

Amiodarone and Lithium-induced thyroid dysfunction: who initiates the prescribing cascade?

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Aim

Primary aim: to assess whether the specialty of the physician initiating the thyroid medication differs from the prescribers of amiodarone or lithium.

Secondary aims:

- Assessing the **communication** regarding the thyroid adverse drug event (ADE) or prescribing cascade to the next healthcare provider in discharge letters
- Assessing the **knowledge of community pharmacists** of these prescribing cascades.

Conclusion

- The specialty of the physician that initiated the thyroid medication **differs in respectively 62% and 71%** of, respectively, the prescribers of amiodarone and lithium.
- GPs are **not consistently informed** about the risk and occurrence of the possibility of the thyroid ADE.
- Knowledge of community pharmacists about these prescribing cascades was low.
- Hospital pharmacists could play a **crucial role** in recognizing and managing these cascades to ensure continuity of care, especially when doses change, or medication is discontinued in the hospital.

Background

Prescribing cascades: occurs when medication causes an ADE which is subsequently addressed by prescribing additional medication. It is a growing medical issue that results in polypharmacy, increased healthcare costs, and a decline in quality of life [1-3].

Relevance:

- Medication changes in hospitalised patients are frequent and **ADEs** occur mostly after discharge.
- Multiple prescribers** involved in the care continuum could complicate prescribing cascade recognition due to discontinuity of care [2].

This study focuses on **amiodarone and lithium**, two medications exclusively initiated in hospitals, while the related thyroid dysfunction most likely occurs in primary care.

Methods

Retrospective study: two teaching hospitals (OLVG and Spaarne Gasthuis) and 22 community pharmacies.

Inclusion: patients initiating amiodarone or lithium (**index**) and subsequently receiving thyroid medication (**marker**) within 24 months.

Data collection:

- Specialism of the index and marker prescriber.
- Information about communication of the prescribing cascades in discharge letters to general practitioners (GPs).
- Interviews with community pharmacists regarding their knowledge of these prescribing cascades.

Primary outcome: the proportion of patients where the specialty of the prescriber for index and marker medication differs.

Secondary outcomes:

- The proportion of patients where (the risk of) the ADE was communicated at initiation of index or marker medication.
- Knowledge of community pharmacists.

Results

Primary aim:

The study comprised 108 amiodarone and 17 lithium users who subsequently received thyroid medication. Different specialties of prescribers were involved for amiodarone (62%) and lithium (71%).

Amiodaron cascade (n = 108)

Lithium cascade (n = 17)

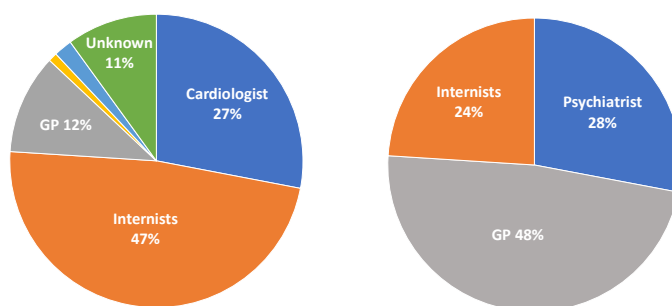


Figure 1: the specialism of the physician prescribing the thyroid dysfunction medication.

Secondary aims:

- Communication from hospital to GP was only seen in 67% of the cases and most were after the occurrence of the prescribing cascade (96%).
- Community pharmacists' knowledge was low with 30% and 20% for amiodarone and lithium, respectively. See table 1.

Table 1: Secondary aims: communication and knowledge of prescribing cascades

	Amiodarone	Lithium
Communicated to GP, n (%)	45 (67)	NA
At start index	2 (4)	
At start marker	43 (96)	
Knowledge community pharmacist, (n=22), n (%)	6 (30)	4 (20)

In collaboration with:



Spaarne Gasthuis



Maastricht UMC+



References

- Rochon PA, Gurwitz JH. Optimising drug treatment for elderly people: the prescribing cascade. *BMJ (Clinical research ed)*. 1997;315(7115):1096-9.
- Adrien O, Mohammad AK, Hugtenburg JG, McCarthy LM, Priester-Vink S, Visscher R, van den Bemt PMLA, Denig P, Karapinar-Carkit F. Prescribing Cascades with Recommendations to Prevent or Reverse Them: A Systematic Review. *Drugs Aging*. 2023 Dec;40(12):1085-1100.
- Brath H, Mehta N, Savage RD, Gill SS, Wu W, Bronskill SE, et al. What is known about preventing, detecting, and reversing prescribing cascades: a scoping review. *Journal of the American Geriatrics Society*. 2018;66(11):2079-85.

