Towards e-documentation of clinical pharmacist interventions

Eszter Nagy, Andrea Bor, Nóra Gyimesi
Dr. Manninger Jenő Trauma Center, Department of Pharmacy, Budapest, Hungary

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Background

Intervention-oriented classification systems are helpful to document clinical pharmacist interventions (CPI) in a structured manner. A pilot survey was conducted on the traumatology wards to collect and analyse CPI based on severity and clinical relevance.

Purpose

Our aim was to develop a clinical pharmacy platform in the e-documentation system at our institution. CPI data enables healthcare providers to track medication history, and to systematically evaluate the effectiveness and pharmacoeconomic benefits.

- Time saving
- User-friendly
- Easily analysable

Method

Data collection of drug therapy was performed at two 31-bed traumatology wards during pre- and postoperative period. We adopted the CPI classification system to our daily practices. Raw data was previously screened and assigned into 5 clasters,

- drug related problems (DRP)
- type of clinical pharmacist intervention (CPI)
- significance (S)
- outcome (O) and
- acceptance (A).

Results I.

We have established a data collection process, which allows us to record CPIs in an efficient way. (*Figure 1.*) This is challenging since the narrow time frame between patient admission and discharge often limits the opportunity to provide pharmaceutical care and document interventions.

We need to focus on correct dosage regimen, appropriate drug selection, recognizing contraindication, resolving drug interaction mainly. (*Table 1.*)

ATC	INN	DRP	CPI	Significance	Outcome	Acceptance
M01A	condroitin sulfat	drug-drug interaction	kinetic	moderate	ADR prevented	modified
B01A	dabigatran	subtherapeutic dose	kinetic	moderate	therapeutic effect enhanced	accepted
N02A	tramadol	untreated condition	dynamic	moderate	therapeutic effect enhanced	accepted
N02A	tramadol	untreated condition	dynamic	minor	therapeutic effect enhanced	rejected
B01A	dabigatran	inappropriate route	kinetic	major	ADR prevented	accepted
N02A	tramadol	untreated condition	dynamic	moderate	ADR prevented	modified

Figure 1. Classified CPI data

Drug-related problems (DRP)	
incorrect dosage regimen	n=47
- subtherapeutic dose	n=17
- excessive dose	n=19
- incorrect frequency	n=5
- incorrect route	n=4
- incorrect rate	n=2
untreated indication	n=28
contraindication	n=25
drug interaction	n=15
no indication	n=11
adverse drug reaction	n=8
no administr. due to shortages	n=5

Table 1. Number of drug-related problems

Results II.

Type of CPI was categorised by the cause of DRP.

- Pharmacokinetic cause (dose adjustment, changes of drug dosage regimen, drug discontinuation, drug switch)
- Pharmacodynamic cause (adding new drug, drug switch, - discontinuation)
- Providing drug information (patient education, new drug, changes of administration route)

Significance were assorted as major (oral anticoagulant - LMWH switch, postoperative opioid use), moderate (loop diuretics - ion supplementation) and minor. The three most important ATC3 groups are antithrombotic agents, antibacterials for systemic use and agents acting on the renin-angiotensin system with major significance. (*Figure 2.*)

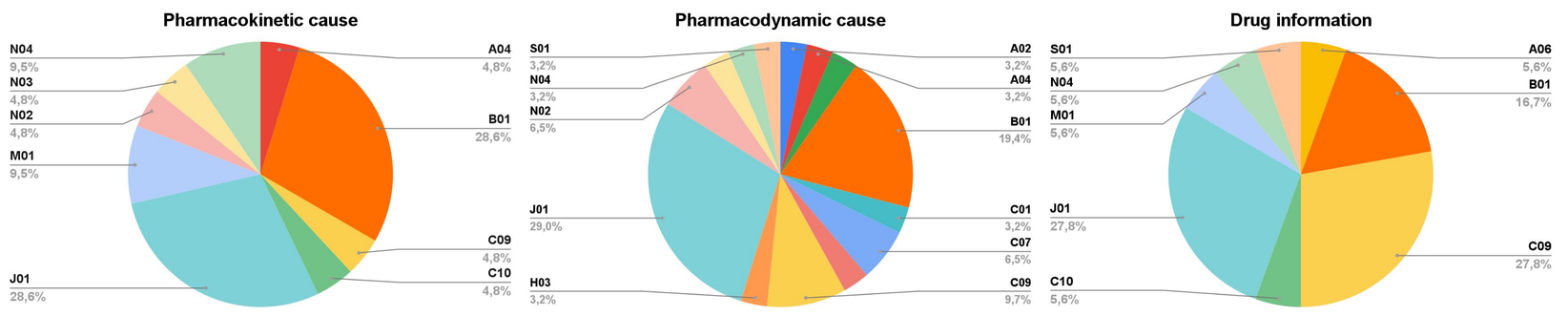

Figure 2. Distribution of ATC3 in different CPIs with major significance

Anti-parkinson drugs also bear a heightened risk of causing patient harm during perioperative period. (*Figure 3.*)

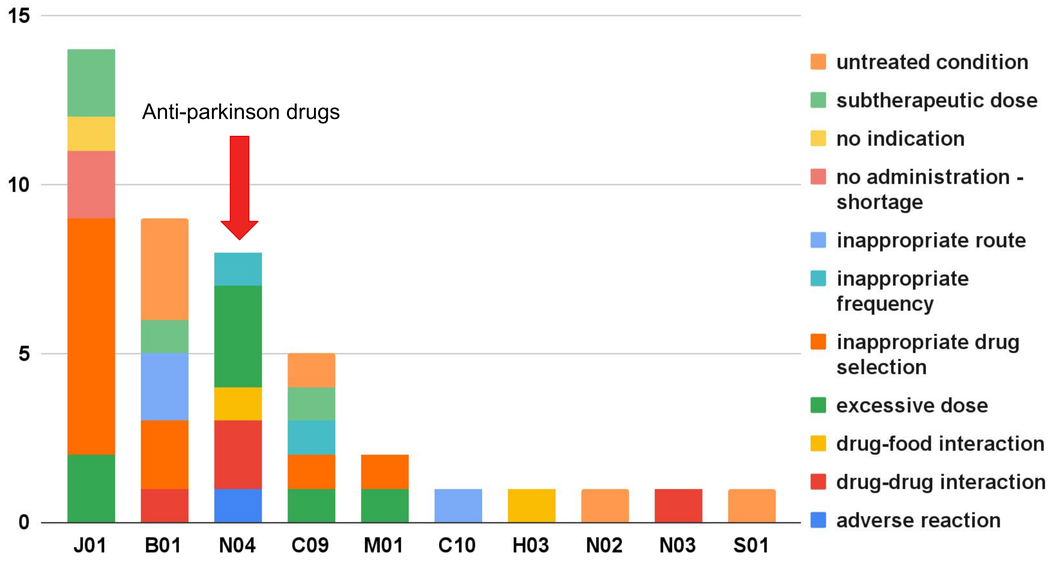

Figure 3. Distribution of DRPs in ATC3 with major significance

Outcomes were therapeutic success, prevention of adverse drug reaction and cost saving only.

73% of the interventions were accepted, the rest were rejected for the first time, but nearly half of them, 13% were admitted after consultation.

Acceptance	n	%
A - accepted	101	73
MA - modified, then accepted	18	13
R - rejected	20	14

Conclusion

Our pilot CPI platform should be validated by other users and shared in the national digital health system.

Contact: Eszter Nagy, PharmD
E-mail: nagy.eszter.erika@gmail.com
Dr. Manninger Jenő Trauma Center,
Department of Pharmacy
HU - 1081 Budapest, Fiumei street 17.