

## CORRECTION

### **Correction: Effects of *ACE* rs4311C>T, rs4343A>G, rs4344A>G and rs4362C>T Polymorphisms on Angiotensin-Converting Enzyme Activity among Thai Subjects**

**Ammara Chaikan, Nipapan Malisorn**

*Division of Pharmacology, Department of Preclinical Science, Faculty of Medicine, Thammasat University, Pathum Thani, Thailand*

**Received:** 4 November 2020

**Accepted:** 5 November 2020

**Correction to:** Thai J Pharmacol 2019;41(2):31-42  
(<https://li01.tci-thaijo.org/index.php/TJP/article/view/223668>)

The original version of this article unfortunately contains mistakes in the Results section as follows:

1. On line 4 in the first paragraph (page 35), the percentage and IQR of ACE activity in the sentence were incorrect. The sentence should be corrected to: “A significantly higher ACE activity (169%,  $p=0.010$ ) was observed in males compared to females (median: 44 vs. 26, IQR: 30-48 vs. 22-42 U/L) (Table 2)”.
2. In Table 2 (page 35), N for Male and Female should be 25 and 75, respectively.
3. On line 5 in the second paragraph (page 39), the percentage of ACE activity in the sentence was incorrect. The sentence should be corrected to: “Our study observed that males had 169% higher serum ACE activity than females”.

The correct version of these are presented in the next page.

The authors apologize for these errors.

**The first paragraph (line 4) of the Results (on page 35 of the original version)**

The demographics and baseline characteristics of the study subjects are summarized in Table 1. A total of 100 healthy Thai volunteers fulfilled the eligibility criteria. Seventy-five subjects (75%) were female. The median age was 20 (range 19-25) and the median serum ACE activity was 30 (range 10-88) U/L. A significantly higher ACE activity (169%,  $p=0.010$ ) was observed in males compared to females (median: 44 vs. 26, IQR: 30-48 vs. 22-42 U/L) (Table 2). There was no correlation between serum ACE activity and age ( $\rho=0.059$ ,  $p=0.560$ ).

**Table 2 (on page 35 of the original version)**

**Table 2.** Influence of gender and serum ACE activity.

| Gender | N  | Serum ACE activity (U/L) |       |
|--------|----|--------------------------|-------|
|        |    | Median                   | IQR   |
| Male   | 25 | 44                       | 30-48 |
| Female | 75 | 26                       | 22-42 |

**The second paragraph (line 5) of the Results (on page 39 of the original version)**

A previous study in Spanish population reported the association between a variation in *ACE* gene (rs4344A>G) and ACE inhibitor-induced cough.<sup>18</sup> A protective effect of rs4344A>G polymorphism against cough due to ACE inhibitors was found in male patients. However, the risk of cough related with ACE inhibitor therapy was higher in female patients.<sup>18</sup> Our study observed that males had 169% higher serum ACE activity than females. This might be due to the effect of estrogen in decreasing ACE activity and the effect of testosterone on ACE activity is otherwise.<sup>28</sup> Thus inhibition of ACE activity leading to cough was more pronounced in females than in males. Our study in Thai population also showed the impact of *ACE* polymorphism (rs4344A>G) on serum ACE activity. A significantly higher serum ACE activity was observed in participants with GG genotype compared to those with AA genotype. Therefore rs4344A>G variants might protect Thai subjects from ACE inhibitor-induced cough. G allele frequency was noticed more frequently in Caucasians and Africans than in Thais. Hence, the protective effect of cough from ACE inhibition might be detected in Caucasians and Africans more than in Thai populations.