P019 Characterization of significant prostate cancer invisible and visible in imaging tests

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Introduction & Objectives: The diagnosis of prostate cancer (PCa) is challenging, as there are still non enough accurate biomarkers. Multiparametric magnetic resonance imaging (mpMRI) helps us to stratify patients, but its negative value predictive is not 100%. A percentage of patients with significant prostate tumors will not be detected by mpMRI. The proteomic analysis of liquid biopsy (urine) can be a useful and essential tool for discovering putative biomarkers to detect these tumors invisible in imaging tests. The objective was to obtain a proteomic profile in liquid biopsy (urine) with the ability to identify the patients with significant PCa invisible in mpMRI.

Materials & Methods: We performed a retrospective cohort study in which we analyzed urine samples from patients with PCa, and Benign Prostatic Hyperplasia (BPH) treated at the University Reina Sofia Hospital between 2018-2020. The patients were divided in 4 groups: a) BPH (n=6), b) non-significant PCa (n=6), c) significant PCa visible in mpMRI (n=6) and d) significant PCa invisible in mpMRI (n=6). Proteomic analysis of liquid biopsies [urine; DIA-MS (Data Independent Analysis-MS)] was carried out. Spectronaut and Metaboanalist software were used for the data analysis.

Results: The preliminary study identified 50, 212, and 114 differentially expressed proteins when comparing the urinary proteins of patients with significant invisible PCa with those proteins from the groups of patients with significant visible PCa, BPH, and non-PCaP significant, respectively. The Venn diagram identified two common proteins (FABPH and TRBM) significantly differentially expressed when comparing the group with significant invisible PCa to the other groups studied. These proteins have previously been studied as potential biomarkers and linked with the pathophysiology of tumor progression.

Conclusions: Proteomic analysis of liquid biopsy (urine) detected a profile of potential biomarkers with the ability to differentiate significant PCa invisible in mpMRI. These biomarkers should be further studied and validated in independent cohorts.