Editorial

Thrombotic thrombocytopenic purpura (TTP): much room for better treatment

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Thrombotic thrombocytopenic purpura (TTP)[1] is one of the most well known non-hematological malignancy disease with high morbidity and mortality. Diagnosis is mostly based on clinical presentation of many or all of the following "pentad" i.e. low platelet number, high temperature, altered mental status, reduced renal function and microangiopathic hemolytic anemia. TTP is classified as congenital, idiopathic or secondary. Hallmark of laboratory diagnosis[2] is the demonstration of severely reduced level of ADAMTS13, a metalloprotease enzyme acting on cleavage of large von Willebrand Factor (vWF) multimer. Decreased ADAMTS13 causes formation of abnormally large vWF multimer blocking the blood flow especially in small vessel causing platelet aggregation, thrombus and consumption and with turbulence flow of blood exerting shearing force to red blood cells causing their fragmentation showing as many schistocytes on peripheral blood smear. Blocking of blood supplying to many organs such as brain, or kidney causes many symptoms of neurological systems ranging from altered mental status to seizure and mild to severe acute kidney dysfunction. Treatment should be promptly activated composed mainly of efficient plasma exchange with normal fresh frozen plasma (FFP), infusion of FFP without exchange or immunosuppressive agents or combined. Low mortality rate depends on how rapid the specific treatment is started. Newer therapeutic armamentarium includes anti-CD20 monoclonal antibody (rituximab) and anti-vWF immunoglobulin fragment[3] (caplacizumab) infusion to reduce production of the autoantibody to ADAMTS13.

In Thailand, the data on TTP on prevalence, disease characteristics, therapeutic options and outcome are quite rare. Most data are case reports on small numbers of patients. The retrospective study in a single referral hospital by Wannaphut C, and Insiripong S demonstrated 22 patients with definite diagnosis of this condition based on severely reduced (< 10%) ADAMTS13 level. Their study showed more than 90% of cases are idiopathic and the other are autoimmune cause. Only around one-third of patients showed complete pentad for diagnosis. Treatment was started within average 6.6 days after symptom onset. Almost half of all patients (11) received plasma exchange, the other half (10) was plasma infusion and immunosuppressants (1). Mortality rate was still high with around 50% of all patients. The authors marked that neurological symptoms mimicking stroke resulting in significant delay in diagnosis of TTP resulting in subsequent late treatment may be a factor contributing to high mortality in this study.

Recognition of this disease and careful history taking together with thorough physical examination of the patients can possibly help clinicians early diagnose, investigate for ADAMTS13 level (optional), hasten the specific therapeutic procedures (sometimes without ADAMTS13 result) and finally reduce the morbidity and mortality of this severe disabling conditions.

Reference

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