# V. CONCLUSION

In over all of this study, the platelet aggregabilities in the β-thalassemic patients can be hypo-, normo- and hyper-aggregabilities. These may be due to the multi-factor involvement in the phenomenon. The high PS exposing RBCs was observed in the patients and even higher in the patients with splenectomy. These are probably because there are many membrane-defected RBC circulating within the body. Additionally in the patients with splenectomy, there is no sequestrated organ to remove the abnormal cells from the circulation. The *in vivo* elevations of activated platelets examined by the morphology changes on SEM, of β-TG and PF4 released into the plasma tested with ELISA, of $CD63^+$ platelets assayed with flow cytometry were demonstrated in the patients and even more increase in the splenectomized patients except the morphology changes by SEM and PF4 levels. These show a clear evidence of the platelet activation in such patients. Furthermore, the co-culture experiments are also indicating the abilities of both β-thalassemic RBC and plasma to activate the responding platelets. These findings imply that there are some platelet-stimulating factors both on the RBC and in the plasma. The factor on the RBC is expected to be the PS exposure. On the other hand, the factors in the plasma may be atypical antibodies, auto-antibodies, releasing substances from the previously activated platelets and red cell debris. These are still to be studied. All of these phenomena may possibly have the thrombin as the mediator in between PS exposing RBCs and platelet activation in the β-thalassemia. However there are many unstudied phenomena still waiting to be examined such as measuring the activities of aminophospholipid translocase, expanding the co-culture experiments to a number that reach the statistical reliability, measuring the fibrinolytic activities of the patient plasma, measuring the thrombin generation of the plasma pre-treated with the

thalassemic RBC comparing to the normal RBC and the testing for the benefit of thromboembolic prophylaxis with low dose oral aspirin daily. These studies will possibly be able to improve the treatment and raise the standard of life for the patients, which are the common needs of all patients, clinicians and researcher around the world.

This study concerned very much on the reliability of the *in vivo* situation. Therefore the immediate inhibition or fixation was applied to be sure that the observed phenomena represented the true *in vivo* situation. This idea was firstly practiced in this study. This will be a minimum standard of practice for the study of any *in vivo* situation. Furthermore, in the flow cytometric assay, all solutions and buffers were centrifuged as hardly as possible just before use for the elimination of dust contaminants. This practice is probably the first introducing by this study. Therefore the dust contamination in this flow cytometric study was minimized. This is why the interested population is easily to be selected the on flow cytometic histograms interested population. The achievement of this study is therefore not only the laboratory findings but also the improvement of the laboratory practice.