Comparative proteomic profiling in recurrent pediatric/adolescent Hodgkin Lymphoma

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Introduction

In pediatric/adolescent Hodgkin lymphoma (HL) the discovery of protein(s) specifically associated with the presence/absence of relapse may contribute to optimize therapeutic approaches.

Methods

Liquid chromatography-mass spectrometry (LC-MS) label-free quantitative proteomics on plasma collected at diagnosis from pediatric/adolescent HL patients was adopted firstly to validate a set of biomarkers predicting disease relapse, and secondly to identify additional candidate protein panels for disease relapse. Protein profiles of 3 not relapsing (NR) HL patients were compared with those of 3 relapsing (R) ones treated with LH-2004 protocol in one 'explorative' and two 'validation' cohorts.

Results

The LC-MS approach validated some differential proteins we previously identified by Differential In Gel Electrophoresis (SERPINC1, SERPINA1, FGB and FGG) [1]. In each protein group belonging to either NR or R patients, bioinformatics functional enrichments showed several biological processes, which were manually grouped into 9 'biological classes'. The differential proteins were involved in several biological processes related to either the absence (e.g., regulation of protein metabolism, response and haemostasis) or the presence of relapse (e.g., immune system and cell and extra-cellular matrix architecture). Moreover, additional proteins were found as up-regulated in either NR or R plasma of HL patients, and data were validated with Western Blotting.

Conclusion

Overall, our data depict a part of the different molecular scenarios occurring at diagnosis in plasma of HL pediatric/adolescent patients that could affect their different responses to therapy, and provide new

evidence about these protein panels as promising biomarkers of relapse in HL pediatric/adolescent disease. Further studies are underway in the EURONET-PHL trial of pediatric/adolescent patients.

Affix

References

[1] Repetto O, Mussolin L, Elia C, Martina L, Bianchi M, Buffardi S, Sala A, Burnelli R, Mascarin M, De Re V. 2018. Proteomic identification of plasma biomarkers in children and adolescents with recurrent Hodgkin Lymphoma. *Journal of Cancer,* 9:4650-4658.