

PPK 457/11/2014 (034069)

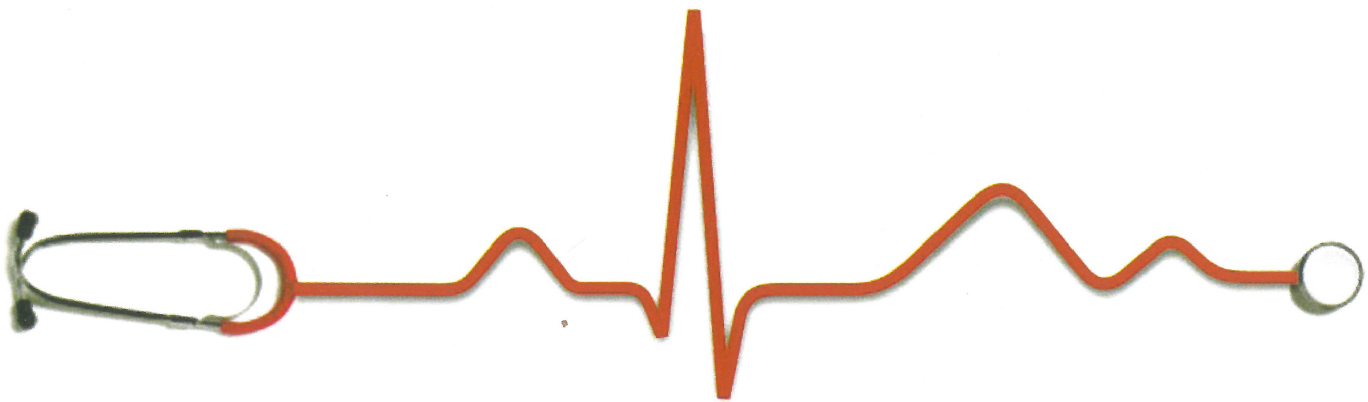


# Sarawak Health Journal

Published in conjunction with:

10<sup>th</sup> Sarawak State Health Research Day 2018

Theme: Data to Practice



ISSN 2289 - 8344



Volume 6, 2019

Complimentary Copy (Percuma)  
For healthcare professionals only

## Key Note Address

- Data to Practice 1  
*Dr Jamilah Binti Hashim*

## Clinical Study

- Indications and Diagnostic Utilisation of Bone Marrow Examination in a Private Hospital in Kuching, Sarawak 3  
*Tay Siow Phing, Jeremy Tan Sin Hun, Angeline Ang Hui Yee, Dymphna Leonora Leslie, Nurul Shamila Mohamad, Lau Lee Gong & Henry Rantai Gudum*
- A Study on the Efficiency of Sarawak General Hospital's Main Elective Operating Theatre 4  
*Tang Phoebe, Yeoh Sing Ning, Kamaleshwary Varatharaju, Peter Tan, Teo Shu Ching*
- Could Thrombocytopenia Predict Patients' Outcome in Intensive Care Unit? 5  
*Sum Ying Ying, Wan Daud Wan Kadir, James Lee Jia Haur, Nusaibah Wan Zulkipli, Chew Lee Ping*
- Foreign Body Ingestion in the Paediatric Population; Miri Hospital's Experience 6  
*Soh Chai Hoon, Hani Atiqah Binti Saim, Zulkifli Bin Mohamad Zainuddin*
- Prescribing Pattern of Oral Proton Pump Inhibitors in Sibu Region, a Multicentre Study 7-8  
*Kong Mei Chieng, Diana Ting, Jeffrey Hii Hien Huo, Shirley Wong, Ling Nien Fong*
- Hospital Survey on Patient Safety Culture (HSOPSC) in Sarawak General Hospital: a Cross Sectional Study 9  
*Alex Kim Ren Jye, Chin Zin Hing, Sharlyn Peter, Priscilla Bartholomew, Josephine Senok*
- Survey of Public Knowledge, Perception and Consequent Attitudes Towards Clinical Research among Participants of UNIMAS Clinical Trial Awareness Campaign 10  
*Yeo Leh Siang, Jawing Anak Chunggat, Crystal Tan Sing Yee, Bong Wuan Lii, King Teck Long*
- Periodontal Diseases during Pregnancy 11-12  
*Aisah Bt. Ahmad*
- Management of Hypertension among Hypertensive Diabetic Patients: a Survey Assessing Knowledge, Attitude and Practice of Patients 13  
*Davis Johnraj, Sivashunmugam A/L Sangaran, Ali Murtaza, Shafeena Afreen Binti S A Anwar Ali, Monica Mendong Anak Ngumbang, Rohaya Binti Ibrahim*

## Indications and Diagnostic Utilisation of Bone Marrow Examination in a Private Hospital in Kuching, Sarawak

Tay Siow Phing<sup>1</sup>, Jeremy Tan Sin Hun<sup>1</sup>, Angeline Ang Hui Yee<sup>1</sup>, Dymphna Leonora Leslie<sup>1</sup>, Nurul Shamila Mohamad<sup>1</sup>, Lau Lee Gong<sup>2</sup>, Henry Rantai Gudum<sup>1</sup>

<sup>1</sup> Faculty of Medicine & Health Sciences, Universiti Malaysia Sarawak, Kuching, Sarawak; <sup>2</sup> Borneo Medical Centre, Kuching, Sarawak

**Corresponding author:** Tay Siow Phing (sptay@uimas.my)

**Introduction:** The diagnosis and management of many haematological disorders depend on the examination of bone marrow specimens, which usually involves two separate samplings: cytological (bone marrow aspirate cytology, BMA) and histological (bone marrow trephine biopsy, BMT).

**Objectives:** This study aimed to determine (i) the indications and diagnostic value of bone marrow examination (BME); (ii) the correlation between provisional diagnosis (by clinical presentations) and final bone marrow diagnosis (by laboratory findings); and (iii) the concordance between findings of BMA and BMT.

**Methods:** This was a 5-year retrospective study that involved a total of 526 BME done at Normah Medical Specialist Centre, Kuching. About 86% of the BME had both BMA and BMT done, 14% had only BMA done. Another 5 cases of BMA were 'dry tap' with only BMT reports available.

**Results & Discussion:** The main indications for BME were lymphoma staging (21.7%), post-chemotherapy assessment (21.3%), diagnosis of haematological (56.1%) and non-haematological disorders (0.9%). The common diagnoses encountered were mainly haematological malignancies (82%). It was found that provisional diagnosis was significantly correlated with final bone marrow diagnosis ( $p < 0.001$ ). Significant concordances were demonstrated between BMA and BMT diagnosis for lymphoma staging [ $\chi^2 (1, N=88) = 44.88, p < 0.001$ ] and post-chemotherapy assessment [ $\chi^2 (1, N=68) = 41.06, p < 0.001$ ]. However, for lymphoma staging of marrow involvement, 40% of the cases could not be detected by either BMA or BMT alone (*Table 1*). Whereas for post-chemotherapy assessment of marrow remission, 8% and 35% of the cases were either missed by BMA or BMT alone, respectively (*Table 2*). This was due to inadequate samples or hypocellular marrow. These findings indicated that BMA or BMT alone was inadequate to make an accurate diagnosis for lymphoma staging. Meanwhile, BMA alone was adequate for post-chemotherapy assessment of marrow remission.

**Conclusions:** BME is a very important investigation tool for establishing the diagnosis of haematological malignancies and assessment of disease remission. Although a definitive diagnosis can occasionally be obtained through BMA or BMT alone, both procedures should be indicated as complementary to minimize sampling errors. However, in the assessment of disease remission, BMT can be safely omitted if a good BMA is obtained.

**Keywords:** Bone marrow examination, lymphoma staging, post-chemotherapy assessment.

*Tables are available on page 21.*

## Tables for Paper by Tay et al on page 3

Table 1. BMA and BMT diagnosis in lymphoma staging of marrow involvement.

|     |         | BMT |    |         | N   |
|-----|---------|-----|----|---------|-----|
|     |         | Yes | No | #Others |     |
| BMA | Yes     | 9   | 4* | 2*      | 15  |
|     | No      | 2** | 73 | 10      | 85  |
|     | #Others | 4** | 4  | 6       | 14  |
|     | N       | 15  | 81 | 18      | 114 |

# Inadequate sample or hypocellular marrow.

\* Cases not detected by BMT (40%).

\*\* Cases not detected by BMA (40%).

Table 2. BMA and BMT diagnosis in post-chemotherapy assessment of marrow remission.

|     |         | BMT |     |         | N   |
|-----|---------|-----|-----|---------|-----|
|     |         | Yes | No  | #Others |     |
| BMA | Yes     | 52  | 1** | 31      | 84  |
|     | No      | 4*  | 11  | 2*      | 17  |
|     | #Others | 10  | 0** | 1       | 11  |
|     | N       | 66  | 12  | 34      | 112 |

# inadequate sample or hypocellular marrow.

\* Cases not detected by BMT (35%).

\*\* Cases not detected by BMA (8%).



# Sarawak Health Journal

## Editors

Toh Teck Hock, MBBS, FRCPCH  
 Ngian Hie Ung, BSc, MBBS, MPH  
 Wong Toh Mee, MBBS, MRCP

## Associate Editors

Lawrence Anak Anchah, B.Pharm (Hons), M.Pharm, PhD

## Advisors

Dr Jamilah Binti Hashim, MBBS, M.Med (PH)  
 Prof Datu Dr Andrew Kiyu, MBBS, MPH, DrPH

## External Reviewers

Alan Fong Yean Yip, MBChB, MRCP

## Technical Editor

Tiong Lee Len, B.Pharm (Hons)  
 Tiong Xun Ting, MBBS  
 Diana Foo Hui Ping, MBBS

## Cover Design

Anthony Kiu Kiew Chiong

## Administrative Assistants

Eileen Yap Pin Pin  
 Sim Kian Tong  
 Terri Tan Pai Ling

This issue of Sarawak Health Journal is published in conjunction with the 10<sup>th</sup> Sarawak State Health Research Day, held in CRC Auditorium of Sarawak General Hospital, Kuching on 13 - 14<sup>th</sup> September 2018. This event was jointly organised by Sarawak State Health Department, Clinical Research Centres of Sarawak General Hospital, Miri Hospital and Sibu Hospital. All papers and names of authors are published as received after reviewers' comments and editorial modifications. All papers published were given permission by the authors. If previously published materials are included, the authors hold the responsibility to obtain permission from the copyright holder.

## Disclaimer

The opinions expressed in the Sarawak Health Journal are those of the authors and contributors and do not necessarily reflect those of the editors, editorial committee, external reviewers, and advisors or of the Ministry of Health Malaysia. The mention of any trade name, commercial products or organisations in this journal does not imply endorsement by the editors, editorial committee, external reviewers, and advisors or of Ministry of Health Malaysia.

## Acknowledgement

We would like to thank the Director General of Health Malaysia for his permission to publish the papers in this journal.

## Official Publication of the Clinical Research & Post-graduate Society of Sibu Hospital

### 2019 / 2020 Committee:

|                              |  |
|------------------------------|--|
| President:                   | Dr Ngian Hie Ung   |
| Vice President:              | Dr Toh Teck Hock   |
| Secretary:                   | Mdm Stella Chuo Sing Hong  |
| Assistant Secretary:         | Dr Wong Toh Mee  |
| Treasurer:                   | Dr Yung Chun Hieng   |
| Assistant Treasurer:         | Dr Wong Siong Teck   |
| Executive Committee Members: | Ms Kueh Siau Chin<br>Matron Patimah Binti Duat<br>Dr Wong Voon Fei<br>Dr Anita Alias<br>Ms Kamillah Dahian |
| Auditors:                    | Dr Wong See Chang<br>Dr Nolan Teo Yie  |

### Publisher:

Clinical Research & Post-graduate Society of Sibu Hospital  
 Batu 5 1/2, Jalan Oya Lama  
 96000 Sibu, Sarawak, Malaysia  
 Phone / Fax: 084-314569  
 Email: crps\_sh@yahoo.com

### Printer:

Borneo Printing Company Sdn. Bhd.  
 32, Jalan Tapah, 96000 Sibu, Sarawak, Malaysia

### ISSN No.: 2289-8344

Copyright Reserved • August 2019