

Developing a list of anticholinergic and sedative drugs for the calculation of the Drug Burden Index in Germany

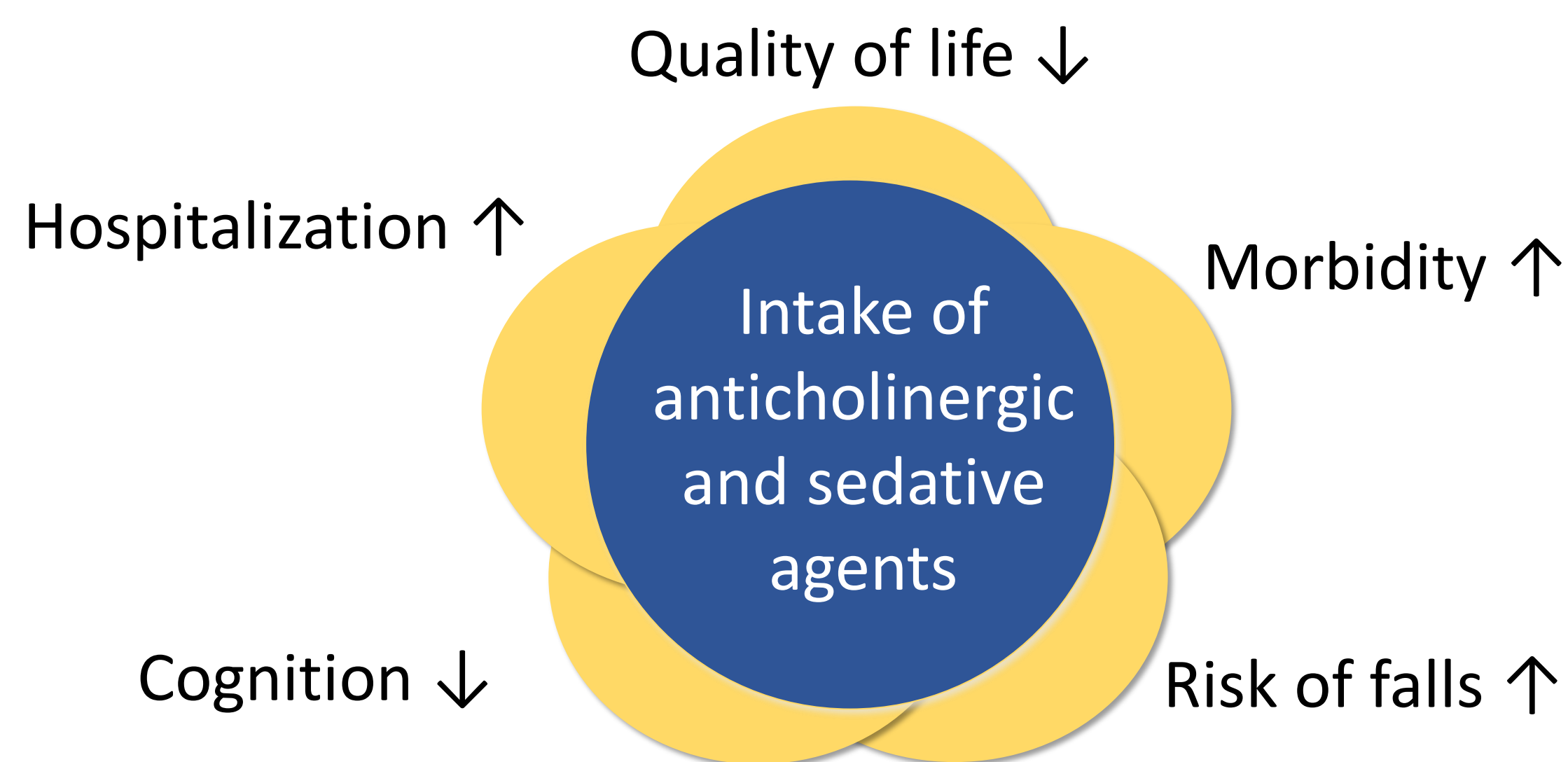
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Background ^{1,2}

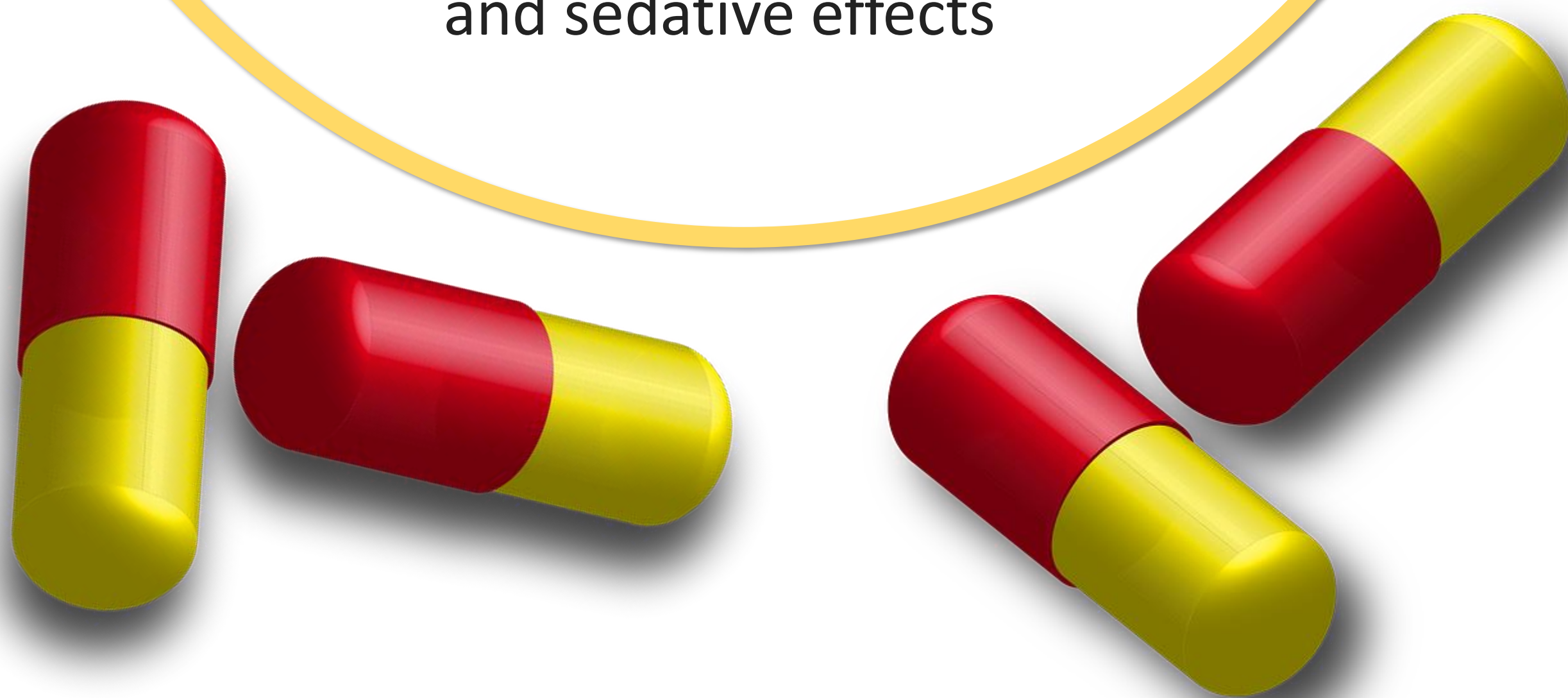


Drug Burden Index (DBI)

$$\sum \frac{D}{D + \delta}$$

D = Daily dose
δ = Minimum daily dose

Pharmacological equation
for calculating the dose-dependent
exposure to anticholinergic
and sedative effects



- The DBI was developed by Hilmer et al.
- A List of medications for the calculation of the DBI was formulated for Australia
- The DBI has been validated in several international studies

COFRAIL-Study ³

- Cluster-randomised, controlled trial with 136 general practitioners and 621 geriatric patients (≥ 70 yrs.) with frailty and polypharmacy living at home
- Prioritization of drug and non-drug treatment in family conferences and assessment of medication quality (e.g. using the DBI)

Aims

- Creating a list of anticholinergic and sedative drugs available in Germany for the calculation of the DBI in the COFRAIL-Study
- Assessment of the patients' anticholinergic and sedative burden

Methods

Literature search in PubMed/MEDLINE®

Preselection of active ingredients based on existing lists^{4,5} and review of the corresponding German summaries of product characteristics

Determination of the minimum doses of the selected substances

Data reconciliation of the created list by Hilmer et al.

Evaluation of the drugs and their dosages by an expert committee consisting of 2 clinical pharmacologists and 2 pharmacists

Results

ATC-Code	Other ATC-Codes	Drugs	Anti-cholinergic effect (AC)	Sedative effect (S)	Minimal dose		
					Oral administration (per os, sublingual/ buccal, inhalative)	Injection (i.v., i.m., s.c., etc.)	Transdermal/ Mucosal administration (transdermal, rectal)
R03BB05	R03AL05	Acclidinium*	AC		644µg ^a		
N05BA12		Alprazolam	AC	S	0,5mg		
N04BB01		Amantadine hemisulfate	AC		100mg	200mg (i.v.)	

- A list of in total 224 active ingredients was created and also includes:
 - ATC-Codes
 - Classification according to anticholinergic and/or sedative properties
 - Minimum daily dose for each route of administration available in Germany

Conclusion and outlook

- Valuable tool to determine the patients' anticholinergic and sedative drug burden in Germany
- Simplifies future use of the DBI e.g. in hospitals, primary care and in pharmacies
- Evaluation of the practicability follows in the COFRAIL-Study

References:

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- (5) Byrne CJ, Walsh C, Cahir C, Ryan C, Williams DJ, Bennett K. Anticholinergic and sedative drug burden in community-dwelling older people: a national database study. *BMJ Open*. 2018 Jul 6;8(7):e022500. doi: 10.1136/bmjopen-2018-022500. PMID: 29982221; PMCID: PMC6045724