Increasing Cardiac Interventions among the Aged

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Abstract
Ireland’s over 65 year population is growing. As incidence of coronary events rises with age, there is a growing population of elderly patients with cardiac disease. The changing age profile of patients treated by a tertiary hospital Cardiology service was quantified using Hospital Inpatient Enquiry data. 53% of CCU admissions were aged ≤65 years, with admissions aged ≥85 years in 2008 four times greater than in 2002. Percentages of patients undergoing diagnostic coronary angiography and percutaneous coronary interventions in 1997 aged ≥70 years were 19% and 18% respectively. By 2007, these percentages had risen to 31% and 34% respectively - greatest increases were in the very elderly age categories. The proportion of ICD recipients aged >70 years increased from 8% in 2003 to 25% by 2008. The proportion of elderly patients receiving advanced cardiac care is increasing. This trend will continue and has clear resource implications. Outcomes of interventions in the very old need further investigation, since the old old are under-represented in clinical trials.

Introduction
Ireland is rapidly growing older. In 2006, there were 467,926 people over the age of 65 years living in the Republic of Ireland - 11% of the total population. This represented a 12% increase in this demographic group over the decade since 1997, with rapid growth projected to continue, rising to 1.4 million or 25% of the population by 2041. A fourfold increase in the population over the age of 85 is projected over the same timeframe from 110,000 to 440,000 persons. The average life expectancies for a 75 year old male and female living in Ireland are 8.9 and 11.2 years respectively. Those aged 65 or over are our greater health consumers accounting for 48.7% of all acute hospital bed days and 28% of all hospital day cases in 2005. The average length of stay in hospitals increases with advancing age (see Figure 1). The mean length of stay in hospitals for persons aged 65 years or over of 11.5 days is more than double the mean for persons under 65 years of 4.6 days.

The incidence of both coronary artery disease (CAD) and heart failure rise steeply with age and thus the prevalence of these diseases increases in an ageing population. The current and projected treatment burden for the Irish health system of cardiac disease among elderly patients is significant, particular when increasingly expensive treatment advances such as drug eluting stents, implantable cardioverter defibrillators (ICDs) and cardiac resynchronization therapy (CRT) are considered. There are limited trial data to guide the care of elderly patients presenting with cardiac disease, as this patient subgroup has been under-represented in trials. In particular, the very elderly are under-represented in randomised trials. Available data are often from retrospective studies involving small number of patients. This has led to uncertainty about benefits and risks of invasive treatment strategies in the setting of advanced age and has resulted in a move towards conservative management for older patients. Given the population change of the past decade and increasing use of invasive treatment strategies among elderly patients, we set out to quantify the temporal change that has occurred in the age profile of patients admitted to the Coronary Care Units (CCU) and undergoing cardiac interventions in an Irish tertiary referral, teaching hospital.

Methods
The numbers of patients in each age category admitted to CCU, receiving implantable cardioverter defibrillators (ICDs) and undergoing diagnostic coronary angiography and percutaneous coronary intervention (PCI) each year from 1997 until 2008 were obtained from Hospital InPatient Enquiry (HIPE) data of the Mater Misericordiae University Hospital Dublin. The trends over time in age profiles of patients admitted to CCU or undergoing cardiac interventions were analysed.

Results
In 2008, 53% (297 of 564) of all patients admitted to CCU were aged ≤65 years, and 28% (160 of 564) were aged ≥75 years. The percentages of total CCU admissions in the so called very old age categories have increased in recent years. For example, the percentage of total CCU admissions aged e 65 years in 2008 (44 of 564, 8%) was four times greater than in 2002 (13 of 616, 2%) as is illustrated in Figure 2. In 1997, 19% (341 of 1820) of patients undergoing diagnostic coronary angiography were aged ≥70 years. 31% (636 of 2079) of all diagnostic coronary angiograms in 2007 were performed in patients e 70 years.

Figure 3: Percentage of patients receiving ICDs aged ≥70 years by year. For each year, the number of patients aged ≥70 years (n) and the total number of patients receiving ICDs (N) is shown (n of N)
In conclusion, elderly patients account for a significant proportion of the workload of an acute Irish Cardiology service and the proportion of patients in the very elderly age categories receiving advanced cardiac care has increased over the past decade. This trend is set to continue given the projected growth for independent elderly age groups in Ireland over coming decades. Satisfying the care needs of a growing population of elderly patients with cardiac disease will challenge a stretched health service. Furthermore, this population represents a very heterogeneous subgroup of patients ranging from the remarkably robust to very frail, and so challenge their physicians by necessitating individualised decisions on management rather than age-governed treatment strategies.

References


