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THE IMPACT OF A PHARMACIST-LED MEDICATION REVIEW ON THE MEDICINE RISK SCORE: A NONRANDOMISED CONTROLLED STUDY

Background

- Pharmacist-led medication reviews can reduce and prevent drug-related problems
- Medication reviews require great economic resources
- Pharmacists need to prioritize who would benefit from a medication review
- An algorithm called the Medicine Risk Score[1] (MERIS) can be used
- MERIS identifies patients who are in high risk of experiencing medication errors
- The impact of pharmacist-led medication review on the patients' MERIS-scores has not yet been investigated

Medicine Risk Score (MERIS)

Risk factor	Intervals	Points	Max. no of drugs that counts
Reduced renal function	eGFR > 60	0	
	60 > eGFR > 30	5	
	eGFR < 30	10.6	
No. of drugs	0-5	0	
	6-11	5	
	>12	10.6	
No. of drugs with	Low risk of harm	0.25	3
	Medium risk of harm	0.5	8
	High risk of harm	1	7
	Low+medium risk of interaction	0.25	12
	High risk of interaction	0.5	2

eGFR, estimated glomerular filtration rate

Aim

- To investigate the impact of a pharmacist-led medication review on the MERIS-score for hospitalised patients

Conclusion

- A pharmacist-led medication review does not seem to have an impact on the MERIS-score for hospitalised patients.
- Further studies are needed to identify interventions that can reduce patient risk of medication errors.

Materials and methods

Design

- A nonrandomised controlled, prospective study, November – December 2020

Participants

- Patients without a medication review the last month and a MERIS score ≥14, admitted to a medical or cardiology department at two local hospitals (hospital A and B)
- Intervention group: patients who underwent a pharmacist-led medication review at hospital A
- Control group: patients who did not undergo a pharmacist-led medication review at hospital B

Outcome

- Change in MERIS-scores calculated as the difference in MERIS-score before medication review and 1½ days after
- Drugs involved in the identified drug-related problems and their influence on the MERIS-score

Results

Participants

	Intervention (n=54)	Control (n=162)
Sex		
Male	31 (57%)	-
Age		
< 65	15 (28%)	
65 – 84	26 (48%)	-
≥ 85	13 (24%)	
Department		
Cardiology	31 (57%)	45 (28%)
Medical	23 (43%)	117 (72%)
MERIS score		
14-25	38 (70%)	118 (73%)
≥ 26	16 (30%)	44 (27%)
eGFR, point		
0	19 (35%)	72 (44%)
5	18 (33%)	47 (49%)
10,6	17 (32%)	43 (27%)
No. of drugs, point		
0	0 (0%)	0 (0%)
5	5 (9%)	9 (6%)
10,6	49 (91%)	153 (94%)

- No statistically significant difference in the MERIS-score between the two groups
- Of the drugs included in 43 identified drug-related problems, 55% had a potential risk of harm or interaction, which influenced the MERIS score
- However only 17% of the drugs would, if the recommendations were implemented, influenced the MERIS scores

Outcome

	Change in MERIS-score [95%CL]			
	Before medication review	1½ days after	Change	*p*
Intervention	23.0 [21.5;24.5]	22.7 [21.3;24.2]	-0.25	0.84
Control	22.2 [21.2;23.1]	21.8 [20.9;22.7]	-0.25	

Drugs included in the identified drug-related problems

ATC codes	Number (%) (n=134)
A: Alimentary tract and metabolism	35 (26%)
B: Blood and blood forming organs	9 (7%)
C: Cardiovascular system	22 (16%)
G: Genito-urinary system and sex hormones	1 (1%)
H: Systemic hormonal preparations	3 (2%)
J: Antiinfectives for systemic use	13 (10%)
M: Musculo-skeletal system	3 (2%)
N: Nervous system	44 (33%)
P: Antiparasitic products	1 (1%)
R: Respiratory system	3 (2%)
Drugs with risk of harm or interaction according to MERIS	74 (55%)
Drugs that can lead to changes in the MERIS scores*	23 (17%)

**Dose change would not lead to changes in MERIS score*

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Reference

1. Saedder, E.A., et al., Detection of Patients at High Risk of Medication Errors: Development and Validation of an Algorithm. Basic Clin Pharmacol Toxicol, 2016.