

CHAPTER 5

Conclusion and Discussion

The correlation between [PCBZ] and [SCBZ] in this study is very high ($r = 0.918$, $p < 0.001$) and the ratio of [SCBZ] to [PCBZ] was about 0.26 which is similar to that of the other investigators have been published. The value of the ratio of [SCBZ] to [PCBZ] that have been reported are to be 0.26 ± 0.01 ,⁽⁷⁾ 0.30 ± 0.07 ,⁽⁸⁾ 0.33 ± 0.02 ,⁽⁹⁾ 0.26 ± 0.24 ,⁽⁸⁴⁾ 0.26 ± 0.05 ,⁽⁹²⁾ 0.33 ± 0.05 ,⁽⁹³⁾ 0.34 ± 0.04 .⁽⁹⁴⁾ When the equation ($[PCBZ] = 3.7325 [SCBZ] + 0.2787$) was use to calculate [PCBZ] from [SCBZ] and then compared to actual [PCBZ] of 10 patients, the results showed high accuracy of prediction ($103.32 \pm 4.83\%$). Thus, this study strongly supports the using of STDM for CBZ therapy. Since the saliva collection technique is very simple, more convenient, more compliance, reduce risk of injury or infection and more saving.

The technique of saliva sample collection in this study is very simple, effective and no need stimulating agents which, sometimes, can interfere the salivary concentration of the drug and may be make undesirable effects. For example parafilm wax, hydrophobic material which has been used as saliva stimulant, can absorb lipophilic drugs such as CBZ and increase saliva flow. This causes diminishing of the drug concentration in saliva. In additional, saliva stimulant such as citric acid may cause oral burning in some volunteers. But the using of cotton ball as a saliva absorbent for the saliva collection is very gentle to the volunteers and not interfere saliva flow and drug concentration in saliva.

The extraction and analysis method used in this study is very simple and saving. The HPLC system is a rapid, high accuracy, high sensitivity, high precision method and low cost.^(48,86,87,95,97,100,101) While immunoassay techniques for CBZ determination had a 16-21% cross-reactivity with CBZ-E and more expensive but more convenient. The major problem of GLC for CBZ determination is the decomposition of CBZ to iminostibene and 9-methylacridine.⁽⁹⁹⁾ The disadvantages of the HPLC technique when compared with immunoassay are using more time for extraction and preparation of the instrument. However, if one would like to use STDM of CBZ in

clinical practice, both techniques of analysis (HPLC and immunoassay) can be used because there is no statistic significant difference of quantity determination of CBZ .⁽⁶⁶⁾ It must be better if the HPLC system is developed to analyses many antiepileptic drugs simultaneously. Because this can maximized the usefulness of HPLC and save time and cost too.

Because of in some situations, the saliva samples can not be analyzed immediately and may be transferred to outside hospital laboratories. The saliva samples should be kept in ice box during transference and be frozen until analysis which should do within 7 days after sampling. For longer storage period, there should be further investigation for the stability of CBZ in saliva.

Since this investigation was done on the patients age of 10-74 years old. So this may be the limitation for the application use in the patients under 10 years old. Thus the similar evaluation of STDM for CBZ may further done on the patients under 10 years old because of some investigators have been reported higher [SCBZ]/[PCBZ] ratio in younger children (range of 0.30 to 0.34).^(8,93,94)

For more convenience to clinical practice, the clinicians or pharmacists may be use the following equation to calculated the [PCBZ] from [SCBZ] with also high accuracy too (more than 97%).

$$[\text{PCBZ}] = 3.7 [\text{SCBZ}]$$