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COMMENTARY

Pitfalls in imaging the frail elderly

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ABSTRACT

The number of older people in the UK is rising and will continue to increase. Furthermore, there is evidence that (i) the number of investigations on the oldest patients is disproportionately increasing, (ii) inappropriate and/or futile radiological investigations are commonplace and (iii) the requests are coming from the most junior doctors. In this article, we argue that the approach to investigating the frail elderly is different and complex. Careful thought and discussion is necessary to safely and compassionately investigate treatable conditions without causing unnecessary distress and suffering.

The number of older people in the UK is rising and will continue to increase. In 2010, there were 1.4 million people in the UK aged 85 years and over; this number is projected to increase to 1.9 million by 2020 and to 3.5 million by 2035, more than doubling over 25 years.¹ This trend is similar in developed countries around the world.

Not only that, but the number of the oldest old will increase the fastest. Although the proportion of people who live beyond the age of 100 years is still very small, their number is growing rapidly. In 2000, there were an estimated 180,000 centenarians throughout the world. By 2050, they are projected to number 3.2 million, an increase of about 18 times.²

Over the past 7 years, our radiology department has seen a significant increase in the proportion of investigations performed in the elderly. Overall activity has increased by 22%, but activity in those aged over 90 years has increased by 51%. More specifically, we are doing 120% more CT in this age group (1251 scans last year) and 39% more radiographs (4203) than we were 7 years ago.

Such a dramatic increase in investigation of the extreme elderly cannot be accounted for simple demographic changes: clinical practice must have changed. Whilst some might argue that more radiological investigation equates to better medical care, most would argue that it is not necessarily so.

In 2007, the National Confidential Enquiry into Patient Outcome and Death (NCEPOD) collected data on 298

emergency assessment units.³ It was reported that 94 out of 1275 patients (7.4%) received inappropriate investigations. In 2009, NCEPOD published a separate report on patients who died within 96 h of admission to hospitals.⁴ Of the 3059 patients studied, 52% were over the age of 75 years. Nearly 50% (1488) were deemed not expected to survive at the time of admission but of these, 1087 (73%) underwent a radiological procedure. 619 patients were judged moribund on admission, but 69% of these patients had a radiological investigation requested.

The Royal College of Radiologists responded to the 2009 NCEPOD report.⁵ They highlighted the very high number of moribund patients undergoing a radiological investigation and noted “that referral is all too often by junior staff”: 53% of all radiology requests came from foundation doctors or senior house officers.

There is, therefore, evidence that (i) the number of investigations on the oldest patients is disproportionately increasing, (ii) inappropriate and/or futile radiological investigations are commonplace and (iii) the requests are largely coming from the most junior of doctors. This, therefore, presents major challenges to clinical radiology services for several reasons.

Whilst chronological age clearly is not and never should be an absolute contraindication to radiological investigation, older patients tend to be immobile and frail. Getting them to the radiology department is more difficult. Manoeuvring them safely around the department is more difficult. Physically performing any radiological procedure is more

difficult. The resultant images are often of suboptimal quality, occasionally non-diagnostic.

Older patients also tend to have multiple comorbidities. Diabetes, chronic renal impairment and cardiac dysfunction are common; administering oral and intravenous contrast is therefore more hazardous. But, perhaps, dementia is the comorbidity that has the strongest impact on investigation. In our experience, patients with dementia require a particularly delicate approach.

By 2015, there will be an estimated 850,000 people with dementia in the UK.⁶ There is a prevalence of one in six over the age of 80 years, and estimates indicate that this will continue to grow, particularly among the oldest old. The total number of people with dementia worldwide is projected to nearly double every 20 years, to 65.7 million in 2030 and 115.4 million in 2050.⁷

Dementia carries with it the increased risk of an inpatient hospital stay and therefore the increased likelihood of a visit to a radiology department. Two-thirds of medical beds in general hospitals are occupied by people over the age of 65 years and around 30% of them will have dementia.⁶ The time spent in hospital often involves important decisions made about and for this group of people and can have long-term consequences. They also have limited life expectancy: half of people with moderate dementia who are admitted to hospital with an acute illness, such as hip fracture or pneumonia, will die within 6 months.⁶

This is a group in which investigations are frequently indicated. In addition to investigation of the various comorbidities, confusion is often difficult to assess clinically, especially without a correlating history. As a result, many patients with dementia undergo repeated CT of the head. However, CT scanners are not a pleasant place for them. The associated change in environment, transfer onto the couch, isolation, associated noises and requirement to keep still are factors likely to contribute to

anxiety. The added burden shouldered by radiographers, nurses and carers should not be underestimated.

Many patients with dementia are also vulnerable. They cannot understand or impart information easily. Hence, they frequently lack the capacity to make decisions about their healthcare. They rely on others to act in their best interests; doctors are frequently put in this position. This can be difficult. Envisaging the potential benefits of any investigation or therapy and hence setting an appropriate ceiling of care needs considerable expertise.

A 2005 study⁸ demonstrated that the majority of patients with end-stage dementia die whilst experiencing a high level of suffering, and that the number of patients experiencing suffering increases significantly after admission to a geriatric medical ward. It is clear that we do not always get it right.

Investigating the frail elderly is complex and therefore needs careful thought and discussion.⁹ The goals of care in this patient cohort are predominantly palliative—improving quality of life, maintaining function and maximizing comfort. Whilst radiological tests are getting gradually more tolerable, they are not all pleasant and certainly neither risk nor pain free.

Therefore, the approach to radiological investigation in this group is a balance between safely investigating treatable conditions without stepping over the line and causing unnecessary distress and suffering. Requests with tenuous indications for futile radiological investigations should be rejected: unnecessarily numerous or invasive tests of the elderly are poor medical practice. Overall, we should perform the minimum number of minimally invasive investigations as possible with the aim of improving quality of life. This could be termed “palliative radiology”, quite different to our normal curative investigational paradigm. Such an approach has much to be commended; paradoxically improving patient care by doing fewer tests.

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