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**Detection of recurrent chromosomal abnormalities in multiple myeloma: A comparison between karyotyping and interphase fluorescence in situ hybridisation (iFISH) methods**

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**ABSTRACT**

Multiple myeloma (MM) is a type of plasma cells neoplasm that develops in the bone marrow. It is genetically heterogeneous with diverse clinical manifestations and outcomes. Identification of chromosomal abnormalities in MM is important as a prognostic indicator, for risk stratification and therapeutic strategies and to monitor response to therapy. The objectives of this study were to identify chromosomal abnormalities using karyotyping and interphase fluorescence *in situ* hybridisation (iFISH) analysis in MM, and to determine the most reliable cytogenetic analysis for detection of the abnormalities. Results of karyotype and iFISH of MM cases from January 2011-July 2017 were reviewed and included in this study. The probes used for iFISH were IGH, D13S319/13q34 and TP53 which can detect rearrangement/deletion/amplification in chromosomes 14q32, 13q14.3 and 13q34, and deletion 17p13.3 respectively. A total of 29 cases were studied. Abnormal results (either by karyotyping and/or iFISH) were observed in 21(~72%) cases and the remaining 8(28%) cases showed normal karyotype with no evidence of abnormalities in the specific regions by iFISH. Among the 21 cases with abnormalities, 18(~86%) were identified by iFISH, 2(~9.5%) were detected by karyotyping and 1 was identified by both methods. Of the 18 abnormal cases identified by iFISH, 16 showed normal karyotype and 2 were unanalysable due to low mitotic index and poor chromosome morphology. iFISH is a highly effective method for detection of the specific chromosomal abnormalities at the specific region of the chromosomes; however, it should not be applied independently as it is unable to detect other type of chromosomal abnormalities in MM such as hyperdiploid, hypodiploid or other numerical and structural abnormalities which regions are not covered by the probes.