Highland Influence on Chronic-bacterial-prostatitis and Developing-reason of Prostate-cancer, KSA

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Abstract

This work was for "Highland (HL) Influence on Chronic-bacterial-prostatitis (CBP) and Developing-reason of Prostate-cancer (PCa), KSA"; the purpose was to determine CBP percentage at HL "Taif"; and influence of location factors on CBP percentage and indication of its developing-reason to causing PCa. It may negatively affected other body organs and may reach death of males' society, affected marital and community life. Used medical methods for cases taster (CsT) from patients were diagnosed as suffered from CBP. That were used direct and indirect identification by "CHROMagar Orientation Medium", and "VITEK 2 System (BioMerieux, France)". The pathogenic bacteria were found in more than a quarter of the CsT as (26 and 29%). That were Staphylococcus aureus (Staph. aureus), Escherichia coli (E. coli), Staphylococcus epidermidis (Staph. epidermidis) and Streptococcus species (Strept. Spp) in (36.2%, 9.5%, 5.7% and 4.3%) respectively. Pathogenic bacteria Staph. aureus represented more than third of CsT. E. coli represented tenth and it was dangerous for its transmission from UT and GT easily. Staph. epidermidis was present on the skin and represented normal flora can easily contaminated. Strept. Spp represented less than tenth, can transferred to prostate tissue and cause CBP leading to PCa. Concluded the CBP infection was present in HL and had developing-reason for PCa, the conditions must followed to reduce it to prevent condition of turning into PCa. Recommended best periodic follow-up to detect CBP infection presence to protect against infection and its PCa developing-reason. Cases CBP infection must treated and PCa cases should not neglected or tolerated.

Key words: highland, chronic-bacterial-prostatitis, developing-reason, prostate-cancer, cases taster, pathogenic bacteria, carcinogenesis, bacterial virulence as E. coli colibactin manipulated and changed host cell fates. Bacterial species had to interact, stimulate, repress immune responses, virulent or non-virulent bacteria created inflammatory microenvironment, CBP linked with carcinogenic processes in several layers [4]. One layer was infection-caused damage epithelial lining; this damage induced immune cell infiltration, and production pro-inflammatory cytokines and oxidative stress, infection combated cause nucleic acid damage, cell injury and death, bad cell fate [5]. An inflammatory microenvironment stimulated epithelial cell regeneration, creating proliferative inflammatory atrophy region; evolved into low and high-grade prostatic intraepithelial neoplasia, and prostate adenocarcinoma [6]. PCa associated with chronic inflammatory UT conditions as CBP [7], it associated with chronic UTI, as CBP understanding bacteria was vital in connecting dots in PCa pathogenesis [8]. E. coli, Staph. aureus and Staph. epidermidis isolated from acute and CBP [9], most common were Strept. Spp [10]. CBP created microenvironment contribute to prostate pathologies formation, UT and GT related to PCa. E. coli detected in prostatic tissue and contributed as initiator of prostate inflammation and PCa [11]. The UT bacteria connected to genitourinary malignancies, especially PCa, was second cancer in males clear link between GT and UT bacteria and PCa risk [12]. PCa and peri-tumoral regions had higher Strept. Spp., but normal areas had Strept. Spp [13], they were the most predominant bacteria [14]. All patients per PCa had high Strept. Spp [15], so Staph. Spp and Strept. Spp.
recorded from PCa and benign cases [16], as enriched *Strept. Spp* in PCa [17]. *E. coli* and *Staph. Spp* found in various PCa degrees [18-19], also PCa tissue, invaded prostatic tissues and induced CBP [20]. PCa prostatic fluids had *E. coli* higher compared to urine [21]; it had virulence properties allowed colonization resulted in inflammation and tissue damaged [22]. *E. coli* from UT infiltrated the prostate and contributed to different inflammatory stimulated could change microenvironment roughly [23]. Trendy in 2000, KSA indicated PCa prevalence was still low [24], through 2001, data from KSA indicated PCa occurred at a lower rate in Arab populations than in populations in western countries [25]. Nevertheless, in 2008, in Riyadh, KSA revealed the PCa incidence rate was high and the disease progressive was 2.5% [26], so in 2015, over the last 15 years PCa accounted 13.5% [27].

The purpose of this research was to determine the CBP percentage at HL “Taif”; and the influence of location factors on CBP percentage and an indication of its developing-reason to causing PCa. It may negatively affected other body organs and may reach death of males society, which affected marital and community life.

Methodology

**Samples preparation:** The research purpose was clarified, then it was approved by "Private Health Center"; at HL, Taif, which included the Center owner, "Specialized Physician" and patients, that with did not mention their data. "Specialized Physician" collected CS-T from patients were diagnosed as suffered from CBP. The steps were before sample collection, the urethral opening was cleaned with sterile saline, and bladder of all subjects was voided. The residual liquid in urethral opening was cleaned with sterile gauze. One sample of urethral secretions before prostate massage and one EPS sample after prostate massage were aseptically [28].

**Laboratory procedures:**

- **Direct identification: Wet-mount:** CS-T drops on slides were added a drop of saline solution, so were covered and were examined by microscope [29]. **Gram staining:** CS-T smears were prepared then were stained by Gram stain and were examined by microscope via oil emersion lens [30].

- **Indirect identification: Isolation and identification:** CS-T were isolated and identified of pathogenic bacteria using "CHROMagar Orientation Medium", was valuable method naturally complete at a slight value [31]. For justification of pathogenic bacteria identification was used "VITEK 2 System (BioMerieux, France)", that was available in "Private Laboratory" with payment [32].

**Results and discussion**

**Table 1 and graph 1. Percentage of pathogenic bacteria by direct identification**

| Items       | Bacterial | Non Bacterial |
|-------------|-----------|--------------|
| Wet-mount   | 26%       | 74%          |
| Gram Staining | 29%   | 71%          |

Table 1 and graph 1 exposed percentage of pathogenic bacteria by direct identification; it was considered one of the fast and cheap methods. That may had a little inaccuracy, but it was considered one of the preliminary results of CS-T. Effects of changing CS-T ratios according to the method, the first method was a slight difference due to the size of the pathogenic bacteria. The movement did not help identification and may appeared very transparent. The staining method was considered one of the good, fast and cheap methods because it took a little time and stained cells, the result was evident through the microscope, and it preferred that the examiner be experienced in the work. It was shown in the CS-T under study that the pathogenic bacteria were found in more than a quarter of the CS-T as (26 and 29%) [1-8]. As well indicated the extent of the presence of pathogenic bacteria and that it was very important causing CBP. This CBP infection could lead to aiding in the occurrence of PCa as initiation cancer factors and effect on physical body organs, may lead to its transmission to wives, and might males' death [24-27].

**Table 2 and graph 2. Percentage of pathogenic bacteria by indirect identification**

| Items       | *Staph. aureus* | *Staph. epidermidis* | *Strept. Spp* | *E. coli* |
|-------------|-----------------|---------------------|---------------|----------|
| Percent     | 36.2%           | 5.7%                | 4.3%          | 9.5%     |

*Staph. Spp: Staphylococcus species, *Staph. aureus: Staphylococcus aureus, *Staph. epidermidis: Staphylococcus epidermidis, *Strept. Spp: Streptococcus species, *E. coli: Escherichia coli*
Table 2 and graph 2 exposed percentage of pathogenic bacteria by indirect identification; it was found that all pathogenic bacteria from CsT in descending order from the top according to the percentage of each. That were (Staph. aureus, E. coli, Staph. epidermidis and Strept. Spp) in (36.2%, 9.5%, 5.7% and 4.3%) respectively. The arrangement indicates the importance of the pathogenic bacteria to cause CBP. It was found that the pathogenic bacteria were Staph. aureus and represented more than a third of CsT. The second were E. coli represented the tenth and it was dangerous for its transmission from the UT and GT easily. The third Staph. epidermidis was less than tenth, but it was present on the skin and represented the normal flora and can easily conveyed contamination which did not follow hygienic conditions. The latter Strept. Spp represented less than tenth, it is also presented in normal tissues, where it can transferred to prostate tissue and cause CBP leading to PCa [9-23]. One of the important points was the presence of pathogenic bacteria in cases of CBP infection, CBP causing one of the most dangerous in cases of PCa. Because of the pathogenic bacteria had ability to induce excitement of cells to transform from normal to carcinogen and lead to PCa, which may lead to side effects on the body parts and ultimately male death [1-8]. Arab and Saudi males were considered to PCa less affected than European males due to the presence of religious beliefs, correct marital relations, Muslim religious milieu and lack of illegal relations. The role widespread and advanced “KSA Medical Services” reduced the infection of the prostate by doing the following to follow the personal hygiene regimen and during the marital relationship, not to make illegal relationships, to follow the religious legal systems. Males must go to the “Health Center” for treatment when symptoms or not symptoms appear, also do periodic inspection to ensure that there are no CBP infections or any secondary factors, to preserve the males and the society bravery [24-27].

Conclusion
The CBP infection was present in HL and had developing-reason for PCa, therefore the conditions must followed to reduce CBP infection to prevent condition of turning into PCa.

Recommendation
Best periodic follow-up to detect CBP infection presence to protect against infection and its PCa developing-reason. Cases CBP infection must treated and PCa cases should not neglected or tolerated.

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Future Works
After this paper, that would like to continue with the cases under study to follow the curative supervision and PCa progression

Fundus
That were from author.

Conflict of interest
There was none.

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