Among children with SNI and polypharmacy:

- Medication Regimen Complexity Index (MRCI) is a polypharmacy must manage CMR in the home setting
- Parents and caregivers of children with SNI and Complex medication regimens (CMR) are common
- Health care utilization (inpatient and emergency visits) associated with increased subsequent acute healthcare utilization
- Test the hypothesis that higher MRCI scores are interactions (PDDI)

Describe characteristics of CMR, specifically in terms of medication regimens beyond simple counts

- An ideal measure would capture additional aspects of complexity
- Account for 3 aspects of medication regimen complexity:
  - Route of administration/dosage form
  - Dosage frequency
  - Additional instructions, e.g., “break” or “dissolve”

Study Population

- 2-18 years old
- 5 or more prescription medications
- Severe neurological impairment (SNI)
- Neurological diagnoses expected to last ≥12 months and result in systemic or multisystem physiologic impairment requiring pediatric subspecialty care
- Defined using published ICD-10 diagnosis codes

Study Methods

- Included all reconciled scheduled, as needed (prn), and over-the-counter medications
- High-risk medications identified using Institute for Safe Medication Practices criteria
- PDDI identified using DrugBank Interaction database

RESULTS

- Demographics and clinical characteristics of 100 children with severe neurological impairment
- Corresponding characteristics of complex medication regimens by MRCI tertile in 100 children with severe neurological impairment

Association between MRCI scores and acute healthcare visits in subsequent month

- Controlled for age and number of CCGs, incidence rate of acute visits compared to low MRCI group:
  - Medium MRCI: 1.3 times higher (95% CI: 0.4, 3.9)
  - High MRCI: 3.8 times higher (95% CI: 1.2, 9.0)

Limitations

- Medication exposures were based on reconciled medication lists at a single clinic visit, may not capture natural changes in medication regimen
- Compliance was not allowed to be assessed

CONCLUSIONS

- Higher MRCI scores were significantly associated with:
  - Number of complex chronic conditions (CCGs) and higher prior healthcare utilization
  - More doses of medications, complicated by different dose forms, specific instructions, high-risk medications, and potential drug-drug interactions
  - Increased subsequent acute healthcare utilization (inpatient and emergency room)

DISCUSSION

- Pharmacists located in the medical home could use the MRCI to identify the highest-risk children with CMR
- Reductions in medication regimen complexity—measured by longitudinal MRCI scores—may ease parental burden, while also mitigating potential adverse consequences

REFERENCES


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