

Evaluation of the expression of the vitamin D receptor and the CYP27B1 protein in the course of bladder cancer *in vitro* and in patients after cystectomy and TURBT.

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INTRODUCTION

Tumors of the urinary system, especially urothelial carcinoma of the urinary bladder, despite the use of many new methods of treatment, are still characterized by high aggressiveness and mortality in patients.

This is influenced by molecular and metabolic changes in many pathways, e.g. the vit. D3 pathway.

1st AIM: Assess the correlation between vitamin D3 concentration, VDR expression and CYP27B1 protein on bladder cancer cell lines at different stages of histological malignancy treated with various concentrations of Vit D3 (0.1, 0.2, 0.3 nM)

2nd AIM: Assess the expression of VDR and CYP27B1 receptor in patients diagnosed with bladder cancer after TURBT and cystectomy.

HYPOTHESIS

1st: There is a correlation between the level of vit. D3 and the amount of the VDR and the enzyme converting the inactive form of vitamin D3 to the bioactive 25OH-D3 - CYP27B1.

2nd: There is a correlation between the amount of VDR and CYP27B1 and the stage of cancer in patients after TURBT and cystectomy.

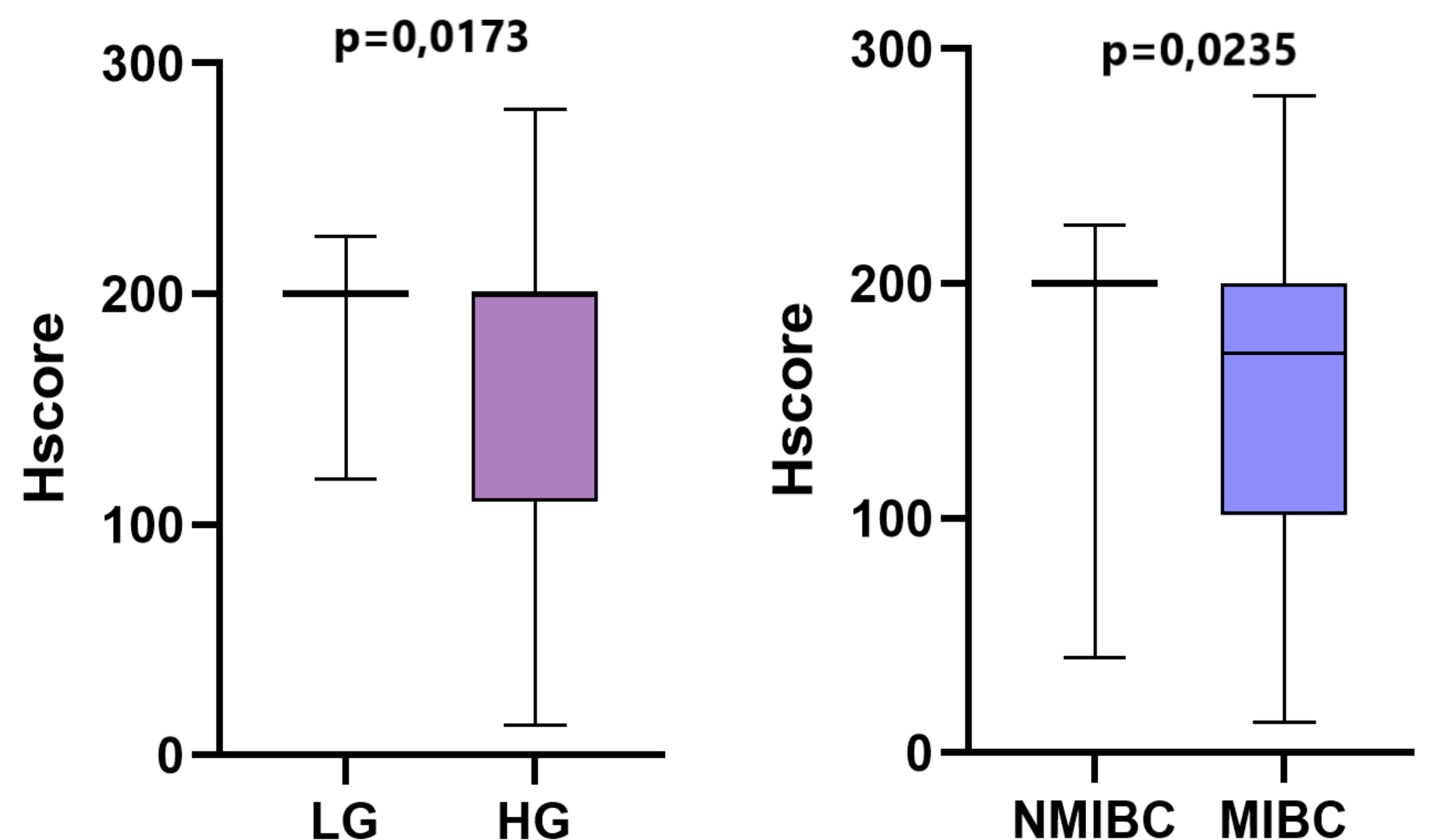
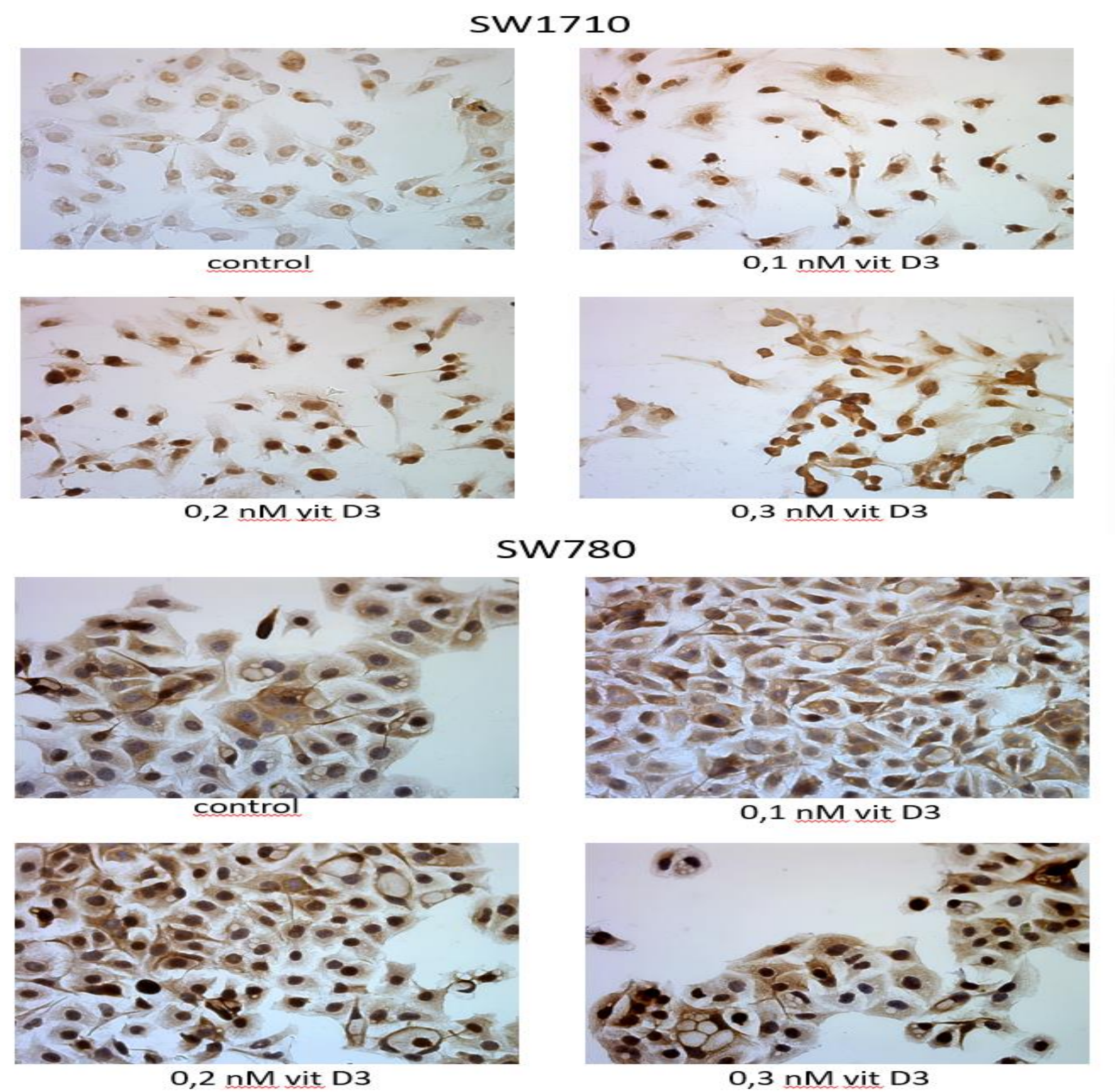
METHODOLOGY

- Vitamin D3 with 3 different doses (0.1, 0.2, 0.3 nM)
- Specific anti-VDR and anti-CYP27B1 antibodies
- T24, 5637, SW1710 and SW780 bladder cancer cell → **ICC**
- Postoperative material from 103 patients with confirmed bladder cancer at various stages according to the TNM scale → **IHC**

Exclusion criteria:

- no histopathologic confirmation of urothelial carcinoma
- carcinoma in situ
- history of CHTH or intravesically CHTH
- history of RTH
- history of BCG-therapy

RESULTS



CONCLUSIONS

→ The amount of VDR decreases with increasing malignancy of the tumour → can determine the severity of the disease and its malignancy.

→ In cell lines treated with various concentrations of Vit D3 (0.1, 0.2, 0.3 nM) VDR translocations to the cell nucleus were observed, which indicates activation of the receptor.

→ The level of the VDR receptor could be used in the future as a marker of malignant and invasive tumours in the urinary bladder.