Background/Introduction

- What is Polypharmacy?
  - There are 24 different definitions of polypharmacy in use, dealing with both potentially inappropriate medications (PIMs) and an excessive number of medications
  - Conventional definitions of polypharmacy deal solely with the number of medications used
  - The use of 5 or more medications regularly is one of the most common definitions of polypharmacy
- What common is polypharmacy/use of potentially inappropriate medications (Poly/PIM)?
  - In the U.S. in 2011-2012, 96% of adults 65 and older reported taking at least one prescription in the prior 30 days, and 39% reported using 5 or more prescription drugs
  - In elderly patients with cancer, 11% to 96% were exposed to polypharmacy
- What factors contribute to Poly/PIM?
  - Chronic disease states (i.e. diabetes mellitus)
  - Multimorbidity (having multiple chronic conditions)
  - End-of-life situations, managing symptoms with additional medications
  - Use of complementary and alternative medicine methods
  - Being elderly
  - Cancer care (complex medication regimens with supportive care medications)
- What outcomes are associated with Poly/PIM?
  - Hospital admissions
  - Drug-drug interactions
  - Adverse drug effects
  - Increased healthcare costs
  - Increased length of stay
  - Delirium
  - Chemotherapy-related toxicities
  - Post-operative complications
  - Falls, disability, and frailty

Objectives

- To summarize the associated negative outcomes of polypharmacy and potentially inappropriate medications (PIMs) in the geriatric oncology population
- To discuss useful and impactful pharmacist-lead interventions to prevent harm resulting from polypharmacy and PIMs

Methods

- A review of the literature was conducted using the Pubmed electronic database
- Search criteria included: articles published in the English language between the years of 2005-2019; using combinations of the words “Geriatric,” “Oncology,” “Polypharmacy,” and “Potentially inappropriate medications”
- Articles were individually screened twice for relevance via abstract review. Articles that did not meet relevancy were excluded.
- The most common themes, definitions, and ideas found throughout the relevant literature were included and summarized in this review.

Study Design

- This is a meta-analysis that builds on previous systematic reviews, such as Sharma et al. (2017), and further synthesizes data into meaningful tables for analysis, supporting the position that pharmacists are best equipped to intervene and combat polypharmacy
- A literature search was conducted using the Pubmed electronic database, with criteria as defined in the Methods section

Results for "Polypharmacy" by year

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<tbody>
<tr>
<td>Polypharmacy &quot;Hits&quot;</td>
<td>90%</td>
<td>85%</td>
<td>90%</td>
<td>80%</td>
<td>75%</td>
<td>70%</td>
<td>65%</td>
<td>60%</td>
<td>55%</td>
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Forest Plot of Negative Outcomes Associated With Geriatric Oncology Polypharmacy

- Odds Ratio (OR)

References

- Hanigan et al. (USA)
- Peto et al. (Canada)
- Cashman et al. (UK)
- Puts et al. (Canada)
- Sokol et al. (USA)

Conclusion

- Polypharmacy is an increasing concern as patients grow older and live longer. Elderly patients with multiple chronic conditions are at an increased risk for Poly/PIM.
- Medication regimens are becoming increasingly complex, especially in conditions that require many supportive care medications (i.e. cancer)
- Methods for pharmacists to combat polypharmacy:
  - Geriatric Assessment (GA)
  - Rational deprescribing
  - Tools to aid in the process:
    - EHRs
    - Beer’s list criteria
    - Screening Tool for Older People’s Prescriptions (STOPP)
    - Medication Appropriateness Index (MAI) tool

Discussion

- Poly/PIM are issues plaguing the care of elderly patients, especially those with cancer. The negative outcomes associated with poly/PIM are well elucidated.
- Pharmacists are uniquely positioned to hone in on Poly/PIM issues. Pharmacists can effectively and efficiently optimize medication regimens due to extensive pharmacotherapeutic training and education
- Opportunities exist for such optimization and review, such as MTMs, CMRs, in LTC facilities, in the community, ambulatory care settings, and at transitions of care (ex. discharge/transfer)