Pulmonary Vascular Disease

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Key Points

- Pulmonary embolism is a potentially serious life threatening event
- The prevalence of pulmonary hypertension, a progressive often fatal disease, is unknown in Ireland

Background

Pulmonary Vascular Diseases include conditions such as pulmonary embolism (PE) (ICD 10: I26) and pulmonary hypertension (PH) (ICD 10: I27.0). Their effects on right heart function contribute to the burden of chronic respiratory disease and are likely both under diagnosed and under-estimated[1].

This chapter is divided into two sections. Section A deals with Pulmonary Embolism (ICD 10: I26) and Section B deals with "Other Pulmonary Heart Disease" (ICD 10: I27), "Other Diseases of Pulmonary Vessels" (ICD 10: I28) and Pulmonary Oedema (ICD 10: J81).

Section A: Pulmonary embolism

Pulmonary embolism (PE) is a serious, common, potentially life threatening condition that results in the blockage of the pulmonary arteries by thrombotic material originating from a deep vein thrombosis (DVT), often from the legs or pelvis. PE and DVT are each clinical presentations of venous thromboembolic disease and share risk factors that can be patient related, setting related or both. These include prolonged inactivity, oral contraceptive use, pregnancy, obesity, family history of thromboembolic disease, older age, previous venous thromboembolic disease, malignancy, neurological disease that impairs mobility, prolonged immobility, trauma and orthopaedic surgery and congenital or acquired thrombophilia. Antithrombotic prophylaxis significantly reduces the risk of venous thromboembolic events in patients who are at risk.

Incidence

As PE is an acute condition, incidence rather than prevalence is the more correct measure.

Using hospitalisations as an indicator of incidence, the condition accounted for 1,426 inpatient hospitalisations in 2016. These are inpatient hospitalisations rather than numbers of individuals and reflect data only from HIPE reporting acute public hospitals. The figures do not include occurrences of the disease after admission to hospital, for example after surgery. Therefore these figures are an under-estimate of the true incidence of PE in Ireland.

Mortality

In 2007, there were 139 deaths due to PE recorded in Ireland. In 2015, the figure was 132. The highest number in the period 2007-2015 was in 2008 when there were 164 deaths recorded[2].

Impact on Health services

As with many other respiratory diseases there is little data on the impact of PE on health service resources outside the acute hospital inpatient setting. Data on PE is not available at national level for people with full medical cards, those with GP only cards or those who are private patients. This is also true for those who attend GP out of hours services, those who attend Emergency Departments and those who attend hospital Outpatient Departments for the ongoing monitoring of their PE risk. Inpatient or day case data is only available from HIPE reporting acute publicly funded hospitals.

PE accounted for 1,426 inpatient hospitalisations (1.5% of all respiratory inpatient hospitalisations, 0.2% of all inpatient hospitalisations) and 11,333 inpatient bed days (2.0% of respiratory inpatient bed days, 0.3% of all inpatient bed-days) in 2016. All but 35 were emergency admissions.

In the Activity in Acute Public Hospitals 2016 report, 46.3% of patients with PE were classified as major complexity with median LOS of 7 days (mean of 10.1 days)[3]. This report included both thrombotic and non-thrombotic PE.

Gender

Of those who died in 2015 from PE, 62.1% (82) were female and 37.9% (50) were male. The comparable figure in 2007 was 61.2% (85) females and 38.8% (54) males[2]. In 2016, of those admitted to HIPE reporting hospitals with PE, 53.5% were female.

Age

Deaths from PE are more common in older age. Of those who died from PE in 2015, 25.8% (34) were aged 20-64 years, 24.2% (32) were aged 65-74 years, 30.3% (40) were aged 75-84 years with the remaining 19.7% (26) aged 85 years and over[2].

All of the inpatient hospitalisations in 2016 for PE were in people aged over 15 years. Of the total in 2016, 49% (701) were in those aged 16-64 years, with the remaining 51% (725) in the 65 years and over age group. In the former they accounted for 2.4% of respiratory inpatient hospitalisations (0.2% of all inpatient hospitalisations) in that age group, while in the latter the figure was 1.9% (0.4%).

Section B: Other Pulmonary Heart Diseases, Other Diseases of Pulmonary Vessels, Pulmonary Oedema

Most of these Other Pulmonary Heart Diseases (ICD 10: I27) are pulmonary hypertension (PH) where pressure in the pulmonary artery rises above normal levels, putting a strain on the right side of the heart. There are a number of subtypes of PH. In most people, PH is secondary to another cardiac or pulmonary condition[1]. Although the prognosis of pulmonary artery hypertension (PAH) has improved it remains a progressive, often fatal disease. The term Pulmonary Hypertension (PH) will be used rather than Other Pulmonary Heart Diseases in most of the following discussion. "Other diseases of the pulmonary vessels (I28)" are rare.

Prevalence & Incidence data

Robust data at national level is not available.

Mortality

In 2007, there were 21 deaths due to Pulmonary Hypertension and none for Other Diseases of Pulmonary Vessels. In 2015, the figures were 53 and 0[2].

Impact on health services

Data on Pulmonary Hypertension, Other Diseases of Pulmonary Vessels, and Pulmonary Oedema is not available at national level for people with full medical cards, those with GP only cards or those who are private patients. This is also true for those who attend GP out of hours services, those who attend Emergency Departments and those who attend hospital Outpatient Departments. Inpatient or day case data is only available from HIPE reporting publicly funded hospitals. In view of small numbers, lung transplants and drug costs for this group are not included. In 2016, there were 211 inpatient hospitalisations and 2,095 bed days recorded for these diseases. Of these 83% were emergency admissions. In addition, there were 75 day cases.

Gender

Of those who died in 2015 from Pulmonary Hypertension, 74.5% (38) were females. The comparable figure in 2007 was 57.1% (12) females[2].

Age

Deaths from Pulmonary Hypertension are more common in older age. Of those who died from Pulmonary Hypertension in 2015, 17.0% (9) were aged 40-64 years, 20.8 % (11) were aged 65-74 years, 34.0 % (18) were aged 75-84 years with the remaining 28.2 % (15) aged 85 years and over[2].

Of the 2016 inpatient hospitalisations for Pulmonary Hypertension, less than 5 were in the 0-15 year age group, of the remainder 30% were aged 16-64 years and 70% were aged 65 years and over.

International comparisons: Pulmonary Vascular Disease

The European incidence estimates of PE range from 6–20 cases per 10,000 inhabitants per year with a case fatality rate from acute PE of 7-11%[1]. In the UK, 11% more women than men are hospitalised with PE[4]. In Ireland 53.5% of hospitalisations were in females. The prevalence of Pulmonary Arterial Hypertension in Europe ranged between 1.5 to 5.2 cases per 100,000 people, with a predominance in women (female: male ratio 2:1) in 2011[1]. For pulmonary vascular disease(ICD 10: I26-I28) as a group the hospital admission rate for WHO Europe in 2011 ranged from 7.0 to 79.5 with Ireland at 34.24[1]. The age standardised mortality rate for the WHO European region for pulmonary vascular diseases (ICD 10: I26 -28) reported in 2011 ranged from 1.76 (Finland) to 32.66 (Albania) with Ireland at 3.14[1].

References

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