Abstract

Genetic and cytogenetic abnormalities underlying hematologic malignancies (HM's) are important for the diagnosis, risk stratification, treatment determination, prognosis, and demystifying the pathophysiology of HM's. Because of these important roles, HM had become a raising issue in Palestine and the whole world. But there is still no enough knowledge about these abnormalities in Palestine. The literature part reviewed briefly the current knowledge about ALL, AML, CLL, CML, Lymphoma, MM, and MDS and showed the lack of satisfying knowledge about these HM's cases in Palestine. In this thesis, we started to collect cases with HMs in Palestine (West Bank and Jerusalem) and studied the involved cytogenetic abnormalities in order to create a start point for future research in this field and start a serious reporting process and research on these cases in Palestine. We introduced Karyotyping analysis for these cases and detected some of the chromosomal abnormalities, we also introduced FISH test for some AML and CML cases to detect smaller abnormalities. We expect this study to have positive impacts on the HMs status in Palestine, and to show the first insights about them.

The results of this study showed a general similarity in the status of HMs in Palestine with other countries in the world.

For ALL, we had 74 cases, and we could detect abnormalities in (31.1%) of the cases. Most of the cases (70.3%) were of B-Cell origin. We found 2 cases with a hypodiploid complex karyotype, and 7 cases with pseudodiploid karyotype, three of them represented structural translocations including t(1:19)(q23;p13) and t(4:12). Some cases in ploidy group (47-50), and hyperdiploidy groups (>=51) representing 25-30% of all ALL cases. For AML, we had 35 cases. (28.6%) of the cases were found with various abnormal karyotypes. We found cases with favorable cytogenetic prognosis including cases with t(8;21)(q22;q22), t(15;17)(q22;q12), and inv(16)(p13q22). We did not have the FAB classification for most of the cases since we had limited immunophenotyping at the referring hospital. For CML, we had 34 cases. 41.2% of them were found with abnormal karyotypes; Ph positive results. For CLL, we had four cases. Two of them had abnormal complex karyotypes including del(11) and del(22).

For Myelodysplasia, we had 3 cases. Only one showed an abnormal complex karyotype with poor prognosis. For Multiple Myeloma, we had 33 cases. Only one case showed an abnormal complex karyotype associated with poor prognosis. For Lymphoma, we had 12 cases and no karyotypic abnormalities were found.

We conclude that studies on HM's in Palestine need efforts of physicians, geneticists, epidemiologists, and other health workers and are critical to properly manage patients and provide them with the best health care possible.