**Study**

- **Jalbert 2010 USA**
  - Nested case-control study in CA, FL, IL, NY, and OH from 2001-2002
  - **Inclusion**: Long-stay residents in nursing homes, age 65 years, diagnosis with dementia but did not receive hospice care, had at least 1 drug claim at least 60 days before and after their MDS assessment, at least 180 days between their index date and 1 drug dispensation date.
  - **Exclusion**: Comatose, bedfast, paralyzed, wheelchair, previous hip fracture, received multiple prescriptions for different APs in the 30-day period preceding the index date, used injectable APs before the index date.
  - **Cases**: Primary inpatient diagnosis of femur fracture (ICD-9-CM=820) and an MDS assessment at least 105 days before hospital admission. **Index date** = day the resident was hospitalized for a hip fracture.
  - **Controls**: Up to 5 per case, matched according to residing in same facility during same quarter, **index date** = interval of days between the case's MDS assessment and hospitalization added to the date of the control's MDS assessment.

**Data Sources**
- Minimum Data Set (MDS)
- Medicaid Analytic eXtract (MAX) data maintained by Centers for Medicare and Medicaid Services (CMS)

**Exposure**
- Ascertained from MAX pharmacy file
- Use of atypical (aripiprazole, clozapine, olanzapine, quetiapine, risperidone, and ziprasidone), conventional (chlorpromazine, chlorprothixene, fluphenazine, haloperidol, loxapine, meprobamate, medroxyprogesterone, meprobamate, meprobamate, meprobamate, meprobamate), or any antipsychotic (conventional and atypicals).

**Baseline**
- Cases were slightly older, female, white, and less educated than controls.
- Similar prevalence of comorbid conditions except for osteoporosis (22.1% vs 18.7%), diabetes (17.7% vs 21.5%), visual impairment (7.6% vs 11.0%), and schizophrenia (4.7% vs 7.7%), overweight or obese (49.7% vs 32.7%).
- Similar cognitive impairment distribution except cases less severely functionally impaired (11.9% vs 19.2%).

**Outcome**
- Relative to non-users, the risk of hospitalization for hip fracture was slightly higher for new (AOR: 1.33, 95% CI: 0.95–1.88) than for prevalent users (AOR: 1.21, 95% CI: 0.99–1.47) of APs.
- Risk of hip fracture did not differ between new and prevalent users of atypical APs.
- Similar association between prevalent use of conventional APs and hip fracture (AOR: 1.28, 95% CI: 0.70–2.34) to that obtained for prevalent use of atypical (AOR: 1.33, 95% CI: 1.08–1.63) and any AP (AOR: 1.21, 95% CI: 0.99–1.47).
- Relative to non-users, the point estimate for the risk of hip fracture was always higher for current users than for past users of APs.
- Current use of any AP was associated with an elevated risk of hip fracture (AOR: 1.26, 95% CI: 1.05–1.52).
- Increased risk for current users of olanzapine (AOR: 1.31, 95% CI: 1.08–1.52), quetiapine (AOR: 1.30, 95% CI: 0.86–1.96), and risperidone (AOR: 1.35, 95% CI: 1.07–1.70).
- Relative to non-users, the risk of experiencing the outcome did not increase for different AP agents in the 30-day period preceding the index date.

**Conclusion**: APs appear to increase the risk of hip fracture among older adults with dementia residing in a nursing home. Hip fractures may be a contributory mechanism to the increased risk mortality observed among AP users.