

## **THE CHANGES IN OXIDATIVE STRESS DNA MARKERS : URINE 8-HYDROXYDEOXYGUANOSINE (8-OHDG) FOLLOWING TRANSURETHRAL PROSTATECTOMY (TUR-P)**

### Hypothesis / aims of study

It is reported that in the case of bladders with an outlet obstruction (BOO), that oxidative stresses due to ischemia/reperfusion affect the deterioration of the bladder function. However, the relationship between the degrees of oxidative stresses caused by ischemia/reperfusion and changes in the bladder function is yet to be revealed clinically.

Therefore, we investigated changes in urine 8-hydroxydeoxyguanosine (8-OHdG), namely an oxidative stress DNA marker, and the clinical progress pre and post transurethral prostatectomy (TUR-P).

### Study design, materials and methods

4 cases of the TUR-P and 1 case of TUR-Bt as a control, aged 60 to 83 years old, with no past history were enrolled in this study. The surgical operations were underwent under lumbar anesthesia. We did not detect any event suspected of increasing oxidative stress during the monitoring of these patients. We measured the level of 8-OHdG 4 times: 1) pre TUR, 2) the day after the TUR, 3) the next day when the urethral catheter was removed, and finally 4) 2 to 3 days after the removal of the urethral catheter. We collected 10 ml of urine at 10:00 AM, stored it at -80°C, and measured it using the EIA method. We measured IPSS/QOL as a subjective data, UFM and PVR as an objective data at pre TUR and 3months after the TUR. We measured only 8-OHdG in the case of the control.

### Results

In all cases, the urine 8-OHdG/s-Cr values were found to have dropped the day after the TUR compared with the levels pre TUR. Only in one case, when the urethral catheter was measured 2 to 3 days after removal, had this value increased relative to the pre TUR. This one patient was the case where the TUR-P was the most effective concerning objective data in this study ( Resected volume : 32g, Qmax pre/post : 8.2 / 46.2ml/s). However, the TUR-P was not effective concerning subjective data ( IPSS pre/post : 11 /12, QOL pre/post : 3 /3 ).

### Interpretation of results

Suppose that the urine 8-OHdG were simply an index showing the bladder damage caused by oxidative stresses, the study showed that there is a case when the BOO is rapidly released through the application of TUR-P, whereupon blood flow in the pelvis, including the bladder and prostate, may rapidly change, and oxidative stresses on the bladder may increase compared with the pre-TUR-P levels.

### Concluding message

It has not been reported that the relationship between the time course of oxidative stresses and clinical course pre and post TUR-P in BPH. This study is preliminary. However, the biomarkers of oxidative stress may represent one element for predicting the correct timing of TUR-P and a change of bladder function post TUR-P.