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DEMOGRAPHICAL AND CLINICAL PROFILE OF PATIENTS WITH VARIOUS HEMATOLOGICAL DISORDERS

Dr. Rafi Ahmed Ghori [1], Dr. Tariq Zaffar Shaikh* [1], Dr. Mona Humaira [1], Dr. Syed Nadeem Shah [2], Dr. Hamid Nawaz Ali Memon [3], Dr. Umair Ahmed Ghori [4], Dr. Sidra Ghori [4], Dr. Muhammad Ayyaz [5] and Dr. Zulfiqar Ali Qutrio Baloch [5]

[1]Department of Medicine, Liaquat University of Medical and Health Sciences (LUMHS) Jamshoro
[2]Internal Medicine / Geriatric Presbyterian Healthcare Services Albuquerque NM 87019, USA
[3] Zulekha Hospital Dubai United Arab Emirates
[4] Liaquat University of Medical and Health Sciences (LUMHS) Jamshoro
[5] Brandon Regional Hospital Brandon, Florida, U.S.A

Abstract:

Objective: *To evaluate the demographical and clinical profile of patients with various hematological disorders.*

Patients and Methods: *This one year cross sectional study was conducted at tertiary care hospital for the evaluation of various haematological disorders. Complete clinical data were recorded including detail history, clinical examination and haematological study along with specific investigations and proforma filled. All the patients of ≥12 years of age, either gender presented with prolonged fever, repeated infections, unexplained weight loss, refractory anemia, recurrent bleeding episodes and on blood complete picture (CBC) had abnormalities of red blood cells /hemoglobin, white blood cells, platelet count for long duration along with abnormal peripheral smear shown the atypical / blast cells were recruited and enrolled in the study to had bone marrow aspiration & biopsy. The frequency and percentages was calculated while the numerical statistics were used to compute mean ±SD.*

Results: *During one year study period total thirty patients diagnosed with various haematological disorders were observed. The mean age ±SD for whole population was 42.92±7.97, of thirty individuals 18 (60%) were males and 12 (40%) were females. The common clinical presentation identified as Pallor (83.3%), fever with night sweats (66.6%), recurrent infections (63.3%), loss of appetite (76.6%) and weight loss (70%). Regarding hematological disorders, megaloblastic anemia (13.3%), aplastic anemia (26.6%), acute myeloid leukemia (13.3%), myelo-proliferative disorders (13.3%) and lympho-proliferative disorders (16.6%).*

Conclusion: *The common hematological disorders detected were megaloblastic anemia, aplastic anemia, acute myeloid leukemia, myelo-proliferative disorders and lympho-proliferative disorders while the bone marrow biopsy is a safe and simple diagnostic procedure.*

Keywords*: Hematological disorders, Bone marrow biopsy and Bone marrow aspiration.*

Corresponding author:

Dr. Tariq Zaffar Shaikh,
Department of Medicine,
Liaquat University of Medical and Health Sciences (LUMHS),
Jamshoro.
Email: *zulfikar229@hotmail.com*

QR code

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INTRODUCTION:

The technique of bone marrow aspiration has been universally accepted and widely used; however, bone marrow biopsy as a diagnostic tool increasingly used during recent years [1]. Bone marrow biopsy was invented in 1903, since then, needle biopsy& aspiration gained importance over open surgical procedures [2-4]. The invention of bone marrow biopsy needle by Jamshidi and Swaim has made the procedure easier and less painful with better processing modes and improved microscopic techniques. The evaluation has been made simpler thus broad the scope of biopsy [5]. Bone marrow biopsy is important for diagnosis of inadequate marrow aspirate, granulomatous lesions, bone marrow fibrosis, myelodysplastic syndromes, aplastic anaemia, myeloproliferative disorders and metastatic tumor and plasma cell dyscrasias [6-8]. It also serves as method for evaluating marrow cellularity following antineoplastic drugs administration and in evaluating the status of engraftment following transplantation of bone marrow and is an advantageous complimentary procedure [9]. Big amounts of marrow can be explored, architectural patterns analyzed, cellularity readily evaluated and other structures other than haemopoietic cells can be studied. [10]

The present study comprised 30 individuals had bone marrow biopsies with significant diagnosis admitted in the tertiary care hospital Hyderabad / Jamshoro to explore the diagnostic value of bone marrow aspiration along with bone marrow biopsy.

PATIENTS AND METHODS:

This one year cross sectional study was conducted at tertiary care hospital for the evaluation of various haematological disorders. Complete clinical data were recorded including detail history, clinical examination and haematological study along with specific investigations and proforma filled. All the patients of ≥12 years of age, either gender presented with prolonged fever, repeated infections, unexplained weight loss, refractory anemia, recurrent bleeding episodes and on blood complete picture (CBC) had abnormalities of red blood cells /hemoglobin, white blood cells, platelet count for long duration along with abnormal peripheral smear shown the atypical / blast cells were recruited and enrolled in the study to had bone marrow aspiration & biopsy after an informed consent by referring them to hematologist having ≥5 years clinical experience. The exclusion criteria of the study were patients with hemophilia, coagulopathy or are on anticoagulant therapy, pregnant ladies, obese individuals, hemodynamic un-stability and the non cooperative patients. All the data was saved on proforma to analyze in SPSS 16 while the frequency and percentages were calculated.

RESULTS:

During one year study period total thirty patients diagnosed with various haematological disorders were observed. The mean age ±SD for whole population was 42.92±7.97, of thirty individuals 18 (60%) were males and 12 (40%) were females. The demographical, clinical and etiological profiles of the patients are shown in Table 1-2.

TABLE 01: THE DEMOGRAPHICAL AND CLINICAL PROFILE OF THE PATIENTS

AGE (years)	**FREQUENCY (N=30)**	**PERCENTAGE (%)**
12-19	01	3.3
20-29	01	3.3
30-39	04	13.3
40-49	07	23.3
50-59	10	33.3
60+	07	23.3
GENDER		
Male	18	60
Female	12	40
RESIDENCE		
Urban	14	46.6
Rural	16	53.3
CLINICAL FEATURES		
Pallor	25	83.3
Fever with night sweats	20	66.6
Recurrent infections	19	63.3
Bone pain	13	43.3
Fatigue / tiredness	14	46.6
Weight loss	21	70
Bleeding / bruising	08	26.6
Swollen lymph nodes	07	23.3
Loss of appetite	23	76.6
DURATION OF SYMPTOMS (wks)		
≤ 6	12	40
> 6	18	60

TABLE 02: THE FREQUENCIES & PATTERN OF HEMATOLOGICAL DISORDER

Hematological disorder	**Frequency (N=30)**	**Percentage (%)**
Megaloblastic anaemia	04	13.3
Aplastic anaemia	08	26.6
Acute myeloid leukemia	04	13.3
Acute lymphoblastic leukemia	01	3.3
Myeloproliferative disorders	04	13.3
Lymphoproliferative disorders	05	16.6
Multiple myeloma	01	3.3
Myelodysplastic Syndrome	01	3.3
Immune thrombocytopenic purpura	02	6.6

DISCUSSION:

In current study, thirty subjects explored for haematological diseases by bone marrow aspiration & biopsy and detected various disorders as acute leukemias and anemias, myelofibrosis, immune thrombocytopenic purpura (ITP), multiple myeloma. In the study by Navone R, et al [11], 5.2% patients had dry tap on aspirations, 14% were acute leukaemias, 10% Myelodysplastic syndrome (MPD), 9% malignant lymphomas and Hodgkin's disease, 5% multiple myelomas and 15% with metastasis. Sabharwal BD, et al [12] observed that core needle biopsy of bone marrow is an important diagnostic tool for the measurement of bone marrow cellularity, fibrosis and metastatic tumors. It should not be considered as substitute for aspiration smear but as a best tool which affords several advantages. Ideally bone marrow core biopsy must be preceded with the support of knowledge for clinical history, clinical examination, complete blood counts and peripheral blood smear along with bone marrow aspirate smears [13]. Lundin P [14] reveals bone marrow aspiration and biopsy are usually preferred for iron stores because of safety and familiarity of technique to hematologists than for liver biopsy. Ioannides K, et al [15] revealed aspiration for cell morphology while the biopsy is for bone marrow architectural distribution and its pattern. The analysis by Daniel NM, et al [16] reported 72% patients with hypocellular marrow, 20% had normocellular marrow later became hypocellular and 8% patients had acellular marrow.

Lilleyman JS [17] observed that the history and the clinical picture is entirely typical of ITP along with the complete blood picture shown low platelet count and needs to be evaluate the root cause through bone marrow biopsy. Wolf-Peeters CDE [18] found that the marrow cellularity, acute leukaemias, degree of fibrosis, quality of residual haematopoiesis & extent of marrow replacement are easier to assess in sections as compared to smears.

Rao S et al [19] observed patients, ranging from 30-70 years of age; 86% patients were in chronic phase and 14% patients in blastic / accelerated phase of CML. In a study by Sitalakshmi S, et al [20] 29 out of 176 subjects of myelofibrosis revealed dry tap on aspiration. Tricot G et al [21] observed ALIP to be present in 75% patients and absent in 25%. Of 18 ALIP negative biopsies, ten patients had refractory anaemia, five patients had acquired idiopathic sideroblastic anaemia and three had chronic myelomonocytic leukaemia. Sailer M, et al [22] and Bartl R, et al [23] observed that all these histological findings give valuable prognostic information in multiple myeloma along with β2 microglobulin, hypoalbuminaemia, hypocalcemia and IL-6 levels.

CONCLUSION:

The common hematological disorders detected were megaloblastic anemia, aplastic anemia, acute myeloid leukemia, myelo-proliferative disorders and lympho-proliferative disorders while the bone marrow biopsy is a safe and simple diagnostic procedure in hematological disorders with less discomfort and is cost-effective and does not need sophisticated equipments with preservation of cellular architecture compared to bone marrow aspiration.

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