Medication Use & Risk of Cognitive Decline

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Objectives

• Discuss adverse cognitive effects of medications as a modifiable risk factor for cognitive decline.

• Suggest a surveillance system to disclose the adverse cognitive effects of medications for the lay public.

• Develop cost-effective and scalable interventions to reduce adverse cognitive effects of medications

• Sources of Data:
  – 2012 SER conducted by AGS to support the BEERS criteria
  – 2014 SER investigated the adverse cognitive effects of Anticholinergics that included studies conducted by IU-EAU (USA-UK) collaboration
Background

- Up to 75% of older Americans suffer from multiple chronic conditions & are prescribed at least five medications.
- Up to 50% of older Americans use medications with adverse cognitive effects.
- Many of the adverse cognitive effects of medications are not recognized and might be reversible.
- There is no standardized approach to recognize the adverse cognitive effects of medications.
- There is no cost-effective scalable services to reduce the adverse cognitive burden of medications.

High Risk Medications

- AGS based Guideline recommends avoiding the following class of Medication among older adults due to their adverse cognitive effects (Quality of Evidence: **High**, Strength of Recommendation: **Strong**)

  - **Medications with definite Anticholinergic activities**
  
  - Benzodiazepines
  
  - H2-Receptors Antagonists

AGS Panel, JAGS 2012
A recent review of adverse cognitive effects of medications reported that 38 of 39 studies found an association between cognitive impairment and benzodiazepines.

The class of histamine-2 receptor antagonists (cimetidine, ranitidine, famotidine, nizatidine) are also associated with adverse cognitive effects with two observational studies showing that histamine-2 receptor antagonists increase the risk of incident cognitive impairment.

Adverse Cognitive Effects of Anticholinergics

- 14 prospective cohorts studies with moderate to high internal and external validity.
  - Community or primary care setting
  - No dementia at baseline
  - Follow-up: 1 to 12 years
  - Self report, research assistant inspection of home medications, or drug dispensing.
  - N: 281 to 12423.
  - Anticholinergics were identified by validated scales such as the ACB scale, the ADS, ARS.

• All of the 14 (100%) longitudinal observational studies conducted in community or primary care setting among patients with no dementia at baseline showed an association between Exposure to definite anticholinergics and the development of incident cognitive impairment.

• Effect size: OR from 1.25 to 2.5

Adverse Cognitive Effects of Anticholinergics

- There is some evidence for accumulative adverse cognitive effects of medications with mild anticholinergics activities.
- APO E4 Non-carriers were at higher risk.
- 90 days of exposure to at least three medications with mild anticholinergics activities
- 60 days of exposure to at least one medication with moderate to severe anticholinergics activities.
- The effects of anticholinergics may be reversible.
- No effect on dementia
- May be more impact on executive function than memory

Fox et al, JAGS 2011; Smith et al, Age&Aging in press; Campbell et al Neurology 2010; Cai et al, AD&Dementia 2012
Conclusion

• Develop a national medication surveillance and consumer advisory systematic process to the identification, monitoring, and public reporting of the adverse cognitive effects of medications used by older adults in general and those with multiple chronic conditions. (Similar to the current system available for detecting adverse cardiac, hepatic, or renal effects of medications)

• Develop cost-effective and scalable interventions to reduce adverse cognitive effects of medications
References:


