Therapie (2017) xxx, xxx—xxx

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CLINICAL PHARMACOLOGY

The anticholinergic impregnation scale: Towards the elaboration of a scale adapted to prescriptions in French psychiatric settings

L'échelle d'imprégnation anticholinergique : vers l'élaboration d'une échelle adaptée aux prescriptions en milieu psychiatrique français

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Received 6 June 2016; accepted 23 December 2016

KEYWORDS
Anticholinergics;
Anticholinergic drug scale;
Psychiatry

Summary
Purpose. — Some drugs have anticholinergic activity and can cause peripheral or central side effects. Several scales exist to evaluate the potential anticholinergic effect of prescribed drugs but: (i) they are validated in the elderly and mainly assess the cognitive side effect of treatments; (ii) they do not concern some of the drugs frequently used in clinical psychiatry in France. The aim of our study is to develop a new scale, the anticholinergic impregnation scale (AIS), with drugs used in France and based on an assessment of the drugs used against peripheral anticholinergic adverse effects.

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http://dx.doi.org/10.1016/j.therap.2016.12.010

Methods. — We assigned a score, ranging from 1 to 3, to a list of 128 drugs with a consensus approach obtained via literature data and expert opinions. We collected data from 7278 prescriptions in 34 French psychiatric facilities: age, sex, atropinic drugs, laxatives and treatments of xerophthalmia and xerostomia, in order to evaluate the association between AIS score and the prescription of drugs aiming to reduce peripheral anticholinergic side effects.
Results. — The most frequently prescribed drugs were cyamemazine ($n = 1429$; 20%) and tropatepine ($n = 1403$; 19%), two drugs marketed almost exclusively in France and with a score of 3. The frequency of patients with a high AIS score, greater than 5, was significantly higher in patients who received laxatives and treatments of xerostomia. AIS score represents the first validated solution to evaluate anticholinergic load in psychiatry settings in France.
Conclusion. — The anticholinergic problem remains underevaluated in mental health settings. In order to rule out the confounding factor of mental disease, assessment of peripheral side effects can be considered more objective than the evaluation of cognitive function in psychiatric patients. Building scales appropriate for each state also appear essential to obtain an useful and effective tool in clinical practice.

MOTS CLÉS
Anticholinergiques ;
Échelle de médicaments anticholinergiques ;
Psychiatrie

Résumé Certains médicaments ont une activité anticholinergique et peuvent provoquer des effets secondaires périphériques ou centraux. Plusieurs échelles existent pour évaluer l'effet anticholinergique potentiel des médicaments prescrits, mais : (i) elles sont validées chez les personnes âgées et principalement par le biais des effets cognitifs des traitements ; (ii) elles n'incluent pas certains médicaments fréquemment utilisés en France et notamment en psychiatrie. Le but de notre étude était de construire une nouvelle échelle, l'« échelle d'imprégnation anticholinergique » (EIA), intégrant les médicaments utilisés en France et sur la base d'une évaluation des médicaments prescrits pour lutter contre les effets indésirables anticholinergiques périphériques. Notre travail a permis la construction d'une liste de 128 médicaments : (i) avec une approche de consensus entre les données de la littérature et des avis d'experts et (ii) en s'appuyant pour sa validation sur 7278 prescriptions recueillies dans 34 établissements psychiatriques français.

Abbreviations

AAS	anticholinergic activity scale
ADS	anticholinergic drug scale
ACB	anticholinergic cognitive burden scale
AIS	anticholinergic impregnation scale
ARS	anticholinergic risk scale
ATC	anatomical therapeutic chemical class
CATIE	clinical antipsychotic trials of intervention effectiveness study
CI	confidence intervals
CrAS	clinician-related anticholinergic score
OR	odds ratio

Introduction

Drugs with anticholinergic activity are difficult to prescribe due to their multiple peripheral and central side effects, such as mydriasis, dry skin and mucous membrane, hyperthermia, urinary retention, constipation, tachycardia, confusion, attention deficit and memory impairment [1].

The main classes of anticholinergic drugs are tricyclic antidepressants, anticholinergic antihistaminics, antiparkinsonian drugs, neuroleptics, urinary antispasmodics, asthma medications and analgesic drugs. Elderly people are more vulnerable to anticholinergic effects because of polypharmacy, but also because aging results in a greater permeability of blood-brain barrier and an alteration of hepatorenal metabolism [2,3]. Thus, an association of drugs with anticholinergic properties in the elderly has to be prescribed with caution [4]. Anticholinergic load is also relevant to patients with mental illnesses because a great number of their treatments include anticholinergic properties [1,5,6]. These properties may cause peripheral or central side effects that are hard to distinguish from mental illness-related symptoms. However, the adverse effects related to drugs with anticholinergic activity are underevaluated in mental health settings. In order to exclude

Please cite this article in press as: Briet J, et al. The anticholinergic impregnation scale: Towards the elaboration of a scale adapted to prescriptions in French psychiatric settings. Therapie (2017), http://dx.doi.org/10.1016/j.therap.2016.12.010