**Event: 2019 Highlights of ASH in Asia-Pacific**

**Date: February 22-24, 2019**

**Venue: Bangkok, Thailand**

**Trainee: Wint Wint Thu Nyunt**

In this meeting, the topics to be presented were selected from the top abstracts presented in the 60th American Society of Haematology (ASH) annual meeting which was held in December 2018. This event was designed to obtain the convenient access for attendance by many hematologists or hematology trainees from Asia-Pacific region such as Malaysia, Myanmar, Thailand, Vietnam, Taiwan, Sri Lanka, Singapore, Philippines, Pakistan, Japan, Indonesia, India, Hong Kong, China, Bangladesh and Australia. It was a 2-day event, covering the topics of malignant hematology, non-malignant hematology, disorders of hemostasis and transfusion medicine. The topics presented during the 2019 Highlights of ASH in Asia-Pacific were (1) acute myeloid leukemia, (2) acute lymphoblastic leukemia, (3) myelodysplastic syndromes, (4) non-Hodgkin lymphoma, (5) Hodgkin lymphoma, (6) Myeloproliferative neoplasms including chronic myeloid leukemia, (7) Myeloma and plasma cell dyscrasia, (8) 2018 ASH annual meeting: best of ASH summary, (9) Hematopoietic stem cell transplantation, (10) Red cell disorders and bone marrow failure (aplastic anemia), (11) Transfusion medicine (phresis), (12) Thalassemia, Hemoglobinopathy, and Iron disorders, (13) Venous Thromboembolism/ anticoagulation and its reversal, and (14) Disorders of hemostasis. The presentation for each topic was arranged in sequence: (1) local data from one or two of the countries in the Asia-Pacific region, (2) highlights from the interesting, outstanding abstracts presented in the ASH annual meeting, followed by (3) panel discussion session. There were ‘lunch with the experts’ session during lunch time (day 1 and day 2) and special education session: challenging cases in Haematology (day 1), for which one needed to grab the ticket on ‘first come, first serve’ basis; in these sessions, the participants were gathering together with the distinguished speaker/ expert in the specific field; and the special opportunity was provided to the participants for discussion about the management of individual difficult or challenging cases for expert opinion or sharing the personal thoughts or experience with local setting in different parts of the world.

As a privilege of being a sponsored trainee by Malaysia Society of Haematology (MSH) to attend the event, I was eligible to attend the ‘trainee day’, a special event only by invitation, which provided many benefits to me, not only for gaining the knowledge how to conduct the research in a proper, ethical, professional manner but also for international networking.

I am very grateful to the MSH Education Fund Committee for giving me this unique educational opportunity and sponsorship to attend this enjoyable and fruitful meeting, which make me very beneficial for my training as well as for the patient care towards excellent efficacy and safety.

Overall, the program met my learning needs, clinical practice and research interest. It provided the knowledge about the advances and update in diagnosis and management of haematological disorders, in order for me to apply for good clinical practice and professional skills.

The followings are some of the highlights which strike in my memory.

**Trainee day Friday February 22, 2019**

It was explained very well how to conduct the research and how the research question is very important. The topic highlighted ‘Question is an answer’.

It was highlighted how to be a good researcher towards improving the health outcome for the society.

Network collaboration is very important tool for successful research in terms of grants or fund support, multi-centre patient population and international standardization or comparison.

Database or registry in local setting contributes the systematic way of data collection, and it plays a crucial role in both research and clinical practice for real-world data.

**Day 1 Saturday February 23, 2019**

Day 1 presentations included topics of malignant hematology.

**Acute myeloid leukemia:** The presentation described the appropriate use and management of small molecules recently approved in USA for newly diagnosed or relapsed acute myeloid leukemia (AML), highlighting: novel combination, differentiation syndrome with IDH-targeted therapy. Immunotherapies on the horizon for AML were discussed.

**Acute lymphoblastic leukemia:** The presentation highlighted the acute lymphoblastic leukemia (ALL) therapy to be tailored according to the disease biology (e.g. Philadelphia-positive ALL) and patient age (e.g. Adolescents and young adults (AYA), adult, elderly). There is ongoing development of novel biological agents with the potential to improve chemotherapy outcomes in ALL patients.

**Myelodysplastic syndromes:** The presentation included how to incorporate new therapies in the treatment of lower-risk myelodysplastic syndromes (MDS) and higher-risk MDS.

**Non-Hodgkin lymphoma:** FLYER study showed that for the most favorable early-stage diffuse large B cell lymphoma (DLBCL), treatment with R-CHOPx4 plus Rx2 was sufficient. R-CHOP remains the standard of care for treatment of DLBCL. Regarding CAR-T cell therapy in lymphoma, Axicabtagene ciloleucel is approved for DLBCL, high grade B-cell lymphoma, transformed follicular lymphoma and primary mediastinal B cell lymphoma after at least 2 lines of therapy (ZUMA-1 trial). Tisagenlecleucel is approved for DLBCL, high grade B-cell lymphoma and transformed follicular lymphoma after at least 2 lines of therapy (JULIET trial). AUGMENT study showed that R2 (Rituximab + Lenalidomide) was associated with higher overall response rate (ORR), longer progression-free survival (PFS) and overall survival benefit in relapsed/ refractory follicular lymphoma. BV-CHP is the new standard of care for front-line therapy of CD30-positive peripheral T cell lymphoma (PTCL) (ECHELON-2 study).

**Hodgkin lymphoma:** ABVDx2 and radiotherapy (20 Gy) remains the standard of care for treatment of early favorable Hodgkin lymphoma (HL) (HD16 study). Interim Positron-emission tomography (PET) is associated with significant impact on progression-free survival (PFS) (5-year PFS 80.1% vs 93.1% in PET-2 positive vs PET-2 negative in early favorable HL, HD16 study).

**Myeloproliferative neoplasms including chronic myeloid leukemia:** The presentation included a useful review about a prognostic scoring model (myelofibrosis transplant scoring system, MTSS) for patients with myelofibrosis undergoing allogeneic haemopoietic stem cell transplantation to predict the survival and non-relapse mortality. In SPIRIT2 study comparing dasatinib with imatinib in patients with newly diagnosed chronic myeloid leukemia (CML), dasatinib gave rise to more major molecular response (MMR) but no difference in overall survival.

**Myeloma and plasma cell dyscrasia:** Post-autologous stem cell transplantation maintenance with Lenalidomide remains the standard of care for most patients with newly diagnosed multiple myeloma (NDMM). Continuous Lenalidomide after Rd for elderly NDMM patients reduces toxicity but maintains activity. Daratumumab + Lenalidomide + dexamethasone (DRd) improved progression-free survival, induced deeper responses and higher rates of measurable residual disease (MRD) negativity, and should be considered for induction of non-transplant eligible NDMM patients (MAIA study). In patients with relapsed/ refractory multiple myeloma (RRMM), Venetoclax + Carfilzomib + Dexamethasone (VenKd) has promising efficacy (ORR 79%, more than CR 38%), and patients with t(11;14) had the highest ORR (100%). Anti-BCMA CAR-T cell therapy in RRMM showed exceptional responses and better safety profile.

**Day 2 Sunday February 24, 2019**

Day 2 presentations included haemopoietic stem cell transplantation, topics of non-malignant hematology, disorders of hemostasis and transfusion medicine.

**2018 ASH annual meeting: best of ASH summary:** The MEDALIST trial illustrated that Luspatercept is a promising new therapy for treatment of patients with low risk Myelodysplastic syndrome with ring sideroblasts (MDS-RS) with red cell transfusion-dependent anaemia. The BELIEVE trial showed that Luspatercept is a potential new therapeutic option for adult patients with β–Thalassemia who require regular red blood cell transfusion. Direct oral anticoagulants (DOAC) play a role in primary venous thromboembolism (VTE) prevention among the high-risk ambulatory cancer patients requiring systemic therapy (high Khorana scores ≥2), demonstrated by CASSINI trial with Rivaroxaban and AVERT trial with Apixaban.

**Haemopoietic stem cell transplantation:** Post-transplant FLT3 inhibition benefits some patients and improves relapse-free survival (Sormain and Radius trials). Interestingly, there were a few abstracts demonstrating that gut microbiota injury prior to and post haemopoietic stem cell transplantation were associated with more acute and chronic graft versus host disease (GVHD).

**Red cell disorders and bone marrow failure (aplastic anemia):** This year’s presentation focused on hemolytic anemia. Autoimmune hemolytic anemia (AIHA) can be induced by checkpoint inhibitors. Importance of timing and duration of steroid taper in management of AIHA was highlighted in order to reduce the risk of relapse. Novel therapies such as Fastamatinib (SYK inhibitor) and APL2 (C3 inhibitor) are under study for management of AIHA. An interesting discovery of modified Ham’s test which can distinguish atypical hemolytic uremic syndrome (aHUS) from thrombotic thrombocytopenic purpura (TTP) and which can distinguish HELLP (hemolysis, elevated liver enzymes, low platelet) syndrome from pre-eclampsia was well-presented. HELLP syndrome is complement-mediated and may be considered as the same spectrum of disease as aHUS. For treating paroxysmal nocturnal hemoglobinuria (PNH), Ravulizumab is non-inferior to eculizumab in efficacy. For management of cold agglutinin disease, complement inhibitors seem to be safe, effective, and are under development, including Sutimlimab and APL2.

**Transfusion medicine (phresis):** In patients having isolated prolonged thrombocytopenia or secondary failure of platelet recovery after allogeneic stem cell transplantation, thrombopoietin receptor agonist may reduce platelet transfusion. Transfusion is not associated with increased risk of arterial or venous thrombosis. Caplacizumab offers a new therapeutic approach in acquired thrombotic thrombocytopenic purpura (aTTP). Low-dose Rituximab decreases relapse rate in aTTP. Iatrogenic anemia (related to phlebotomy for laboratory testing) is a common complication of hospitalization, and use of small-volume collection tube is a feasible intervention to reduce the requirement of blood transfusion to compensate for phlebotomy-associated blood loss.

**Thalassemia, Hemoglobinopathy, and Iron disorders:** Dr. Vip Viprakasit elaborated ‘What’s new in Thalassemia research in 2018: new drugs versus gene therapy’ very well.

**Venous Thromboembolism/ anticoagulation and its reversal:** In perioperative anticoagulation management, a simple standardized strategy of DOAC interruption without laboratory testing is safe for patients with atrial fibrillation undergoing an elective procedure. One of the interesting discussions was about the diagnostic management of suspected acute pulmonary embolism (PE) in pregnancy (ARTEMIS study) by using the pregnancy-adapted YEARS algorithm. The speaker touched on the interesting highlights from ASH VTE guidelines. In acutely ill hospitalized medical patients, the panel recommends inpatient VTE prophylaxis with low molecular weight heparin (LMWH) only, rather than inpatient and extended duration outpatient VTE prophylaxis with DOACs (In view of risk of bleeding).

**Disorders of hemostasis:** The overview of the status of hemophilia care in Malaysia was presented in this session. BIVV001 may allow for once weekly dosing for prophylaxis in hemophilia A. Emicizumab is approved for subcutaneous once-weekly prophylaxis in persons with hemophilia A, with or without inhibitors, of all ages (HAVEN studies). Gene therapy is coming for management of hemophilia A.

I am very grateful to the MSH, my supervisors and consultants from Universiti Kebangsaan Malaysia Medical Centre for giving me this awesome educational opportunity towards patient excellence and safety.

Reported by,

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