

Case report

Allergic and photoallergic conditions from unusual chlorpromazine exposure: report of three cases

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Introduction

“Chronic Actinic Dermatitis” is an umbrella designation used to refer to a group of linked disorders, namely persistent light reaction (PLR) and photosensitivity dermatitis. They are chronic eczematous dermatoses characterized by an extreme photosensitivity (UVB, UVA, visible light), which tends to persist without apparent continuing chemical exposure and sometimes evolve into a pseudolymphoma, that is, actinic reticuloid.¹

Chlorpromazine and other related tranquilizers are commonly used to treat psychotic disorders. These drugs may be responsible for contact sensitization and photosensitization, in the form of both phototoxicity and photoallergy, through the production of stable-free radicals or chemical modification of biological macromolecules.²

Herein, we describe three cases of chlorpromazine-related allergic conditions, ranging from allergic contact dermatitis and PLR even to actinic reticuloid. We assume in these cases a way of hapten exposure that should be noticed for its peculiarity.

Patients and methods

A clinical summary of the patients can be reviewed in Table 1.

Interestingly, none of the three patients had taken chlorpromazine, whereas they had been administering the drug for years to their partners, affected by neuropsychiatric

disorders, therefore handling chlorpromazine formulations daily. When careful history was taken and unapparent contact was disclosed, chlorpromazine was replaced with alternative neuroleptics for patients' relatives, and progressive improvement in our three cases occurred.

Discussion

In our series, clinical evidence and photoallergic test results were consistent with the hypothesis of PLR/actinic reticuloid to chlorpromazine (cases 1 and 3). In our series, clinical evidence and photoallergic test results were consistent with the hypothesis of PLR and actinic reticuloid in patient 1 and 3, respectively.

In addition, what these patients shared was the unusual way of chlorpromazine exposure.

In fact, they all attended to administer chlorpromazine, spilling drops or breaking pills to the adequate dosage. The localization of skin signs (hands and face), conditioned indeed by sun exposure, further suggested the role of accidental contact with the drug while handling bottles or breaking tablets.

Only one similar case has been previously reported.³ It concerned a Japanese pharmacist who had been sensitized during chlorpromazine handling for medical prescriptions.

It is our aim therefore to highlight the occurrence of three more cases, suggesting to consider this possibility

Table 1 Clinical and pathological characteristics and allergologic features of observed cases

Case	Age, gender	Distribution of lesions	Morphology	Course	Patch test results	Photopatch test results (UVA irradiation, 5 J/cm ²)	Phototest results (solar simulator with Xenon lamp)	Histopathologic examination	Diagnosis
1	72, F	Face, neck, hands and forearms	Chronic eczematous	Beginning in spring, exacerbation when sun-exposed	(Enlarged GIRDCA standard series) Disperse Blue 124 1% 2+ Chlorpromazine 1% negative	(Enlarged GIRDCA series) Chlorpromazine 1% 3+ at 48 h on photostimulated series	Lowered MED (0.25 J/cm ²) to polychromatic light	Not performed	(Allergy to Disperse Blue) PLR from chlorpromazine
2	76, F	Face (periorificial), hands	Chronic eczematous	Beginning in spring, exacerbation when sun-exposed	(Enlarged SIDAPA standard series) Chlorpromazine 1% 2+ at 96 h	(Enlarged SIDAPA standard series) Chlorpromazine 1% 3+ at 48 h on photostimulated series	Refused by the patient	Not performed	Allergic dermatitis to chlorpromazine with photoaggravation
3	67, M	Face, neck, hands and forearms	Chronic eczematous, lichenification	Beginning in spring, exacerbation when sun-exposed	(SIDAPA standard series) Negative	(Enlarged SIDAPA standard series) Chlorpromazine 1% 1+ at 96 h on the unchallenged series, 3+ at 96 h on the photostimulated series	Lowered MED to polychromatic light (0.5 J/cm ²) and UVB (10 mJ/cm ²); abnormal erythematous reaction to UVA and visible at 10 and 20 J/cm ² , respectively	Hyperkeratosis, parakeratosis, irregular epidermal hyperplasia and spongiosis. Moderately heavy inflammatory infiltrate composed of lymphocytes, eosinophils and melanophages, mainly in band-like location. Focal exocytosis of inflammatory cells (small lymphocytes)	Actinic reticuloid from chlorpromazine

GIRDCA: Italian Group of Research in Contact and Environmental Dermatitis.

SIDAPA: Italian Society of Environmental, Allergologic and Occupational Dermatology.

when allergy/photoallergy to chlorpromazine is demonstrated in the absence of apparent contact. Patients could be investigated about the customary habit to handle drug formulations and eventually recommended to avoid it or to use rubber gloves at least.

References

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- 2 Barbaud A, Collet E, Martin S, *et al.* Contact sensitization to chlorpromethazine can induce persistent light reaction and cross photoreactions to other phenothiazines. *Contact Dermatitis* 2001; **44**: 373–374.
- 3 Torinuki W. Contact dermatitis to biperiden and photocontact dermatitis to phenothiazines in a pharmacist. *Tohoku J Exp Med* 1995; **176**: 249–252.