Medication, Co-morbidity and Injury in Older Farmers

Don Voaklander
School of Public Health
University of Alberta
Today’s Talk

• Introduction
• Co-morbidity
• Medication Use
Introduction

• Agriculture is one of the most dangerous occupations in Canada
• Within the farm population, the older farmer has been identified to be at greater risk
  – Unlike other occupations, farmers continue to contribute to farm operations well beyond the “normative” retirement age
Rates of Work-Related Fatalities by Age (per 100,000 farm population)
Work Related Injury Rates by Age (per 100,000)
Why Medication Use and/or Co-morbidity Management

• Intervention points with older farmers are difficult
  – Work is self paced
  – Work is part of the farmer’s identity
  – Work styles and habits may be very hard to change or influence

• Medication monitoring and management may be a plausible intervention point

• Care of significant co-morbidity may help prevent injury
Disease Factors Related Farm Injury

• Muscular-skeletal problems, back pain, previous injury
  – Inability to react to a dynamic environment
  – Guarding pain –
    • Decreased mobility
    • Balance issues
  – Insufficient strength
  – Insufficient rehabilitation and conditioning
    • Premature return to work
Disease Factors Related to Farm Injury

• Hearing deficit and tinnitus
  – Can prevent awareness of hazardous situations
    • Machinery – extraneous maintenance or blockage problems
    • Avoidance of hazards
      – Sensory awareness of environment
  – Communication of hazards between workers and bystanders
Disease Factors Related to Farm Injury

• Sleep Deprivation
  – Lack of quality sleep
    • Daytime sleepiness
    • Inattention to tasks
    • Inability to respond to the active environment
  – Frequently caused by
    • Arthritis pain, movement disorders, urinary tract disorders
Disease Factors Related to Farm Injury

• Arthritis
  – Inability to react to a dynamic environment
  – Guarding pain –
    • Decreased mobility
    • Balance issues
  – Chronic mobility problems
    • Inability to avoid animals or other hazards
Disease Factors Related to Farm Injury

• Depression
  – Inattention or dissatisfaction with farm-related job tasks

• Stress
  – High levels of cognitive activity devoted to the stressors
    • Inability to attend to tasks safely
  – Physiologic activity and elevate hormone levels
    • May lead to excessive fatigue
Disease Factors Related Farm Injury

• Other Factors
  – Asthma
    • Hypersensitivity and other allergic reactions may lead to altered reaction to mechanical stressors
    • Also related to depression/injury in other labour sectors
  – Neurotoxic exposures
    • Long term peripheral nerve damage
    • Confusion, drowsiness or poor concentration
  – Urinary tract disorders
    • Distraction
    • Lack of sleep
Medication Use and Older Persons

• Medication reaction with older persons is poorly understood
  – Pharmacokinetics
    • Process of what the body does to the drug
  – Pharmacodynamics
    • Process of what the drug does in the body
  – Polypharmacy
    • Multiple medication use
      – Prescription and over-the-counter
Pharmacokinetics

• Four Components
  – Absorption
    • Virtually the same for young and old
  – Distribution
    • Changes in body composition in older persons alter drug distribution
  – Metabolism
    • Slower in older persons
  – Excretion
    • Decreased renal blood flow leads to delayed elimination
Pharmacodynamics

• Little research has been done in this area
  – Few drug trials are conducted with older persons
  – However, there is some evidence that older persons are more sensitive to medications of the same dose when compared to younger persons
• May be related to altered pharmacokinetics
  – Distribution, metabolism, excretion
Polypharmacy

• New or improved drug treatments are regularly added to a physician's available treatments
• Multiple diseases in older individuals predispose them to multiple treatments
  – Can be as high as 12-15 prescription and OTC medications at once
• On their own, drug side-effects are often predictable but in combination can cause unexpected:
  – Disorientation
  – Confusion
  – Altered balance abilities
  – Hypotension
  – Sedation
Medication and Injury in Farmers

• Use of any prescription medication
• Stomach medication
  – Farm stress
• Heart Medication
  – Altered blood flow/hypotension
• Anti-depressants
• Pain killers
  – Recent use related to injury
• Sleep medication/Benzodiazepines
  – Long lasting sedation
  – Lack of inhibition
THANK YOU