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STATISTICAL AND BIOLOGICAL EVIDENCES OF LINK BETWEEN HELICOBACTER PYLORI EXPOSURE AND PROSTATE INFLAMMATORY DISEASES

Hypothesis / aims of study
Previous studies had implied that Helicobacter pylori (H.pylori) exposure may initiate systemic inflammation and result in prostate diseases. We designed this retrospective cohort study utilizing a population-based dataset to examine the association of Helicobacter pylori (H. pylori) infection with prostate diseases. A simple non-bacterial prostatitis rat model was later designed to evaluate effect of H.pylori exposure on arising of prostatitis

Study design, materials and methods
In the statistical part, we used data sourced from the Taiwan Longitudinal Health Insurance Database. The cases comprised 12,439 subjects with H. pylori infection and 12,439 randomly matched subjects without H. pylori infection as controls. We used a conditional logistic regression to calculate the odds ratio (OR) for BPD between subjects with and without H. pylori infection. In the biological part, tactile hypersensitivity in rats' low abdominal regions was indicator of prostatitis. Subcutaneous H.pylori protein extract injection in time sequential manner was used to induce chronic reaction. Systemic inflammation along with local prostate inflammation were evaluated by checking spleenic tumor necrosis factor alpha (TNF-a), interleukin-1 beta (IL-1b), and prostatic nuclear factor-kappa B (NF-kB) respectively. Prostate was stained for inflammatory markers to confirmed the location of these reactions

Results
Of the 24878 sampled subjects, 3688 (14.8%) had developed BPD after the index date; BPD was found in 2008 (16.1%) cases and 1680 (13.5%) controls ($p<0.001$). The conditional logistic regression analysis revealed that compared to controls, the OR for BPD among cases was 1.215 (95% CI = 1.130-1.306, $p<0.001$) after adjusting for diabetes, hypertension, hyperlipidemia, coronary artery disease, urinary tract infection, and urolithiasis. In rats with repeated H.pylori protein extract injection, increased tactile hypersensitivity in scrotal base was found after 15 days of injection. Increased systemic cytokines, including TNF-a and IL-1b were found in spleen extracts. Prostate inflammation was also confirmed by NF-kb and Caspase 1 staining, which was compatible with physiological changes in rats

Interpretation of results
There may be some link between H.pylori protein exposure and prostate inflammation. Our analysis may be only a part of the whole picture. Local chronic inflammation may be induced by distant pathogens related systemic response

Concluding message
Chronic inflammation in regional area may have systemic effect, which may also be pathogenic

References
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Disclosures
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