



Where There's a Will, There's a Way: Establishing Haematopoietic Stem Cell Transplantation in Myanmar

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BACKGROUND

MYANMAR (BURMA) is an ASEAN country surrounded mainly by China, India & Thailand with population > 50 million



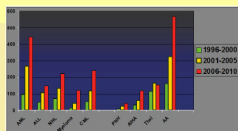
The first Department of Clinical Haematology of Myanmar was established in 1994 and since then specific treatment has been offered to varieties of haematological disorders except the option of haematopoietic stem cell transplantation (HSCT). Although there was improvement health care there were many patients suffering from incurable diseases due to lack of haematopoietic stem cell transplant program which is extremely costly and complicated for a developing country.

Limitations in Myanmar

Myanmar has very limited human resources with less than 20 haematologists, old and young, covering the population of over 50 million. Almost all hospitals are under Ministry of Health and HSCT is not a priority compared to burden of infectious disease and nutritional deficiencies. Red tapes and strict regulations under previous military government was also not favourable for new projects.

Disease Burden

Myanmar has high burden of haematological disorders in particular high number of haematologic malignancies with increasing number of new cases each year. Fig. (1)



Trends of Haematological Disorders at Y.G.H (1996-2010); increasing number of new cases of AA and haematologic malignancies in recent years

Role of Myanmar Society of Haematology

In 2003, Myanmar haematologists established Myanmar Society of Haematology (MSH) together with pathologists and clinicians who are interested in haematology and started academic activities. Oversea speakers were invited at the local conferences to educate Myanmar clinicians on HSCT and also made advocacy to authorities. In 2010, leukemia lymphoma special interest group was formed under which dedicated members interested to initiate a HSCT started capacity building initiatives. Haematologist and trainees were also funded to attend overseas meetings and studies.

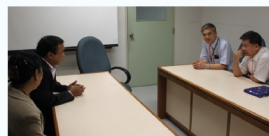
Role of Ministry of Health

Along with transition from military to democratic government, health budget was improved and ministry of health was able to support drugs and equipments like apheresis and flow-cytometry and also for training.

CAPACITY BUILDING

Helping Hands from Countries in Asia-Pacific Region

Transplant physicians from Singapore, Thailand, India, Australia, Hong-Kong and Japan, who are also members of the Asia-Pacific Blood and Marrow Transplant Group (APBMT) voluntarily visited Myanmar and provide advice, educational talks, update knowledge and shared their experience to help initiation of transplant program in Myanmar. Volunteers from Singapore Health Sciences Authorities came regularly since 2004 to help developing blood group serology and transfusion services in Myanmar.



Experts Visit

International Experts Visiting Myanmar in Support of Transplant Capacity Building

Period	Visit of Volunteers and Experts who are members of APBMT	Activities
2004 to 2014	Regular visit of a team of volunteer haematologists and blood bank technicians from Singapore International Foundation led by transplant physician to Yangon and Mandalay	Blood Group Serology workshops and support on blood safety and transfusion services in Myanmar Lectures on Stem Cell Transplantation, Case Discussions Situation analysis and advocacy to authorities Advice on individual cases for transplant
2009 to 2013	Frequent visit of haematologist/Transplant physicians from Siriraj Hospital, Thailand and Thai Society of Haematology	Meeting with MSH for collaboration and offering training of doctors, nurses, laboratory personnels CME Lectures, Case consultation Education symposium Site visit and advice for initiating program
2009, 2011	Visit of haematologist/Transplant physicians from Christian Medical College, Vellore and Tata Memorial Hospital, Mumbai, India	Education symposium, meeting with MSH for collaboration and advice on initiating transplant program. Site visit and advice for initiating program
2013	Visit of haematologist/Transplant physicians from Hong Kong	Education symposium, Site visit and advice
2013	A team of volunteer haematologist/transplant physicians and infectious disease specialist from St. Vincent's Hospital, Sydney, Australia	Educational talks on various topics related to HSCT including infection control and management of infectious complications Courtesy call to Minister of Health and advocacy on HSCT Technical advice, advice on specification of flow cytometer and apheresis machine Advice on individual cases for transplant

Oversea Training

From 2010, following centers support capacity building for transplant

Period	Transplant Centers	Training
2008 to 2013	Bone Marrow Transplant Unit, And Transfusion Medicine Department, Siriraj Hospital, Thailand	Transplant Physician (2) Transplant Nurses (3) Apheresis/Blood Bank Personnel (2) Laboratory Personnel for Enumeration of Stem Cells (2)
2013	Christian Medical College, Vellore, India	Transplant Physician (1) Transplant Nurse (1)
2014	University of Maryland Greenebaum Cancer Center, Baltimore, USA	Transplant Physician (1)
2015	St. Vincent's Hospital, Sydney, Australia	Cryopreservation



Leadership from World-wide Network of Blood and Marrow Transplantation and Asia-Pacific Blood and Marrow Transplant Group

By participating in annual meetings of APBMT (Asia-Pacific Blood and Marrow Transplantation Meetings) since 2010, not only knowledge, but also networks were widened and experience among the member countries could be shared.

The First International Workshop on HSCT in Emerging Countries organized by WBMT was held in 2011 in Vietnam which was like a landmark for HSCT related activities in the region.



Transplant Team and the First HSCT in Myanmar

In 2014, the very first case of autologous HSCT in Myanmar was successfully performed for a patient with multiple myeloma without cryo-preservation in a resource poor setting. The unique feature of the first transplant case in Myanmar is that the transplant team was made up with dedicated members of Myanmar Society of Haematology working in different departments specialized in different areas came to make the joint effort to initiate the first step.

Current Status of HSCT in Myanmar

From 2014 May to 2016 October, a total of 6 cases of autologous HSCT for multiple myeloma were performed and all except one achieved minimum of one year of relapse free survival until now.

Details of the Patients Who Underwent ASCT in Myanmar from 2014-2016

- Age: 53 to 62 years
- Sex: four male and two females
- Myeloma Stage: DS stage IIA in five, one IIA; ISS II- III
- All underwent Bortezomib-Thal- Dex induction
- Stringent CR to VGPR
- Time to transplant: 6 months to 5 years
- Mobilization: GCSF 10ug/kg BD s/c (one case 15 ug/kg) , one case - high dose etoposide
- Harvest: day 6- 7
- Storage in pharmaceutical refrigerator - 24 to 72 hours
- Conditioning: Melphalan 110 - 200 mg/m²
- Reinfuse after high dose Melphalan without cryopreservation
- Dose 1.45- 4.75 x 10⁶/kg
- Neutrophil engraftment: day 10-11; Platelet: day 14-18



Conclusion

Myanmar has gone through several years to overcome many barriers to start a HSCT program in the country and finally successfully established the initial steps with joint effort of dedicated members of Myanmar Society of Haematology with support and helping hands from APBMT members in capacity building of HSCT in Myanmar. We need to strengthen our transplant capacity to cover not only autologous but also for allogeneic transplantation and also to cover autologous transplant for other diseases by improving cryopreservation techniques, management of post-transplant complications, data management systems, etc.

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