

Correspondence

Accupril- and Cozaar-induced angioedema in the same patient

To the Editor:

Angiotensin II (formed from angiotensin I in a reaction catalyzed by angiotensin-converting enzyme [ACE]) is a potent vasoconstrictor, the primary vasoactive hormone of the renin-angiotensin system, and an important component in the pathophysiology of hypertension. It also stimulates aldosterone secretion by the adrenal cortex. Cozaar (losartan potassium), a new antihypertensive agent, blocks the vasoconstrictor and aldosterone-secreting effects of angiotensin II by selectively blocking the angiotensin II receptor. Accupril (quinapril hydrochloride) acts as an antihypertensive agent by inhibiting ACE, thereby reducing angiotensin II formation. ACE is similar to kininase, an enzyme that degrades bradykinin. Increased levels of bradykinin also play a role in the therapeutic effect of Accupril.¹

Angioedema of the larynx, tongue, lips, face, and extremities has been reported with a frequency of 0.1% with the use of all ACE inhibitor medications.² This potentially life-threatening side effect has not been described with the use of this new class of angiotensin II receptor antagonist medication. A patient with angioedema temporally related to the administration of both classes of medications is described.

Patient A.A. is a 58-year-old man with hypertension who was initially treated with Accupril. The patient reported no history of urticaria, angioedema, or other drug allergies. Within 3 weeks of the start of Accupril administration, he experienced recurrent facial angioedema, requiring discontinuation of this medication. He was subsequently prescribed Tenormin, with no adverse effect. Tenormin was discontinued after 3 years because of inadequate blood pressure control. The patient was prescribed Cozaar, and within 3 weeks, facial swelling and uvula swelling with no associated urticaria were noted. His symptoms were noticeably worse immediately after taking the medication and slowly resolved over the course of the day. He stopped taking the Cozaar, and the angioedema completely resolved without any medical therapy.

This is the first reported case of a patient experiencing angioedema after the use of both an ACE inhibitor and an angiotensin II receptor antagonist. ACE inhibitor medications are able to inhibit degradation of bradykinin and presumably result in angioedema as a result of increased levels of bradykinin. The angiotensin receptor antagonist medications are not reported to have any effect on bradykinin levels; therefore, the mechanism by which Cozaar may induce angioedema is unknown. An alternative mechanism may therefore be the cause of angioedema in patients who have experienced this side effect from

these two classes of medications. This would imply caution in the use of angiotensin II receptor antagonists in patients who have previously experienced angioedema caused by ACE inhibitors.

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2. Slater EE, Merrill DD, Guess HA, et al. Clinical profile of angioedema associated with angiotensin converting-enzyme inhibition. JAMA 1988;260:967-70.

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Cockroach and *Dermatophagoides pteronyssinus* cross-react

To the Editor:

Recently, Birnbaum et al. in their article "Cockroaches and mites share the same beds" showed a correlation between sensitization to *Dermatophagoides pteronyssinus* (DP) and cockroach (J Allergy Clin Immunol 1995;96:561-2). They concluded that although cross-reactivity could not be ruled out, these allergens

TABLE I. Relationship between SPT results with DP and occurrence of cockroaches at home

Cockroaches at home?	Positive SPT response to DP (%)	Positive SPT response to cockroach (%)
Scandinavian patients		
Yes, presently (<i>n</i> = 22)	36	36
No (<i>n</i> = 1360)	20	17
Yes, earlier (<i>n</i> = 51)	28	10
Significance	NS	<i>p</i> < 0.05
Patients from Russia, Estonia, and Lithuania		
Yes, presently (<i>n</i> = 213)	24	28
No (<i>n</i> = 267)	32	18
Yes, earlier (<i>n</i> = 182)	25	24
Significance	<i>p</i> < 0.05	<i>p</i> < 0.05
	(inverse correlation)	

NS, Not significant.

TABLE II. Relationship between SPT responses to cockroach and to DP, cat, *Cladosporium* spp., red mosquito larvae and shrimp

SPT response to cockroach	Positive SPT response				
	DP (%)	Cat (%)	<i>Cladosporium</i>	RML (%)	Shrimp (%)
Scandinavian patients					
Negative (<i>n</i> = 1271)	17	56	4	3	8
Positive (<i>n</i> = 258)	36	46	8	35	32
Significance	<i>p</i> < 0.001	<i>p</i> < 0.01 (inverse correlation)	<i>p</i> < 0.01	<i>p</i> < 0.001	<i>p</i> < 0.001
Patients from Russia, Estonia, and Lithuania					
Negative (<i>n</i> = 531)	27	36	2	3	9
Positive (<i>n</i> = 154)	32	44	5	24	26
Significance	NS	NS	<i>p</i> < 0.05	<i>p</i> < 0.001	<i>p</i> < 0.001

RML, Red mosquito larvae; NS, not significant.

commonly coexist in the same environment. We can confirm the finding of a correlation between DP and cockroach, but our results do not support their hypothesis.

In a multicenter study, comprising 2111 atopic patients from eight countries in northern Europe, we performed skin prick tests (SPTs) with common inhalant allergens, as well as with cockroach and red mosquito larvae. We found a significant correlation between results of SPTs with cockroach and DP (*p* < 0.001). The total agreement (both positive or both negative) was 71%, and the correlation coefficient was 0.15.

We found positive SPT responses to cockroaches in patients without environmental exposure, as well as in those with such an exposure. In the Scandinavian clinics, only 5% reported that they had (or had previously had) cockroaches in their homes, whereas the figure for those in the Baltic and Russian clinics was 59%. Nevertheless, the incidence of positive SPT responses to cockroach was almost the same, 17% and 22%, respectively. A correlation existed, however, between sensitization to cockroach and the occurrence of cockroaches in the patients' homes (Table I). In the Scandinavian patients, there was no significant correlation between SPT responses to DP and cockroach in the home; whereas in the Baltic and Russian clinics, there was an inverse correlation (Table I).

Positive correlations were found between SPT responses to cockroach and DP (*p* < 0.001), red mosquito larvae (*p* < 0.001), shrimp (*p* < 0.001), and *Cladosporium* (*p* < 0.01); whereas there was a negative correlation with cat (Table II).

It seems to us that the correlation between *D. pteronyssinus* and cockroach (as well as with red mosquito larvae and shrimp) more probably is due

to the existence of cross-reactions than to "the same beds."

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Reply

To the Editor:

We read with interest the comments by Eriksson and Möller about our article, "Cockroaches and mites share the same beds." We agree, and it was mentioned in our discussion, that cross-reactivity between mite and cockroach allergens cannot be ruled out. We need more information about RAST inhibition experiments. Positive correlations found between skin prick tests with cockroach, mite, mosquito larvae, and shrimp are in favor of this hypothesis. Furthermore, Witteman et al.¹ recently identified tropomyosin as a cross-reactive allergen among members of the classes Crustacea, Arachnida (*Dermatophagoides pteronyssinus*), and Insecta (chironomid, mosquito, and *Blattella germanica*). A few months ago, Crespo et al.² showed cross-reactivity of IgE-binding components between boiled Atlantic shrimp and German cockroach.

On the other hand, the absence of positive correlations between skin prick tests with mite extracts and cockroaches found at home does not rule out the possibility that mites and cockroaches share the same bed. In houses without apparent cockroaches, the levels of cockroach allergens might be sufficient to induce a sensitization in atopic patients. We conclude that much