

MEDICAL MANAGEMENT OF THE POLYTRAUMA GERIATRIC PATIENT: CURRENT ASPECTS AND FUTURE DIRECTIONS

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Ageing population

- NHS founded in 1948. 48% died before age 65years.
- 12% men & women at 65 expected to live on average 18-20 years more.
- By 2030 around 1 in 5 of the population will be over 65 and life expectancy to be 88 for men and 91 for women.

Summary of Topics to be discussed

- History Geriatric Medicine.
- Physiology of Geriatric Trauma.
- Case Presentations.
- Comprehensive Geriatric Assessment.
- Rib fractures.
- Polypharmacy.
- Delirium.
- CKD.
- Ethical issues.
- Nutrition and Rehabilitation.
- Future of Geriatric trauma.

History of Geriatric Medicine

Warren's early interest was in surgery but she later concentrated on medicine and medical administration.

Warren advocated the creation of a medical speciality of geriatrics, the provision of special geriatric units in general hospitals, and the teaching of medical students in the care of elderly people by senior doctors with specialist interest and experience in geriatrics

Her work aroused the interest of the Ministry of Health and during the 1950s geriatric medicine became a recognized medical specialism within the National Health Service. In 1947 she was one of eight doctors who founded the Medical Society for the Care of the Elderly (later renamed the **British Geriatrics Society**) BGS



**Warren, Marjory Winsome
(1897–1960), geriatrician**

Physiology and aging

- Lungs and aging.
- Cardiovascular and aging.
- Brain and aging.
- Kidneys and aging.
- Skin and aging.
- Bone and aging.

Lungs and aging.

**Decrease cough
reflex**

**COPD, Asthma,
Lung Fibrosis**

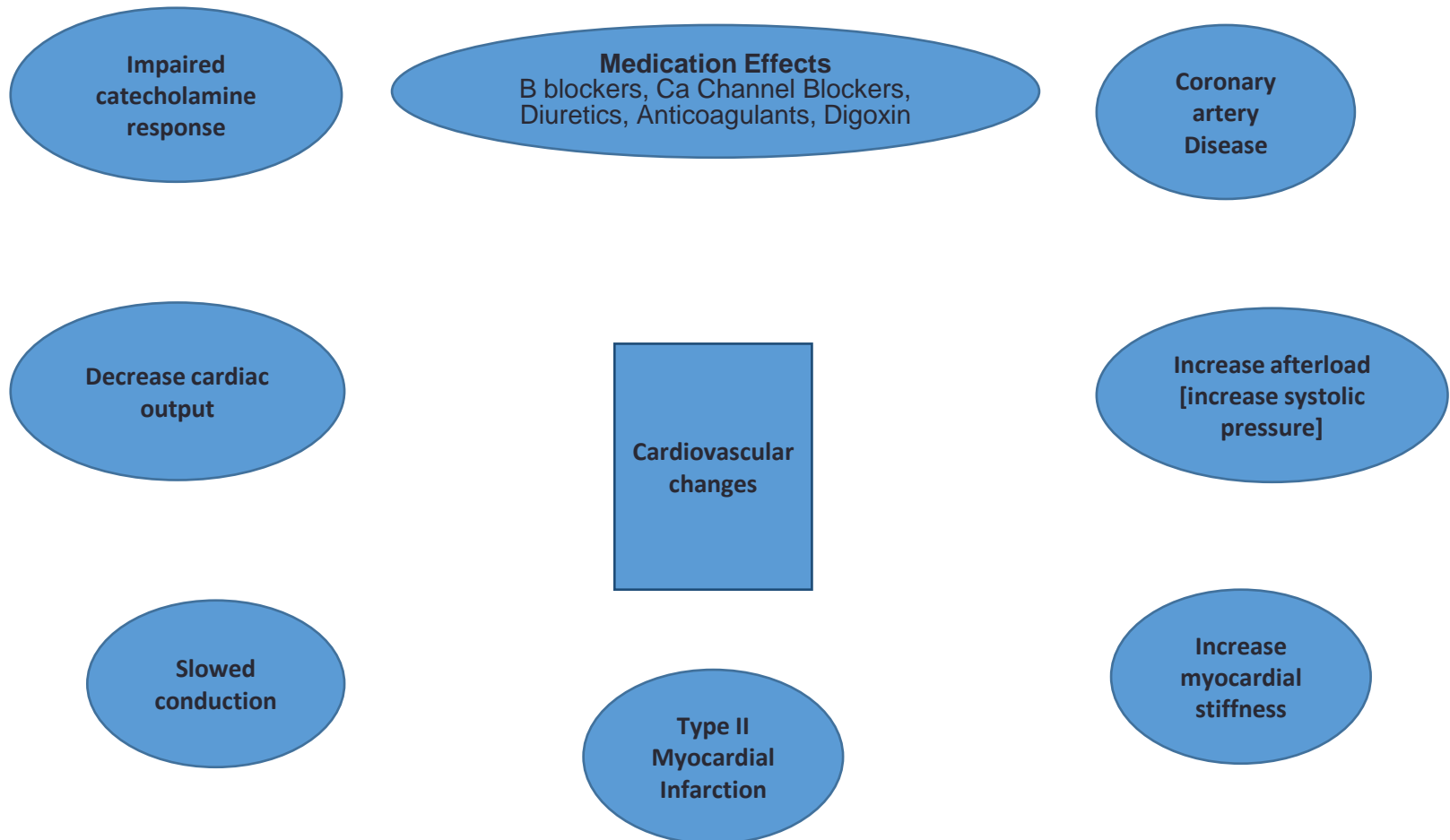
Oxygen low

Lung Changes

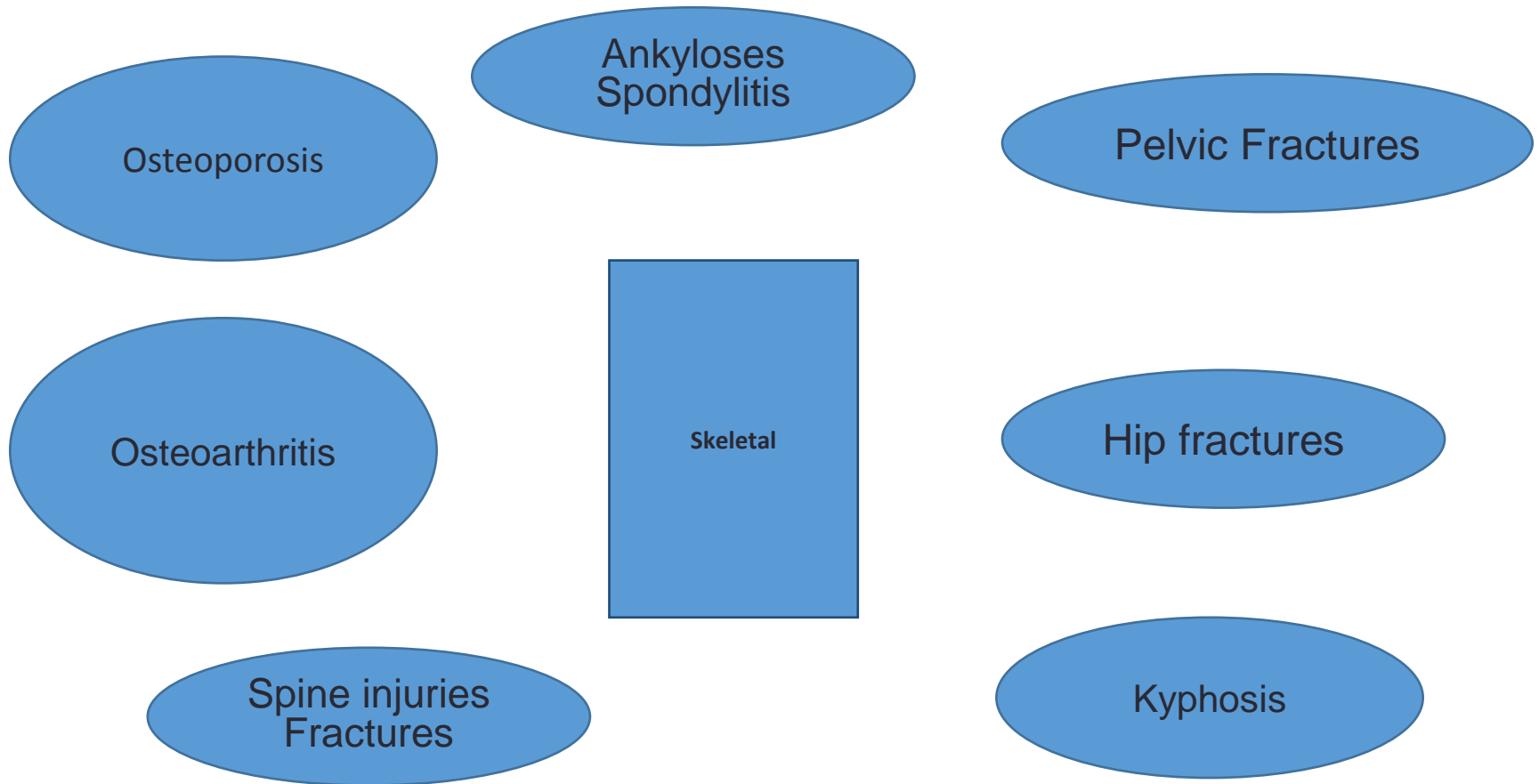
**Rib fracture and
Lung contusions**

**Aging chest less
elastic**

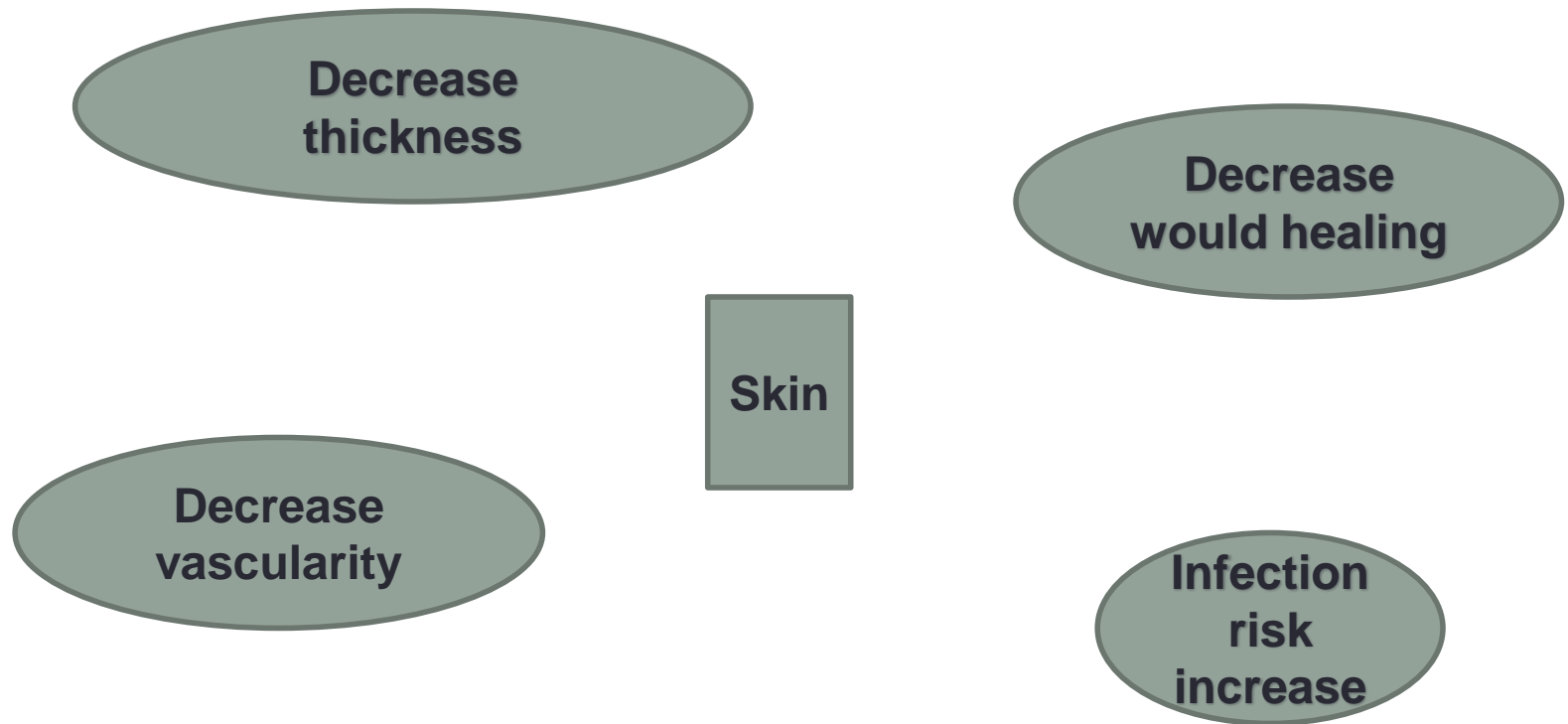
Cardiovascular and Aging



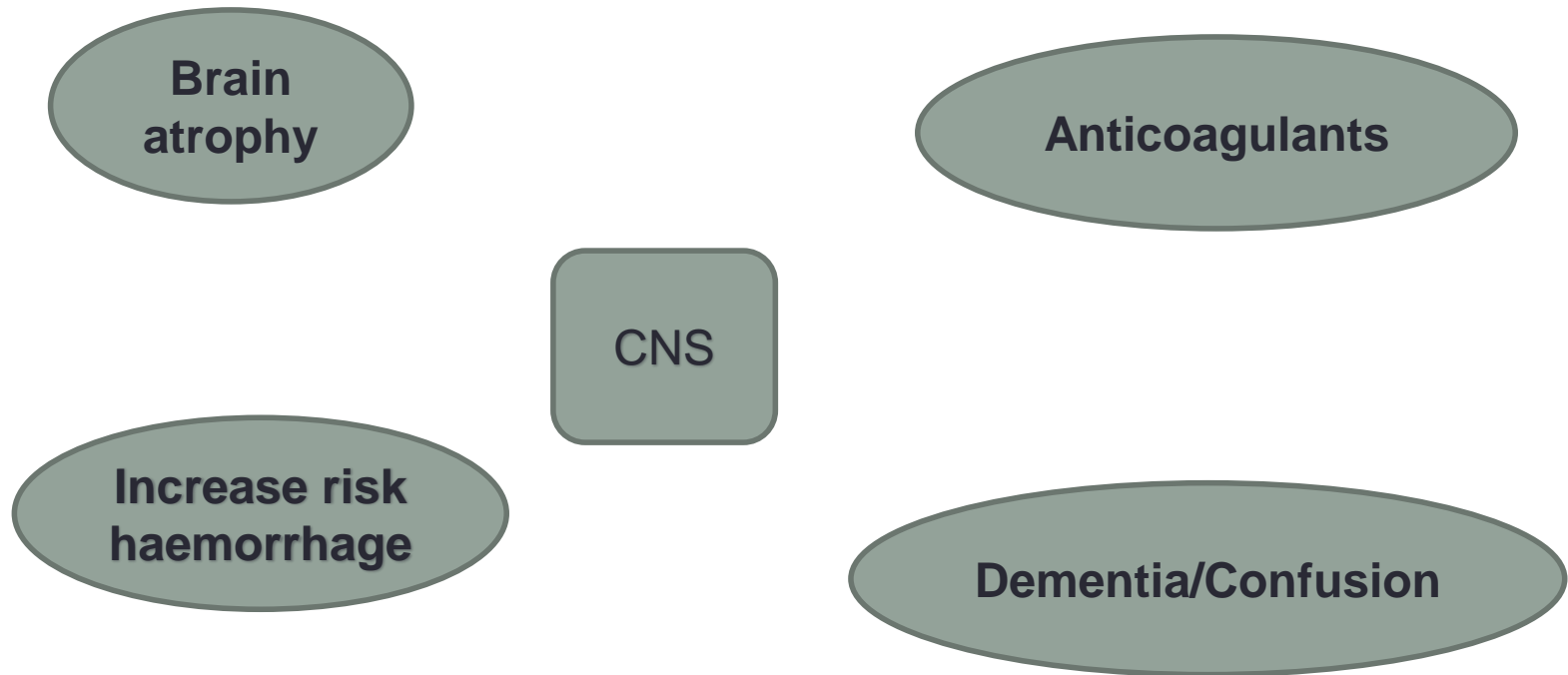
Skeletal and Aging



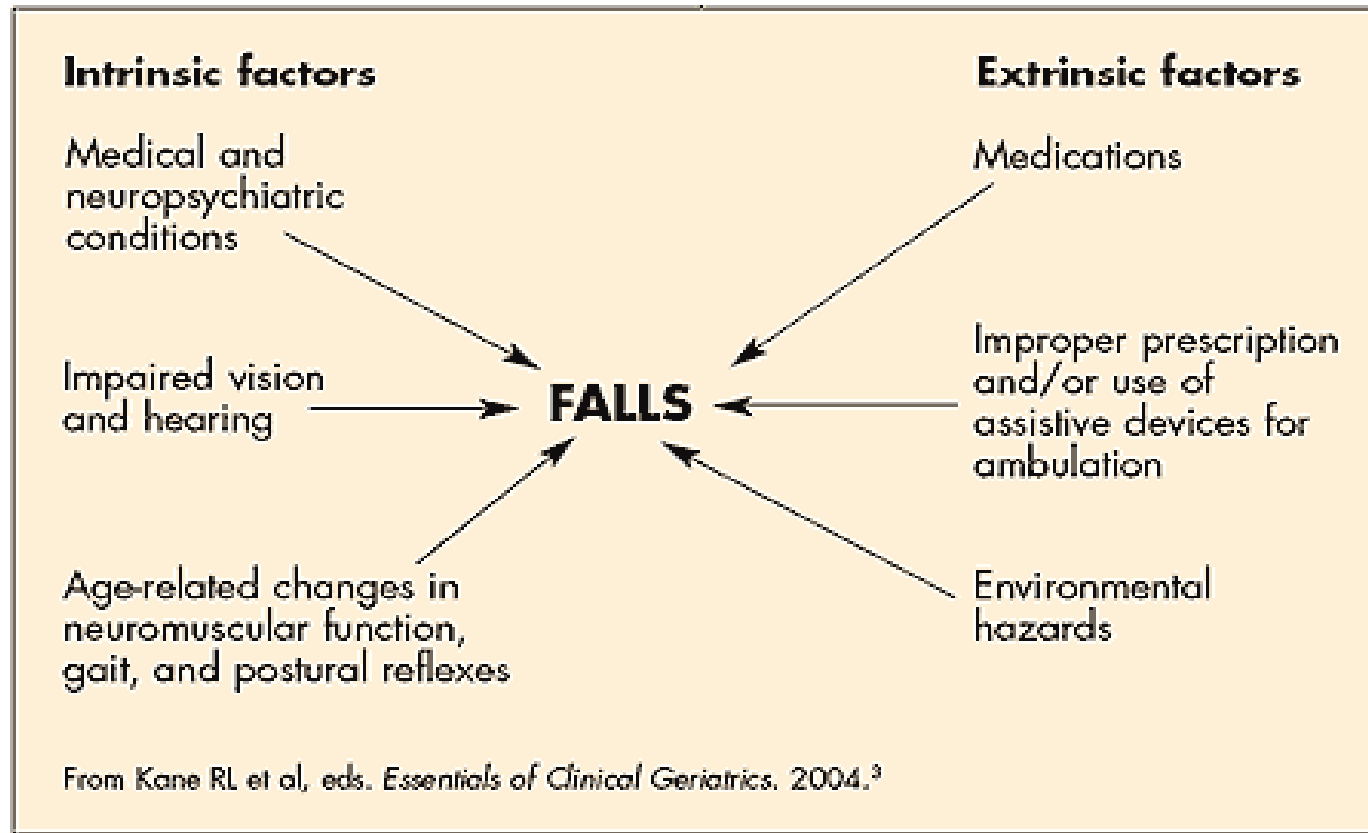
Skin and aging



CNS and aging



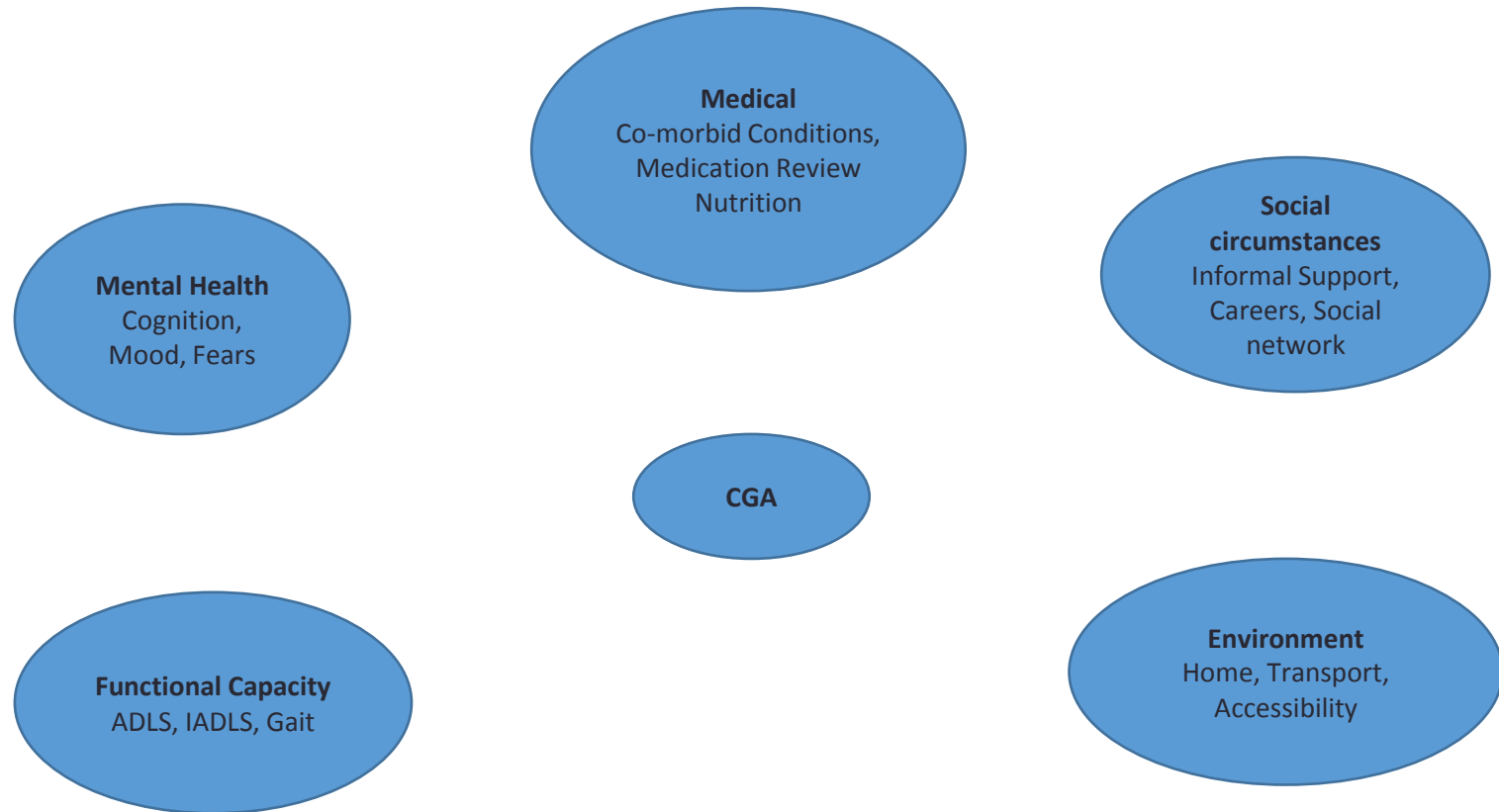
Falls



Geriatrician assess

- Organ systems for Common Geriatric Syndromes.
- Sensory impairments and factors that may lead to delirium.
- Patient's Cognition.
- Patient Function.
- Nutritional Status.
- Social Circumstances.
- Polypharmacy- Medication use and dosages.

Comprehensive Geriatric Assessment



Geriatric Syndromes

Geriatric Syndromes are usually problems with more than one cause.

- Delirium.
- Urinary incontinence.
- Falls.
- Dementia.

Occult Hypotension

- Occult hypotension, not enough attention is paid to this population until it is too late at times.
- Traditional vital signs (TVS), including systolic blood pressure (SBP), heart rate (HR) and their composite, the shock index, may be poor prognostic indicators in geriatric trauma patients.
- Occult hypotension exceedingly common in geriatric trauma patients with 2 fold increase odds in mortality. Venous lactate should be measured for all geriatric trauma patients to improve the identifications of haemodynamic instability and optimisation of resuscitation.

Rib Fractures

Risk Factors

- Age
- Chronic lung disease, Cardiovascular disease
- Anticoagulants
- Smoking
- Status and Oxygen saturation, respiratory in initial assessment in ED

Complications

- Pneumonia 3-5x more likely to cause death.
- Pneumothorax.
- Hemothorax-delayed
- Lung contusion.
- Lung haemorrhage.
- Pain.
- ARDS.
- 7th rib- liver and spleen injury.

Polypharmacy.

Geriatric Trauma Patients are at risk of medication related events:

- Anticoagulation: -
 - Warfarin.
 - NOACS: thrombin inhibitor Dabigatran and factor Xa inhibitor Rivaroxaban.
- Clopidogrel.
- Aspirin.
- B-blockers.
- Parkinson's drugs.
- Steroids.
- Diabetics medication.
- Ace inhibitors.
- Opioids.
- Diuretics.

Abdomen

Delirium

Delirium is associated with

- Poor outcomes.
- Prolonged hospitalization.
- Functional decline.
- Increased use of chemical and physical restraints.
- Increases the risk of nursing home admission.

Delirium

- Hyperactive (20%) “Confused”
 - Agitated, hyper-alert, restless, sympathetic overdrive
- Hypoactive (30%) “Not themselves”
 - Drowsy, inattentive, poor oral intake
- Mixed (50%)

Hypoactive delirium carries higher mortality and is more often unrecognised

Kiely et al. J of Geront Series A: 2007; 62: 174-179

Hypoactive Delirium

- Less noticeable.
- Misdiagnosed as having depression or fatigue.
- Poorly detected.
- Can be reported by care or relative.

Abnormal Hand Movement

- **A prospective observational study to investigate the association between abnormal hand movements and delirium in hospitalised older people.**

Carphology/flocillation in 44 (27%) of delirium episodes

Sensitivity for early delirium = 14%

Specificity for early delirium = 98%

CONCLUSIONS:

- Carphology and floccillation are uncommon physical signs, but their presence is highly suggestive of delirium. The behaviours are unrelated to delirium subtype making their presence particularly useful in the diagnosis of hypo-active delirium.

Holt, Mulley, Young ([Age Ageing](#). 2015 Jan)

Delirium Management

- Screen for Delirium.
- Search for the cause.
- Reduce delirium by intervention.
- Reassure not restrain.

Screen

CAM [Confusion Assessment Method] Tool

CAM positive if 1 and 2 and either 3 or 4 apply

1. Acute onset and fluctuating course.
2. Inattention,[distractible, can't concentrate].
3. Disorganised thinking,[illogical rambling].
4. Altered consciousness,[Hypo/Hyper alert].

4AT Tool

Nutrition and rehabilitation

Major trauma induces metabolic changes contribute to

System immunosuppression and increase risk infection.

Increase risk post traumatic organ failure.

Hypercatabolic state must be recognised and treated early.

Nutrition screen and assessment.

- Identify patients malnourished or at risk.
- Establish nutrition diagnosis.
- Formulate a nutrition care plan.
- Check Dentures, Glasses, hearing aids.

Goals

- Provide sufficient energy, protein and micronutrient.
- Maintain and improve nutrition status, function activity and quality of life.
- Reduce morbidity and mortality.
- Improvement of the course of underlying disease.
- Improve rehabilitation process.

Surgery and Nutrition

Malnourished surgical patient

- Older people have high nutrition risk.
- High morbidity.
- High mortality.
- Longer length of stay.

Preoperative nutrition

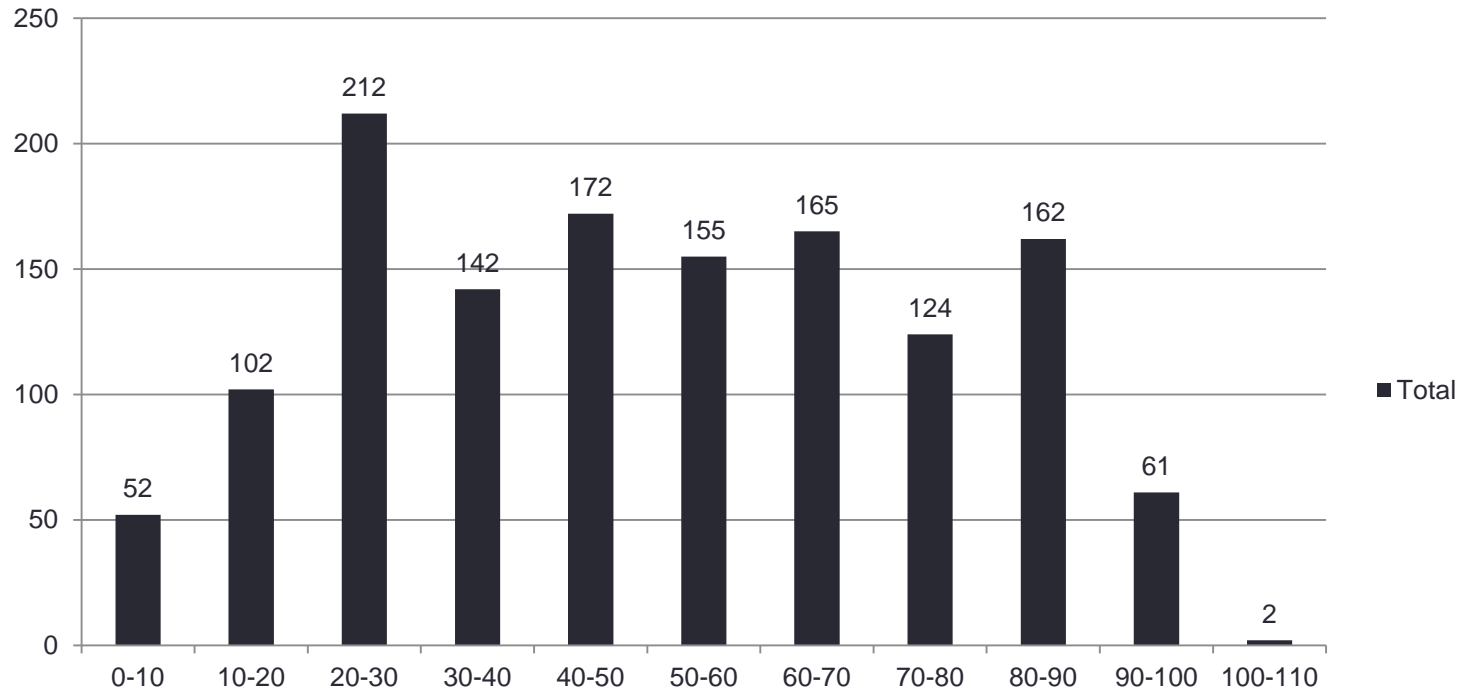
- Decrease postoperative complication: Wound infection, Pneumonia, Delayed wound healing.

Ethics and Geriatric Trauma

- Keeping patient, family and carer informed of care plan.
- DNACPR decisions.
- Advanced Directive.
- Power of attorney.
- Futility.
- End of life decisions.

MTC Age Bands

MTC Age Bands 2015-2016



Future of Geriatric Trauma

- Geriatric Emergency Departments.
 - Pathways soon as they arrive.
- Geriatric Trauma Centres.
 - Place to put together comprehensive care plan with multidisciplinary team involvement.
 - Next Kin, Carer within 24 hours,
 - Obtain a complete geriatric assessment as well as a bedside nursing follow-up evaluation,.
 - And arrange for discharge planning.
- Developing of Elderly Specific Care Protocols for Geriatric Trauma.
 - High Risk protocols to screen on admission for high-risk injuries, comorbidities, and physiologic parameter.
- Geriatric review early in admission, as part of the MDT prior to complications developing.
 - Addressing new and existing medical issues
 - Reduce hospital complication, functional decline, falls, delirium and death
 - Reduce morality and ITU admission
- Biomarker for Geriatric Trauma Morbidity and Mortality.
- Incorporate geriatric education.

Take Home Message

- **Traumatic injuries in older patients are complex and have significant impact on the individual, their family, and trauma centres. Greater attention to the timely identification and comprehensive management of comorbid conditions would improve outcomes in the care of the older injured patient.**
- In addition to treatment of the injuries, always work the patient up for the cause of the fall.
- Comprehensive Geriatric assessment (CGA).
- Increased risk of elderly specific complications-Delirium.
- Lactate.
- Polypharmacy
- Rib fractures.
- Nutrition and rehabilitation.
- Geriatric protocols and biomarkers.
- Less room for error when treating elderly patients.

References

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- Geriatric Outcomes Are Improved by a Geriatric Trauma Consultation Service. *Fallon WF et al 2006*
- A retrospective analysis of geriatric trauma patients: venous lactate is better predictor of mortality than traditional vital signs *Kristin MS et al 2013*
- Geriatric protocol cuts Trauma mortality *Weding 2012*
- A prospective observational study to investigate the association between abnormal hand movements and delirium in hospitalised older people. *Holt, Mulley, Young 2015 Jan*
- The ACT Alert: preliminary results of a novel protocol to assess geriatric head trauma patients on anticoagulation. *Rittenhouse K et al 2015*
- MTC LGI Age Band Data for 2015-2016. *LGI MTC Tarn Team*
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