Challenges to Blood Transfusion in the Elderly

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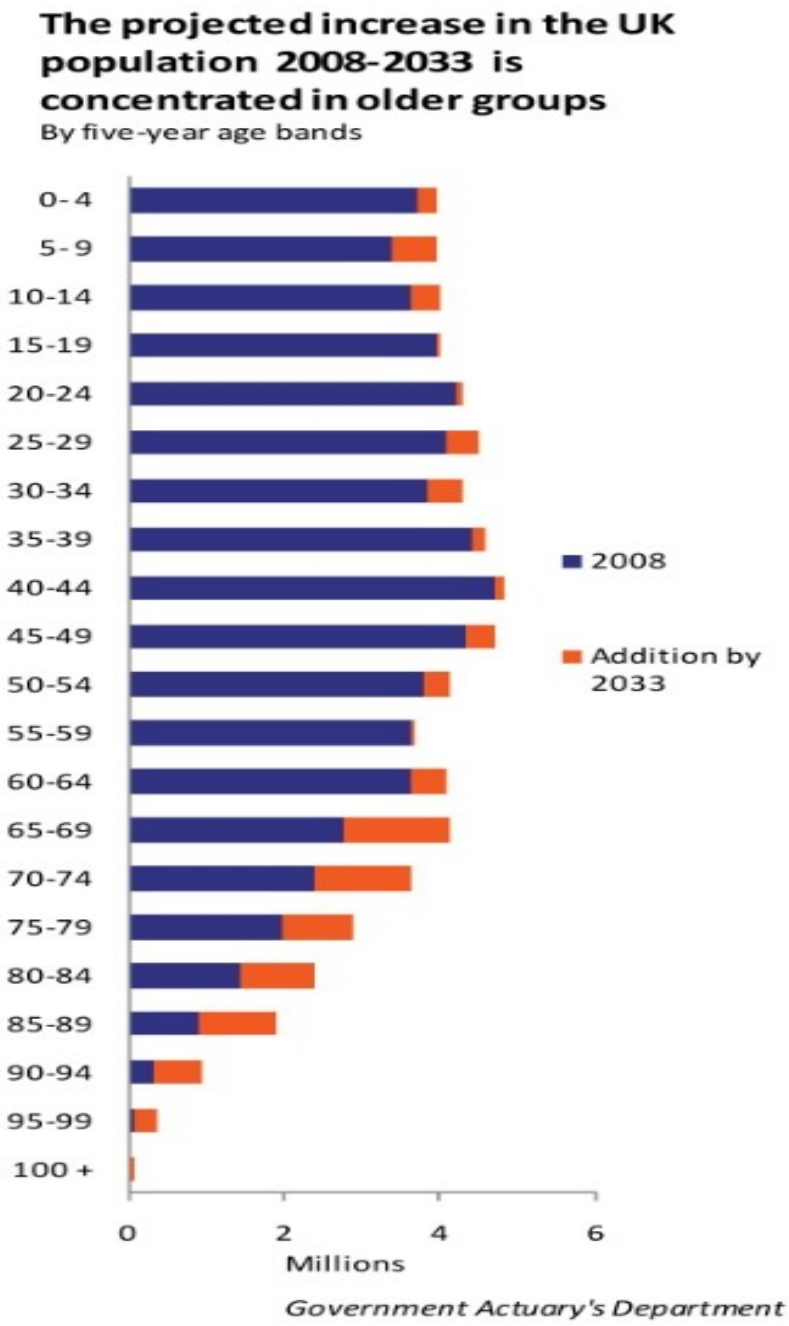
Overview

- The Older Patient in hospital
- Homeostenosis and physiological frailty
- Mental Health Issues
- Communication Issues
- Impact on Capacity, Consent and Safety
- Case Studies



The Ageing Population

- 10 m people in UK are >65 yrs old
- By 2050 this will double.
- Currently 3 m are >80yrs.
- By 2030 this will double and by 2050 be 8 m.

NHS Hospital Activity

- Elderly people account for an increasing proportion with number treated growing at much faster rate than any other group.
- In the last decade
  - total increase in FCEs of 40.8%
  - in 75+ yr age group 65%

- For 2010-2011

Total FCEs	17,269,882
65-74 yrs	14.7%
75-84 yrs	14.8%
>85 yrs	8.3%

Source : Hospital Episode Statistics HESonline (admitted patient care) 2010-2011

Homeostenosis

- The concept that as people age, diminishing physiologic reserves are available to maintain homeostasis.
- End point is “frailty” where even a minor physiological challenge may overwhelm and lead to decompensation.
- Delirium is the commonest symptom of a wide variety of illnesses.

Source: Cowdry EV. Problems of ageing: biological and medical aspects, 2nd ed, Williams & Wilkins, Baltimore 1942.

Haematopoeitic System and Ageing

- Function is maintained with age
- Blood volume, red cell lifespan and iron turnover are maintained
- Bone marrow mass reduces and fat content increases

- Overall functional reserve is reduced.
- Compensatory responses are delayed to blood loss, hypoxia etc

Source: UpToDate online

“Precipices” and the Haematopoeitic System

- Chronic anaemias. Associated with cognitive dysfunction, lethargy, poor functional ability.
- Acute anaemia.
- Severe sepsis and increased O2 demands
- Inappropriate/excessive transfusion may itself be an insult to reserves.

Physiological Assessment Scores

- Predictive of Outcome
  - Eg Acute Physiologic and Chronic Health Evaluation (APACHE) – corrects for age.
  - Retrospective Studies of patients admitted to ICU showed older patients had lower preadmission APACHE scores than younger cohort.
- Early Warning Scores
  - Call for National (NEWS) and clear triggers for escalation of care
  - Should these be adapted for age?

First Challenges

- Recognise “frailty” and limited physiological reserves
- Early recognition of physiological deterioration and correction
- To transfuse or not?
  - When is blood transfusion of proven benefit in the elderly?
  - When may it do more harm?
  - Limited evidence only for individual situations

Blood transfusion in Elderly Patients with Myocardial Infarction

N ENGL J MED 2001; 345:1230-1236

- Retrospective study of 78974 patients >65 yrs age hospitalised with MI.
- Categorised according to haematocrit on admission
- 43.4% had haematocrit <39% (WHO def of anaemia)
- Blood transfusion reduced 30 day mortality if haematocrit <30%
- May be of benefit up to 33%

Cognitive Impairment in Older People in Hospital

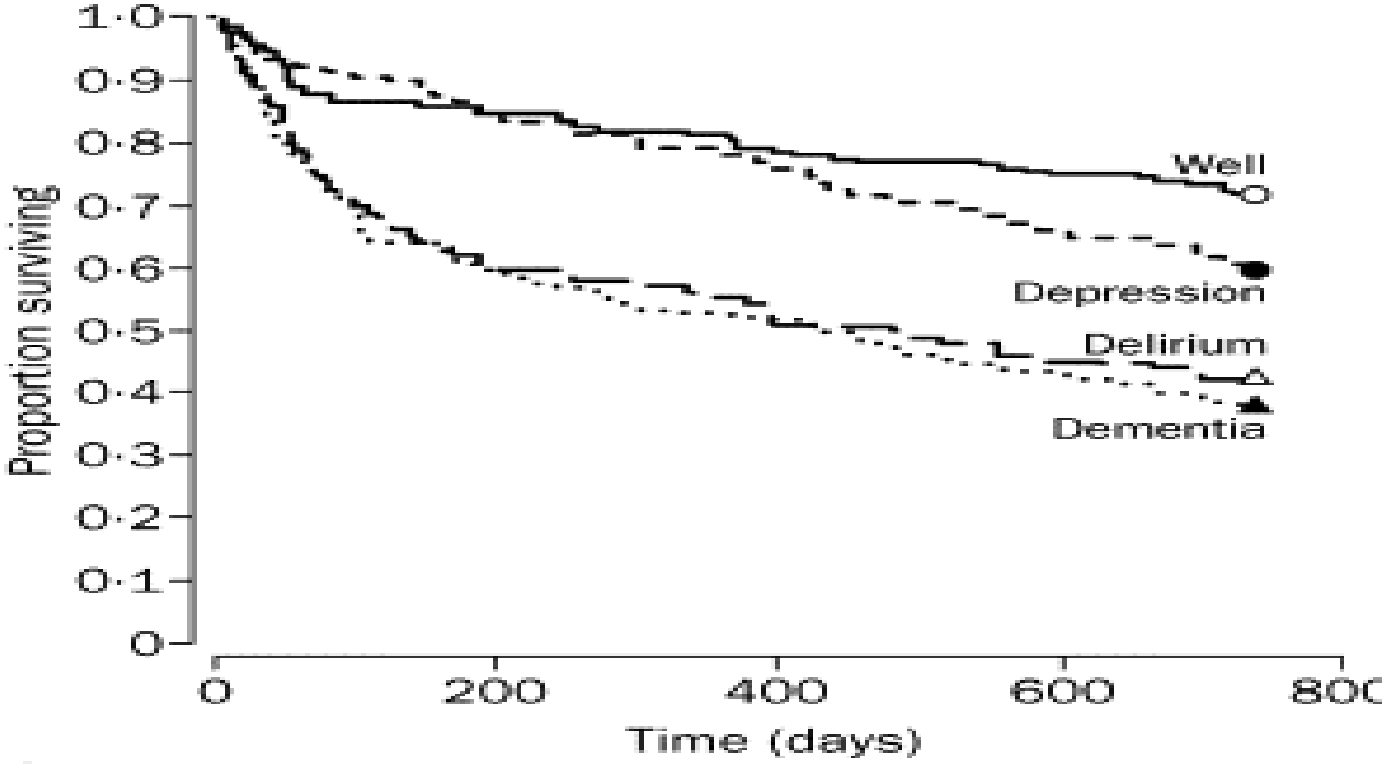
- “Who Cares Wins” Improving the outcomes of older people in the general hospital. RCPsych 2005
- National Dementia CQUIN 2012
- An independent predictor of poor outcome
  - Higher mortality
  - Increased LOS
  - Loss of independence
  - Institutionalisation

The 3 Ds

- Dementia and Depression have prevalence each of approx 30%
- Delirium has average prevalence of 20%, after hip fracture as high as 50%.

- During a hospital admission up to 60% will develop a mental disorder

Nightingale, S. and Holmes, J. and Mason, J. M. and House, A. (2001) ’Psychiatric illness and mortality after
hip fracture.’, The Lancet., 357 (9264). pp. 1264-1265.
http://dro.dur.ac.uk/3819/



Numbers at risk

Well	208	172	161	153	148
Depression	93	79	71	62	56
Delirium	108	65	56	49	46
Dementia	294	176	151	128	113

Kaplan-Meier curves of survival after hip fracture stratified by psychiatric diagnosis

DSM-IV Definition of Delirium

- Disturbance of consciousness with reduced ability to focus, sustain or shift attention.
- A change in cognition or the development of a perceptual disturbance that is not better accounted for by a pre-existing, established or evolving dementia.
- The disturbance develops over a short period of time (usually hours to days) and tends to fluctuate during the course of the day
- Evidence that the disturbance is caused by the direct physiological consequences of a general medical condition.

Delirium

- Hypoactive or hyperactive
- When hyperactive, behavioural changes can be very challenging
  - Patients may place themselves at risk
  - Cause harm to others
  - Make medical management for the underlying condition very challenging

Delirium

- Preventative interventions
  - Reduces incidence by 30-40%
- Recognition of physiological disturbance and rapid correction
- Multidisciplinary management – Liaison Psychiatry, Care of Elderly, nursing team.
- Non-pharmacological and pharmacological management.

Second Challenge

- Recognising mental health issues
- Preventing delirium
- Managing delirium and behavioural disturbance in a safe and effective way whilst medically treating a patient

Hearing Impairment

- Hearing loss is one of the most prevalent chronic condition affecting older adults
- Affects 1 in 3 > 60ys and 1 in 2 of > 85 yrs
- Often unreported by patients and unrecognised by staff.
- May exaggerate effect of cognitive deficits or patients misdiagnosed as confused or demented.

The Elderly, Communication Issues and Safety

- Communication, decision making, capacity and consent may all be effected.
- Presumptions may be made by health professionals about ability.
- Older patients have higher risk of being involved in adverse events.
  - Bartlett,G 2008. Can Med A J, p 741178 (12) p 1555-1572
  - Thomas, E J et al. 2000 BMJ 320 p 741-4.

Capacity and Consent

- If blood transfusion is not required immediately as an emergency, capacity and consent needs to be assessed over period of time, esp in presence of delirium
- Aids to good communication should be employed.
- Advance Directives, family advocates, appointed Lasting Power of Attorneys or Independent Mental Capacity Advocates may need to be consulted

Mental Capacity Act 2005

- A person must be assumed to have capacity unless it is established that he/she lacks capacity.
- A person is not to be treated as unable to make a decision unless all practicable steps to help him/her to do so have been taken without success.
- A person is not to be treated as unable to make a decision merely because he/she makes an unwise decision.
- An act done, or decision made, under this Act for or on behalf of a person who lacks capacity must be done, or made, in his/ her best interests.
- Before the act is done, or the decision is made, regard must be had to whether the purpose for which it is needed can be as effectively achieved in a way that is less restrictive of the person's rights and freedom of action.

Final Challenges

- Ensuring good communication to ensure patient safety
- Optimising any barriers to informed consent
- Capacity assessment and understanding of MCA
- Advocating for the patient

- And doing all this without compromising timely management!

Case study 1

- Mr Y
- Fall down 4 stone steps –comminuted intertrochanteric fracture
- PMH
  - prostatic Ca and bone met L2. PSA normal last 2 years on prostap.
  - NIDDM, HBA1c 55 on diet

- Hb 10.7g/dl PCV 0.37
- U and Es normal
- Serum folate 2.5 ug/l, Ca profile normal

- DHS under GA within 24 hrs
- 1 day post op – agitated, MEWs 5
- Pale and clammy, RR 28, SpO2 94% on 4l O2, HR 102. BP 115/72 mm Hg
- ABGs pO2 7.6, PCO2 4.1, pH 7.35, lactate 3.6, Hb 8
- ECG severe ST depression anterolateral leads
- CXR – pulmonary oedema

- Hb 7.8g/dl, PCV 0.27

- 15 l O2 and IV frusemide
- Attempted low dose nitrates but BP reduced.
- Critical Care and Cardiology review
- Agitation – 1 to 1 nursing, cautious use of lorazepam
- Unable to consent to blood transfusion so done in best interests - Consent 4
- Transfused cautiously as pulm oedema improved.

- VF arrest – unable to resuscitate - died

Case Study 2

- Mrs Z
- 92 yr old lady admitted with suspected haematemesis
- PMH “dementia” and hypertension.
- AMTS 0/10
- Hb 12.6 g/dl, U and Es normal, clotting normal.
- Examination unremarkable. PR no melaena but impacted stools.

- Next day
- Patient very hearing impaired – wears 2 x hearing aids
- With communicator and written word AMTS 6/10
- C/o dyspepsia for several weeks
- Rpt Hb 11.0 g/dl and urea 9.6 mmol/l
- OGD requested

- Old notes arrive and noted DOB does not match admission documentation
- Asked patient DOB - “ I thought it was that but I’ve been wrong all these years”
- DOB corrected, repeat G&S sent with correct identifiers.
- OGD – DU 4 mm, no stigmata recent bleed
- Transfusion not required

Case Study 3

- Mrs X – 83 yr old lady admitted from her Res Home
- Agitated and ?confused.
- PMH of COPD , personality disorder, myelodysplasia.
- Noted small BMI, weight approx 44kg.
- Observations normal. Stable FBC, Hb 9.8 g/dl, WCC 5.2, platelets 209. U and Es normal, CRP <5.0. CXR – no focal consolidation. Urine test negative.

- Admitted for psychiatric assessment as Res Home refuse to take back.
- No cognitive impairment, MMSE 28/30, “patient has no acute mental health issue, chronic personality disorder”.
- Agitated and aggressive to staff.
- Attempts to throw computer from desk, falls.
- Displaced femoral shaft #.

- Transferred to Orthopaedics
- Extremely agitated, delirious.
- Pre-op Hb 8.4 g/dl, clotting normal.
- RR 24, SpO2 92 % RA, pt refuses ABGs and many other interventions.
- CXR – chronic changes of COPD, nil acute.
- Delirium improves with oxygen and pain management.
- Requires 1 to 1 nursing.

- Refuses surgical intervention. Allows traction.
- Capacity assessed several times over 48 hr period.
- Allows some blood tests and interventions
- Rpt Hb 7.2 g/dl. Refuses blood transfusion, removes all lines. Has capacity to refuse treatment.
- Worsening respiratory failure.
- Dies 8 days after #.