EVALUATION OF THE IMPACT OF DIABETES MELLITUS ON
THE BIOLOGY OF PROSTATE CANCER

Hugo Antunes, Ricardo Teixo, João Carvalho, Miguel Eliseu, Inês Marques, Ana Mamede, Rita Neves, Rui Oliveira, Edgar Tavares-da-Silva, Margarida Abrantes, Belmiro Parada, Maria Filomena Botelho, Arnaldo Figueiredo

INTRODUCTION AND OBJECTIVES

Prostate cancer (PCa) is a major health concern, being the second most common cancer in men and the sixth most common cause of cancer-related death worldwide. The only established risk factors associated with prostate cancer are age, race and family history. The relationship between the diabetes mellitus and the PCa is still not so well studied. Population studies have shown conflicting results. The aim of our study was to evaluate the impact of diabetes mellitus and glucose levels on the biology of PCa.

MATERIAL AND METHODS

We performed a cross sectional analysis of all patients undergoing radical prostatectomy between January 2009 and December 2016, that included 704 patients who were divided into two groups (diabetic and non-diabetic). We performed an analysis of clinical and histological data seeking to identify the differences on tumor aggressiveness in diabetic and non-diabetic PCa patients. Additionally, our study group performed studies on PCa cell lines (LNCap and PC3) cultured with different glucose levels – normal glucose medium (LG) and a high glucose medium (HG). Proliferation rate, androgen receptor and Her2neu expression and 18F-FDG uptake were determined.

CONCLUSION

Diabetes mellitus and its treatment theoretically can influence PCa by different mechanisms. Our cell lines work attended only to one aspect of the disease, the high glucose level. It was shown that glucose concentration could influence PCa cells behaviour. However, in our patients there was no differences in the oncological variables, despite diabetic patients had bigger prostates.