

ASSOCIATION BETWEEN METABOLIC SYNDROME AND MORPHOLOGICAL FEATURES OF BENIGN PROSTATIC ENLARGEMENT IN PATIENTS WITH LOWER URINARY TRACT SYMPTOMS (MIPS STUDY).

Hypothesis / aims of study

Lower urinary tract symptoms (LUTS) secondary to benign prostatic enlargement (BPE) represent one of the most frequent diseases in aging men. However, the aetiology and pathogenesis of LUTS/BPE remain unclear. It has been established that metabolic syndrome (MetS) is one of the causing factors for the development of BPE in aging men and it is associated with total prostate volume (TPV) and transitional zone volume (TZV). The prostate enlargement is also manifested by the development of intra-vesical prostatic protrusion (IPP), as a morphological change by which the prostate protrudes into the bladder. According to our best knowledge, there is no published study on relationship between MetS and IPP. The aim of this study was to analyse the association between MetS and morphological features of BPE.

Study design, materials and methods

From January 2015 to January 2017 (#90/2015) we enrolled 282 consecutive patients in this multicentre cross-sectional study. The protocol has been approved by the local ethic committee. LUTS were measured by the International Prostate Symptom Score (IPSS). All patients had digital rectal examination, uroflowmetry, abdominal ultrasound and transrectal ultrasound of the prostate. The main diameters of the prostate, TPV, TZV and IPP were measured by transrectal ultrasound. MetS was defined according to international diabetes federation criteria.

Results

The median age was 64.0 yrs (IQR: 55.0-67.0), the median IPSS was 20.0 (IQR: 13.5-24.0), the median total prostate volume (TPV) was 48.0 (IQR: 39.5-71.5), the median transitional prostatic volume (TZV) was 18.0 (IQR: 13.5-25.5) and the median IPP was 10.0 (IQR: 5.0-17.5). The characteristics of medical therapy among all patients were as following: 32% on alpha-blockers therapy, 8.5% on 5-alpha reductase inhibitors, 12.5% on combination therapy, while 45.4% were treatment-naïve. The median duration of medical therapy was 24.0 months. The prevalence of MetS was 28.4%. At the adjusted linear regression analysis, adjusted for age and metabolic factors of MetS, we found significant association between waist circumference (WC) and IPP ($r=0.20$; $p=0.03$), WC and TPV ($r=0.25$; $p<0.01$) and between WC and TZV ($r=0.75$; $p=0.04$). At the multivariate logistic regression analysis adjusted for age and factors of MetS, IPP > 15 mm was slightly associated HDL (OR: 0.95; $p=0.04$); TZV ≥ 20 cc was associated with HDL (OR: 0.86; $p<0.01$) and WC (OR: 1.09; $p=0.01$). No significant association was found between TPV ≥ 40 cc and metabolic factors. At the age-adjusted logistic regression analysis, MetS was significantly associated with IPP ≥ 15 mm (OR= 10.17; $p<0.01$), TZV ≥ 20 cc (OR= 10.15; $p<0.01$) and TPV ≥ 40 cc (OR= 2.92; $p=0.03$). The accuracy of MetS in predicting patterns of BPE was 0.79 for TPV ($p<0.01$), 0.74 for IPP ($p=0.03$) and 0.78 for TZV ($p=0.01$). Finally, MetS was statistically associated with lack of satisfaction to medical therapy (OR: 3.72; $p<0.01$).

Interpretation of results

Metabolic syndrome showed different strength of association with morphological features of BPE, demonstrating strong relationship with IPP and TZV. It is plausible that metabolic aberration may influence, through the increase of growth factors (i.e. IGF), the great prostatic volume and increase in IPP.

Concluding message

These results offer new contributes to the better understanding of the link between metabolic aberrations and BPE, suggesting that control or intervention against MetS are needed in order to improve LUTS/BPE.

References

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Disclosures

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