Diagnostic Advances for Improved Treatment of Childhood Acute Lymphoblastic Leukemia in Indonesia.

Acute lymphoblastic leukemia (ALL) is the most curable disease among pediatric cancers. The success of ALL treatment is depending on: diagnostic accuracy, proper stratification, chemotherapy availability and supportive care including: infection control, isolation room, palliative care and psychology mentoring. Diagnostic of leukemia in Indonesia is not yet performed according to the WHO standard. Diagnostic accuracy of leukemia subtype is essential for disease stratification and thereby selection of the appropriate treatment. In the current project, immunophenotyping has been set up and implemented to improve the diagnosis. Hence, improvement of prognosis is anticipated due to the right risk classification of children and subsequent selection of the most optimal treatment protocols.

Beside diagnostic improvement, we also conducted research to improve treatment protocols based on the Indonesian situation and that specific genetic background. We found that prednisone was better in the induction phase compared to dexamethasone in the Indonesian setting. We also found that specific genetic variations in the thymidylate synthase promoter, as well as in methylenetetrahydrofolate reductase gene (MTHFR) certain polymorphisms are more frequent in the Indonesian population. This is important since it will influence methotrexate sensitivity and thereby may have impact for treatment of Indonesian childhood ALL.

Successful leukemia treatment in Indonesia is determined by the cooperation between: government, leukemia parents association, researchers, clinicians, nurses, psychologists and social workers. It is recommended that the Indonesian government get involved in the improvement of curing children with leukemia since most of the patients are very poor and need support.