

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

Abbreviation:

CsT: Cases taster,

CBP: Chronic Bacterial Prostatitis,

CP: Chronic Prostatitis,

E.coli: Escherichia Coli,

EPs: Expresses Prostatic Secretions,

GT: Gastric Tract,

HL: Highland,

PCa: Prostate Cancer,

Staph. Aureus: Staphylococcus aureus,

Staph. Epidermiditis: Staphylococcus epidermiditis,

Strept. Spp: Streptococcus Spp.,

UT: Urinary Tract,

UTI: Urinary Tract Infection.

Introduction

CBP is an important contributing factor for PCa and / or its progression [1-2], that with detected bacterial species in PCa patients [3]. Prostate bacterial colonization were asymptomatic, CBP suspected to influence

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 *Staph. 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 CsT 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 collected aseptically [28].

Laboratory procedures:

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

Statistical analysis understudy: The data were amassed, then was cast-off an Excel Statistics and was shaped tables and graphs were clean presentation the intensification work data [33].

Results and discussion

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

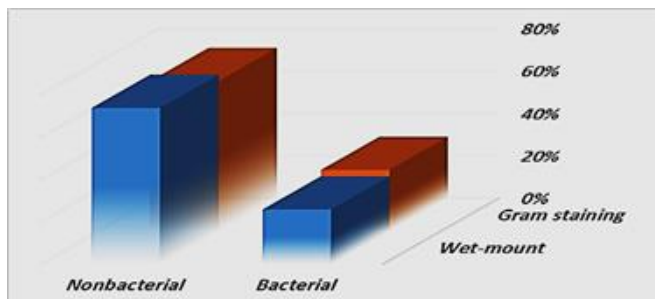


Table 1 and graph 1. Percentage of pathogenic bacteria by direct identification

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 CsT. Effects of changing CsT 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 CsT under study that the pathogenic bacteria were found in more than a quarter of the CsT 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].

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

*Staph. Spp: Staphylocococcus species, *Staph. aureus: Staphylocococcus aureus, *Staph. epidermidis: Staphylocococcus epidermidis, *Strept. Spp: Streptococcus species, *E. coli: Escherichia coli

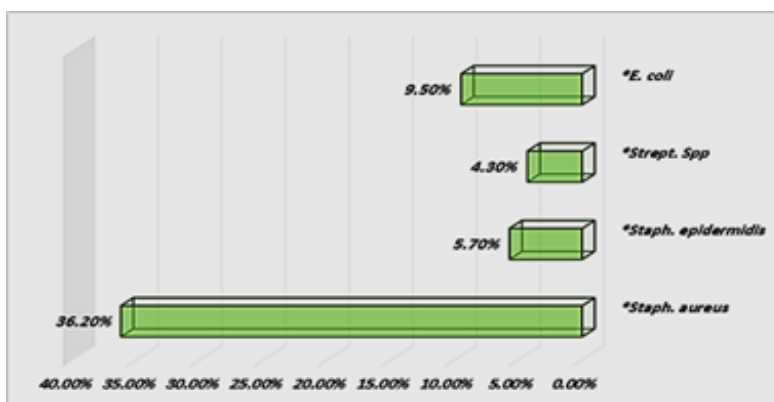


Table 2 and graph 2. Percentage of pathogenic bacteria by indirect identification

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 a 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 CBP incidence and thus PCa and deaths of society males. In the cases under study, it was found that the influences, which were at HL, were found reduced infection than the rest of KSA [24-27]. It was important to reduce the pathogenic bacteria infection and the accompanying PCa death to avoid the causes that help in the presence of pathogenic bacteria infection of the prostate by doing the following to follow the personal hygiene regimens 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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