals are non-obese

Background

Sleep disordered breathing includes a range of conditions which result in abnormal breathing during sleep. The disordered breathing ranges from intermittent, partial obstruction of the airway without sleep disturbance (snoring) to frequent apnoeas associated with repetitive hypoxaemia and arousals leading to sleep disruption and daytime sleepiness¹.

The most common form of sleep disordered breathing is obstructive sleep apnoea (OSA). OSA leads to intermittent obstruction of the airway during sleep, leading to sleep disruption and daytime somnolence. The condition is also known as obstructive sleep apnoea/hypopnoea syndrome (OSAHS). OSA is an independent risk factor for hypertension and is associated with an increased risk of cardiovascular disease, abnormal glucose metabolism, depression and sleepiness related accidents with their attendant morbidity and mortality².

In general, anything that narrows the upper airway will predispose an individual to obstructive sleep apnoea. Obesity is the single most common predisposing factor, but other risk factors for the development of OSA include upper airway abnormality, endocrine disorders including acromegaly and hypothyroidism and postmenopausal state (females)². OSA is also more common in pregnancy and is also associated with increasing age, lifestyle factors and muscle relaxant medications.

Other sleep disordered breathing conditions include central sleep apnoea (CSA), in which periodic cessation of breathing occurs without obstruction of the airway and obesity hypoventilation syndrome (OHS), in which breathing is reduced during both sleep and wakefulness, with or without accompanying OSA¹. This chapter deals with Sleep Apnoea (ICD 10: G47.3) which includes sleep apnoea (unspecified, other), central sleep apnoea, obstructive sleep apnoea syndrome (OSAS) and sleep hypoventilation syndrome.

Prevalence

There is no national data currently available on the prevalence of sleep apnoea in the Irish population.

Mortality

People with untreated OSA are at greater risk of life-threatening conditions such as stroke and cardiac arrest. The risk of road traffic accidents and work related accidents is also higher.

Impact on health services

Data for those diagnosed with sleep disordered breathing disorders is not available at national level in Ireland, nor is data available for numbers for whom respiratory aids and appliances are provided to treat these conditions, either for the population as a whole or those with medical cards.

In terms of impact on hospital services, these conditions, if dealt with at hospital level, are in the main dealt with both by Outpatient Departments and respiratory laboratories. National data is not available for this latter service other than for those hospitalised.

In terms of day cases and inpatient hospitalisations, in 2007 there were 1,203 hospitalisations in HIPE reporting acute hospitals (43 day cases, 1,160 inpatients). A decade later in 2016, this had risen to 2,241 (74 day cases, 2,167 inpatients). This 2,167 inpatient hospitalisations represented 2.3% of all respiratory inpatient hospitalisations, and 2,755 inpatient bed days (0.5% of all inpatient respiratory bed days).

Of all sleep apnoea day cases reported through HIPE in 2016, 28% were classified as major complexity and 72% as minor complexity. For those treated as inpatients, 24% were classed as major complexity and 76% as minor complexity³.

Sleep studies was ranked number 18 of the top 20 principal procedures blocks for inpatients listed in The Activity in Acute Public Hospitals in Ireland Report for 2016 accounting for 0.9% of all inpatient procedures³. (Of these top 20 procedures, five related to child birth). Among the top 20 principal procedures on elective inpatients, sleep studies were 4th while among the top 10 AR-DRGs, sleep apnoea was 9th³. Of the elective inpatient hospitalisations, sleep disorders was listed 4th in the top 20 principal diagnoses³.

Gender

Irish population prevalence data by gender is not available. In terms of data from hospitalisations the ratio of males to females in 2007 was 4:1 while in 2016 it was 2:1.

Age

National Irish prevalence data by age group is not available. Data from hospitalisations show the median and mean age in 2016 was 48 years and 40.36 years compared with 50 years and 47 years in 2007. Of the 2,167 inpatient hospitalisations in 2016, 58.4% (1,265) were aged 16-64 years, 27.1% aged 0-15 years (47% of latter were aged under 5 years) and 14.5% aged 65 years and over.

Socio-economic analysis

National Irish data is not available.

International comparisons

Globally, sleep disordered breathing affects 1-6% of adults⁴. International data indicate that OSA affects between 3-7% of middle-aged males and 2-5% of women in developed countries¹. It is thought that 10% of the population suffer from a clinically significant sleep disorder and the prevalence is expected to increase due both to ageing and obesity in western countries⁵.

International incidence trends show that men are two-and-a-half to three times more likely to be diagnosed with OSA¹. In terms of hospitalisation in Ireland, the male: female ratio in 2016 was 2:1.

In the UK, people are most often diagnosed with sleep apnoea between the ages of 40 and 70 years and the incidence rate is up to 25% higher in the most deprived quintile of society than in the least deprived quintile⁶. In the Irish data presented earlier in this chapter, the commonest age for hospitalisation was in the 16-64 year age group.

References

1. Gibson GJ, Loddenkemper R, Lundbäck B, Sibille Y. The European Lung white book; Respiratory Health and Disease in Europe. ERS Journals 2013. Chapter 23, Sleep breathing disorders <https://www.erswhitebook.org/chapters/Sleep-breathing-disorders/>
2. Irish Sleep Society Practice Management Support Document (versions 2)- www.irishsleepsociety.org
3. Activity in Acute Hospitals. Activity in Acute Public Hospitals in Ireland: 2016 Annual Report; Health Pricing Office Health Service Executive Sep 2017. http://www.hpo.ie/latest_hipe_nprs_reports/HIPE_2016/HIPE_Report_2016.pdf
4. Forum of International Respiratory Societies. The Global Impact of Respiratory Disease - Second Edition. Sheffield, European Respiratory Society, 2017
5. Peppard PE, Young T, Barnet JH, Palta M, Hagen EW, Hla KM. Increased prevalence of sleep-disordered breathing in adults. *Am J Epidemiology*. 2013;177(9): 1006-14.
6. Strachan D et al. British Lung Foundation. The battle for breath—the impact of lung disease in the UK, 2016. Jul 2016. <https://www.blf.org.uk/what-we-do/our-research/the-battle-for-breath-2016>