Abstract

Multiple myeloma (MM) presents as a significant public health challenge in Indonesia due to their high incidence and mortality rates. Due to its heterogeneous genetic landscape which plays a crucial role in determining patient prognosis, personalised treatment strategies need to be employed. This highlights the importance of the identification of genetic aberrancies in multiple myeloma patients. The identification of genetic aberrancies can be achieved through fluorescence in-situ hybridization (FISH). Despite this, the usage of FISH in MM has not been established in Indonesia, and therefore, this research aims to provide specific recommendations for FISH panels tailored to the Indonesian multiple myeloma patient population. By conducting a comprehensive literature review of international guidelines and prevalent cytogenetic abnormalities observed across Asia, five crucial cytogenetic panels which includes del(17p), t(4;14), t(14;16), del(13q), and t(11;14) has been deemed to be suitable for Indonesian-specific MM patients. To enhance the accuracy of genetic aberration detection, the enrichment of plasma cells using CD138-coated immunomagnetic beads is highly recommended. Furthermore, the use of CytoCell probes by Oxford Gene Technology is proposed as they provide MM-specific FISH probes. However, there is a pressing need to further investigate the prevalence of common cytogenetic abnormalities in the Indonesian multiple myeloma population to refine and validate these proposed FISH panels to the unique genetic profiles found in Indonesian patients.

Keywords: *Multiple Myeloma, Cytogenetic Analysis, Fluorescence In-Situ Hybridization, Indonesian-Specific FISH Panel*