Drugs & Nutrition:
Some Implications for the Elderly

Yvonne Coleman
Introduction

Brief overview of the drugs and nutrition interface
What we know we don’t know list!
Drugs & Nutrition

Encompasses three broad areas

• drug-nutrient interactions
• drug-food interactions
• alteration in food intake
  – Increased
  – Decreased
    • directly
    • indirectly
– Consequences

• change of dietary habits
• refusal to eat
• use of OTC’s
• refusal to take the drugs
Mechanics

- alteration in nutrient absorption
  - directly
  - indirectly
- alteration in nutrient metabolism
- alteration in nutrient excretion
Mechanics

• Some unanswered questions
  – Is nutrient depletion dose dependent?
  – Is there a time factor?
  – Is the depletion additive, synergistic, a combination?
  – Is there an adaptive response?
  – Are some of the debilitating effects in the elderly due to malnutrition
Nutritional Factors

• Direct effects
  – diet changes
    • voluntary
      – dietary components eg salt, fat, caffeine
Nutritional Factors

• Direct effects
  – diet changes
    • involuntary
      – new diagnosis
      – change of domicile
        » changed mealtimes
        » changed meal order
        » changed meal content
Nutritional Factors

- Direct effects
  - food impact
  - weight changes
  - malnutrition
Nutritional Factors

• Indirectly
  – food-drug interactions
    • grapefruit
    • caffeine
      – sedatives
      – pain
    • cranberry
    • pepper
    • liquorice

• pizza
• melatonin
• avocado
• tyramines
• alcohol
• sodium nitrate (Chile saltpetre), potassium nitrate (saltpetre), sodium nitrite, and potassium nitrite
Nutritional Factors

• Indirectly
  – nutrient-drug interactions
    • iron
    • calcium
    • biotin
    • vitamin K
Managed DNI’s

Frusemide and potassium
Methotrexate and folate
Prednisolone and checking BSLs
Evidence and no action

- prednisolone and chromium
- lithium and sodium intake
- antiepileptics and biotin
- phenothiazine derivatives and B2

- metformin and vitamin C
- aspirin and vitamin C
- interactions with alcohol
- nutrient supplements
Evidence and no action

Acid inhibitors
- B12 + folate
- impact on gut bugs
- alteration to GI tract pH
- ↑ risk of food intolerance eg hazelnut
- altered Fe absorption
- altered Ca absorption
- altered Mg absorption
Three questions arose from the grapefruit juice findings

1. what ingredient(s) caused the response in the grapefruit/drug interaction?
2. which other foodstuffs alter drug effect?
3. which other drugs are affected by foodstuffs?
Increasing evidence of specific foodstuffs having a therapeutic effect eg blueberries and blood pressure – should we be warning against intermittent intake of these foodstuffs?
Pharmaceutical Industry

- gluten-free and lactose-free drugs as an industry standard
- oral insulin
- drug administration and enteral feeding formulas
Pharmaceutical Industry

- avocado-warfarin mechanism of action
- concurrent prescription of vitamin C with aspirin
- concurrent prescription of vitamin C with metformin
Government Authorities

- Vitamin D on the PBS
- overservicing
- TGA requirement for formulations appropriate for those with impaired swallow reflex
• drug-nutrient interactions
• CYP 450 from different foodstuffs
• nutrient adaptive response to ongoing drug-stimulated excretion
• whether drugs administered non-orally have a nutritional impact
• identification of drugs that alter gut microflora and whether foodstuffs modify this effect
• whether nutrient-derivative-based drugs alter base nutrient status
• whether base nutrients interact with the same drugs as the nutrient-derivative-based drugs
Conclusions

• there are a number of mechanisms by which drugs alter nutritional status and nutritional factors alter drug effects
Conclusions

• very few known interactions are incorporated into current clinical practice
• there are many lovely research projects for Honours, Masters and PhD degrees!
Medications & Nutrition
A Quick Reference for Busy Clinicians

Author: Yvonne Coleman