Geriatric Patient: Implications for Surgery

Introduction

Ageing, Definitions

Aging: progressive constriction of each organ system’s capacity to maintain homeostasis in the face of challenge. Gradual decline in physiological reserve (homeostenosis) occurs in each organ, independently influenced by diet, environment, habits, genes.

General Implications

Individuals become more dissimilar as they age (difficult to stereotype) an abrupt decline is almost always due to disease, rather than ageing. Ageing can be attenuated by modification of RF. “Healthy Old Age” is a reality in the absence of disease: homeostenosis results in neither symptoms nor restriction of ADL.

Clinical Implications

Surgery = “diagnosis + intervention + peri-op care.” In elderly, an emphasis is made on CARE, that will involve general medical type of approach. A day on the vascular floor will testify to that:

1. Disease presents in earlier stages
   a) CHF ppt’s by mild hyperthyroidism
   b) Cognitive change and hypercalcemia
   c) Urinary retention and mild BPH
   d) Hyperosmolar coma and mild glucose intolerance
   e) Less likely to seek help (“old="decrepit," a given”) less aggressive screening, diagnosis, resection, radiotherapy, etc.

2. Presentation is atypical, abnormalities may be misleading
   a) “Confusion and falling”
   b) dd appendicitis, pneumonia, urosepsis, etc.
   c) “AF, confusion, depression, syncope, weakness” – Hyperthyroidism
   d) Bacteruria, PVC, low Bone Density, impaired glucose tolerance, involuntary bladder contractions - may be associated/distracting abnormalities that do not account for current presentation...

3. Multifactorial etiology
   a) Fever, anemia, retinal embolus, heart murmur - endocarditis in young (Urosepsis, ASA-induced gastropathy, cholesterol embolus, aortic sclerosis in elderly)

4. Multifactorial treatment:
a) bladder spasm in a patient with fecal impaction, confusion-inducing meds, arthritis/impaired mobility. Antispasmodic vs disimpaction/review meds/improve mobility

b) cognitive impairment
   i) treat poor hearing/vision/CHF/thyroid problems/electrolytes and prevention/treatment is almost always better then doing nothing
   ii) B-blockers, treat hypertension, immunizations, (But instead of bone density oriented treatment consider: balance, peripheral edema, nocturia, urinary urgency, nutritional deficits, remove environmental hazards, relieve parkinsonian stiffness, address orthostatic hypotension, confusion, etc. i.e prevent FALLS)

Epidemiologic Trends

Half of all people born in 1935 are alive today.
US:
a 75 year old will live 10 years (m) or 11.1 years (f)
an 80 year old will live 7 years (m) or 9.1 years (f)
an 85 year old will live 5 years (m) 6.2 years (f)
a 100 year old - 2.5 years

year 2025 - 1/4 of population is above 65
65 year olds in 1990 - 2.2 mil, 43 % will enter nursing home before they die, (22 % for 3 months, 24% for 1 year, 9% for > 5 years)
but: Britain: 3% m and 6.4% f over 65 are residents of nursing homes, 4/5 of 85 yoa live in their own home. In recent years, there have been a decline in chronic disability in people over 80 years of age.

Surgery and the Elderly

Biases

Until recently pts have been excluded from many medical trials because of their age ...paucity of information related to elderly
5. improper inferences
6. stereotyping
7. poor care...different conditions require somewhat different approach ……non-definitive management in older patient may result in worse outcome

e.g. postpone elective inguinal hernia repair – risk an emergent one.
e.g. include perioperative cholangiography in elderly during biliary procedures
e.g. non-definitive treatment in colon/breast Ca has poorer prognosis.
Colon cancer in elderly: German study, 1999, 3750 pts, age stratification, oldest group (>80 yoa, 458 pt) had more locally advanced cancer, more general complications, and less metastatic disease.

Breast cancer in elderly: late diagnosis, less use of mammography, more advanced, less aggressive surgery, less post-op radiation VS disease specific survival is worse in elderly for certain stages, local recurrence is same for all ages, more risk of cancer with advanced age. ... co-morbidities, but not advanced age alone, should guide decision making

Outcomes

Traditional
8. operative mortality/morbidity, LOS, recurrence, long-term survival patient-centred
9. quality of life and satisfaction (very important)
10. more concerned re: relieving symptoms/maintain function/independence relative to long-term survival
11. tension between autonomy (the right of self-government or personal freedom) and paternalism (limiting freedom and responsibility by well-meant regulations)

Risk assessment

Age - risk factor (independent) for peri-operative mortality and morbidity
Prospective study for assessment of operative risk in elderly pts. 1182 pts. 14 year follow-up after being surgically treated in 1985 in six Italian Centers for non-emergent surgical causes. Factors that significantly correlated with death: nutritional status, renal failure, re-intervention, bacterial contamination, aged above 70. Renal failure furnishes the most relevant contribution to prognosis. Influence of age (in and of itself) is probably a statistically confounding phenomenon.

316 diabetic pts, Yale U, undergoing peripheral bypass surgery (fem-distal). Prospectively studied all-cause mortality and cardiac morbidity. >65 yoa - mortality of 17%, independent of presence of documented CAD. < 65 yoa - mortality 11% OVERALL (for those with CAD: 18.2%, without: 2.4)


Comorbidities - extremely important. See Atlanta, Napoli and Yale study.

Physiologic factors: table 1
Physiological Limiting factors will become more obvious in situations of stress
Dementia
Nutritional status
Hand-grip strength
presence of spouse/adult child
Impaired mini-mental exam
i.e. consider diagnosis, proposed surgery, physical, cognitive, social functions.
Consider risk of intervention vs time of life gained for age...
Consider individual requests/wishes...
Prefer elective procedures vs emergent ones...

**Peri-operative optimization**

... effective pain relieve (epidural)
... avoid tubes/drains (encourage ambulation)
... early ambulation
... upright better than supine
... deep breathing (CPAP vs Incentive spirometry)
... minimize fasting, early nutritional supplementation
... adjust drug dosages for volume of distribution
... supplemental oxygen (wound healing)
... minimize NG (aspiration)
... vigorous fluid resuscitation (LV filling)
... normothermia - intraoperative (fluids, body, gases)
... lyte management
... adjust Cr for decreased BM
... avoid drugs that ppt nephrotoxicity/delirium
... target sleep deprivation, immobility, visual/hearing impairment

**Surgical Problems in Octogenarians**

... epidemiological analysis of 1,083 admissions
... study from Israel: attempt to define clinical profile, operative mortality, LOS in 80 y olds
... 18 year survey (1973-1988)

increased rate of admission for octogenarians for the period of observation (0.7 (beginning) - >7.5% (end) of all admissions
53.3% - emergent admissions
35.4% - no surgery - (need for better ER screening vs care/intervention dilemma)

most common reasons - abdo pain, GI bleed, bowel obstruction

700 surgeries (329 emergent, 371 elective). Overall OR rate increased from 1.1% to 5.1%
(secondary to hernia, vascular, tumor breast/colon surgery) e.g.
hernia (elective) - 15%
hernia (emergent) - 8%
tumors colon/rectum - 14%
biliary surgery (benign) 11%
PUD - 4%
vascular - 17%
breast - 10%
...post op mortality - overall: 8.1%. (pre 1985 - 10%, decreased to 6% by 1988.)

**Risk stratification**

1. Minimal for below 70 yoa with no risk factors (0.8%) - half of all pt Increases with each RF (see below)
2. 1 RF -> 9.7% - quarter of all pts.
3. >2 or more -> 21.6% - quarter of all pts

**Predictors of mortality**

- emergent surgery
- age >"85" (4.1% vs 18.1% - 70-79 vs above 80)
- orotomy
- ASA 4 of 5

for 3, advise non-surgical alternatives: endoscopic papillotomy, arteriography/interventional, US guided drainage

...average LOS 9.8 days vs 4.9 days (less then 80)
... the older the pt, the more chances of having emergent procedure

*If surgical condition is allowed to progress to the point of urgent or emergency status, elderly pt. tolerate surgical treatment very poorly. Hence: early ds (of bowel Ca, hernias), well-planned surgical treatment.*

**Surgical Care in the Nursing home**

John Hopkins Bayview Medical Centre, 1996
longitudinal study of nature of illness requiring operation and intervention in residents of a geriatric centre associated with a tertiary care medical centre.

29 months duration
examined 153 (57m & 96f) consecutive pts referred for consultation
mean age 72

Results: found a variety of general surgical problems that required surgical care, 117 required surgery

- routine maintenance: decubitus ulcer debridement, long-term IV access, enterostomy/tube care -33%
- surgical disease of the abdomen, breast, vascular system - 55%
- overall survival of residents referred for general surgery consult is poor:
  - 12 months - 42%
  - 18 months - 35%
  - median survival 172 days (less than in other studies: 77% one year study, Rubenstein)
Mortality affected by:
Age
presence of CAD (33% vs 42% 18 months)
dementia

Mortality not affected by:
number of comorbidities (prev studies: >65 yoa 3% mortality with no CoMb, 3 or 5 :10%, Seymour)
presence/absence of DNR status classification
gender
surgical intervention: however, one can infer that surgery in these pt’s improves their chances and brings their survival curve back to the downward sloping baseline.

Surgical procedures are safe: same 30 day mortality rate for major/minor/no surgery - about 10% higher rate of complications in major surgery group compared to minor one (17.6% vs 6.3%) emergency surgery - from previous studies - mortality 3-5 times that of elective No assessment of quality of life

Conclusions

1. Comorbidities, rather then ageing alone, accounts for an abrupt change in health status in elderly
2. Disease presentations may be early, atypical, multifactorial, require complex approach and almost always worthy of treatment/prevention earlier on.
3. Elderly in North America live longer and more active - they are not necessarily a Nursing Home material (if disagree, visit a Norwegian/Carribean Line Cruise)
4. Look at physiological/social/quality of life issues - just as important as diagnostic and therapeutic
5. Taylor approach individually
6. Assess RF, consider elective intervention vs expectant management

References

2. N.M.Resnick, E. Marcantonio, How should clinical care of the aged differ? Lancet, vol 350, October 18, 1997, 1157-68


Anton Sharapov
R2
POS rounds,
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