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Laboratory diagnostics in hematology—a new "Educational" series

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Correct diagnosis in hemato-oncology can be a challenge even for the specialist: in the new WHO classification, nearly 200 entities are defined based on different biological and clinical characteristics [1]. With the advent of massive parallel sequencing, the knowledge about the genetic landscape of diverse diseases expanded dramatically over a few years; an example is acute myeloid leukemia, where dozens of subgroups according to specific genetic changes can be differentiated [2]. This resulted in new prognostic models and therapeutic opportunities; however, the overwhelming amount of diagnostic (often genetic) information may leave even the specialist clueless. Therefore, it is clear that the diagnostic process in hemato-oncology needs to be multidisciplinary and interactive to achieve a correct result for optimal patient care.

Beginning with this issue of *memo*, experts in diagnostics will present five articles dealing with the role of cytology and histology, flow cytometry, cytogenetics, polymerase chain reaction (PCR)-based methods and sequencing strategies in the diagnostic workflow. Using a new "Educational" format, this series is addressed especially to young colleagues and should help to assess the importance of every result they receive from different laboratories. It is not intended to review actual classification systems, but to focus on fundamental questions regarding the indicated diagnostic field: Which methods are used currently in hemato-oncology and how do they work practically? What are their strengths and weaknesses? How should results be interpreted? Last, but not least: How do results from different procedures fit together and may be integrated to a "final diagnosis"?

I hope that you will find this Educational series instructive and enjoyable, leading to a better understanding of the complex diagnostic processes. This is fundamental to deal with the big clinical challenges of the future, like clonal selection and resistance.

Conflict of interest G. Webersinke declares that he has no competing interests.

References

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