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Complementary Medicine Down-regulates Side-effects of Hormone Therapy in Prostate Cancer Patients

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Abstract. *Aim: The present clinical investigation was performed to evaluate the benefits of complementary medicine in prostate cancer patients undergoing hormone therapy (HT). Patients and Methods: Patients (N=93) were treated according to international guidelines. All patients suffered from side-effects induced by the HT. To reduce the side-effects, the patients were complementarily treated with a combination of sodium selenite, proteolytic plant enzymes and Lens culinaris (Lc) lectin. On case report formulas (CRFs), self assessment of defined side-effects of HT (arthralgia, mucosal dryness, bone pain and hot flushes) were documented before (T-0) and on days 25 (T-1) and 50 (T-2) after complementary treatment. Validation was carried-out by scoring from 1 (no side-effects/optimal tolerability) to 6 (extreme side-effects/extremely bad tolerability), however, only patients suffering from severe side-effects (symptom scores >3) were enrolled in this investigation. Results: The severity of side-effects of HT was reduced by complementary treatment with sodium selenite, proteolytic plant enzymes and Lc-lectin. The mean scores of side-effects declined for arthralgia from 4.72 (T-0) to 3.66 (T-1) to 2.76 (T-2), for mucosal dryness from 4.45 (T-0) to 3.65 (T-1) to 2.90 (T-2), for bone pain from 4.74 (T-0) to 3.44 (T-1) to 2.82 (T-2), for hot flushes from 4.97 (T-0) to 3.70 (T-1) to 3.15 (T-2). The reduced severity of the side-effects was statistically significant ($p<0.001$) for T-1 and T-2, compared to T-0. Conclusion: This investigation demonstrates benefits of indication-based complementary treatment with the combination of sodium selenite, proteolytic plant enzymes and Lc-lectin in prostate cancer patients, e.g. reduction of side-effects of HT.*

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Prostate cancer is amongst the most common cause of cancer death in men worldwide (1). Evidence-based treatment of prostate cancer follows recommendations of international expert panels (2, 3). They are regularly updated and comprise of indication-based surgery, radiotherapy (RT), chemotherapy (CT) and HT (3-5). CT and RT are known to induce a broad range of side-effects, *e.g.* nausea, vomiting, arthralgia, mucosal dryness and inflammation (6, 7). The indication-based HT for prostate cancer patients with hormone receptor-positive cancer as well is often restricted by severe side-effects such as mucosal dryness, arthralgia and vascular events (3, 8, 9).

HT for prostate cancer results in a depletion of androgenic hormones which causes thinning of mucosal linings, mucosal dryness and inflammation (3). Recently a clinical investigation demonstrated enhanced tolerability of HT in breast cancer patients that were complementarily treated with a combination of sodium selenite, plant enzymes and Lc-lectin due to decreased side-effects such as mucosal dryness and arthralgia (9-11). Since reduced function of mucosal linings and correlating symptoms result from hormone depletion (8, 9), distinct side-effects were chosen as primary aims in this investigation.

Complementary medicine is popular all over the world. If these treatments are carefully chosen and managed, they may add to enhanced comfort and well-being (12, 13). Some complementary treatments have been tested, *e.g.* nutrition, sports, psycho-oncology (6-8). Certain complementary medications such as sodium selenite and proteolytic plant enzymes have shown clinical benefits in randomized controlled trials, *e.g.* reduced adverse reactions of CT and RT, enhanced quality of life (7, 13), while others, *e.g.* Lc-

lectin are traditional naturopathic remedies to stabilize the mucosal surfaces (15).

The present clinical investigation was performed to evaluate the safety and efficacy of complementary sodium selenite, proteolytic plant enzymes and Lc-lectin treatment to reduce defined side-effects (*e.g.* mucosal dryness, arthralgia, bone pain) of guideline-based HT in prostate cancer patients.

Patients and Methods

Patients. Men (N=93) with histologically-verified prostate cancer undergoing HT (according to actual guideline recommendations) were enrolled into this investigation. The patients investigated suffered from severe side-effects of HT, *e.g.* mucosal dryness, arthralgia, bone pain, hot flushes (symptom score >3), which were initially validated and documented.

Complementary treatment. The patients were complementarily treated with an oral medication (Equinovo; Kyberg Pharma GmbH, Oberhaching, Germany) containing sodium selenite (300 μg/day), proteolytic plant enzymes (800 mg/day) and Lc-lectin (20 mg/day), as described elsewhere (8, 9, 11). Complementary treatment to HT was continued for 50 days. Safety and efficacy of sodium selenite (17) and proteolytic plant enzymes were extensively investigated in randomized controlled trials (16-18). Their combination with Lc-lectin (15) was found to be an innovative and beneficial complementary approach to stabilize mucosal linings (8, 10, 11). Other complementary remedies, especially anti-oxidative vitamins and trace elements and immunoactivation, were not taken by the patients throughout this investigation.

Side-effects of HT. Case report formulas (CRFs) were used to document self assessed safety and efficacy of the complementary treatment. Patients were documented routinely before onset (T-0) and 25 (T-1) and 50 days (T-2) after terminating the complementary therapy. The efficacy of the complementary treatment was verified by questioning the severity of side-effects such as mucosal dryness, arthralgia, bone pain, hot flushes as primary aims of this investigation. Severity of symptoms was quantified by scoring from 1 (no side-effects) to 6 (extreme side-effects). An average score was calculated for symptoms of the adjuvant therapy to investigate the value of this complementary treatment.

Statistics. The student's *t*-test was performed to calculate statistical significance between mean values of scores for side-effects of HT after 25 and 50 days of complementary treatment.

Results

A total of 93 evaluable prostate cancer patients were enrolled in the present clinical investigation. All patients suffered from severe side-effects (symptom scores >3) induced by HT.

Tolerability of HT along with complementary administration of sodium selenite, proteolytic plant enzymes and Lc-lectin was investigated by self assessment. As shown in Figure 1, patients suffering from arthralgia, mucosal dryness, hot flushes and bone pain benefited from complementary medicine. The severity of arthralgia, mucosal dryness, hot flushes and bone pain were significantly reduced ($p<0.001$) after 25 and 50 days of complementary treatment. These results demonstrate that an efficient management of adverse reactions of HT in prostate cancer patients is possible by well defined complementary medicine.

Adverse reactions of the complementary medication (sodium selenite, proteolytic plant enzymes and Lc-lectin) were not found in this investigation, although a relevant panel of symptoms, *e.g.* nausea, emesis, bloating were routinely checked. These data confirm randomized controlled trials on the safety of sodium selenite and proteolytic plant enzymes (16-18).

Discussion

By definition, complementary medicine cannot replace the well-studied conventional cancer therapies, such as surgery, CT, RT or HT. Complementary approaches in oncology that are recommended as an addition to standard treatment claim to optimize these therapies. Data emerging from recent clinical trials show that defined complementary procedures may be beneficial for patients (6, 7, 9, 13).

Complementary medicine should primarily be regarded as an optimization of current standard treatment options in oncology. It is to be differentiated from alternative medicine, which postulates to provide replacements for conventional toxic approaches. Although complementary and alternative medicines are grouped together in the popular acronym CAM, they are in fact quite different in their aims. Since many alternative treatments are still poorly-documented (19), equating the two could lead to rejection of complementary medicine. That complementary recommendations concerning balanced nutrition, physical activity, psycho-oncologic support as well as defined medications, such as proteolytic plant enzymes, defined trace elements and vitamins can optimize standard treatment and have been shown in clinical studies (16-18).

This clinical investigation was performed to evaluate the safety and efficacy of an innovative complementary medication composed of sodium selenite, proteolytic plant enzymes and Lc-lectin. Whereas sodium selenite and proteolytic plant enzymes have proven their clinical safety and efficacy in controlled clinical trials (16-18), Lc-lectin was added to the medication because of its stabilizing effects on mucosal surfaces (15). The scientific rationale of this complementary treatment is: enhancement of the tolerability of HT by reduction of defined adverse reactions to optimize this guideline-based therapy. The present investigation shows that complementarily administered sodium selenite, proteolytic plant enzymes and Lc-lectin significantly reduced defined side-effects of HT in prostate cancer patients. The reduced adverse reactions of HT, *e.g.* arthralgia, mucosal dryness, bone pain and hot flushes lead to enhanced tolerability and compliance.

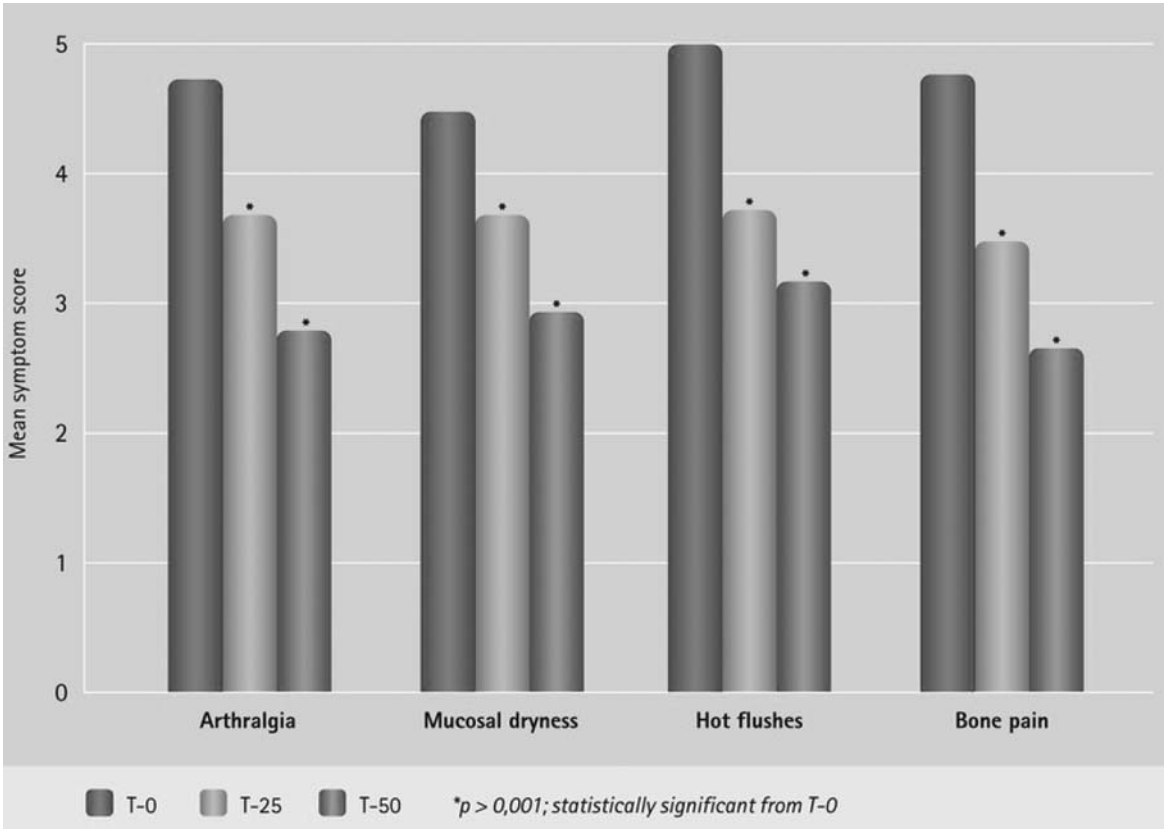

Figure 1. *Efficacy of a sodium selenite, proteolytic plant enzymes and Lc-lectin combination on intensity of side-effects (mucosal dryness, arthralgia, hot flushes, bone pain) induced by HT in prostate cancer patients (N=93). Severity of symptoms was quantified by scoring from 1 (no side-effects) to 6 (extreme side-effects). Patients with severe side-effects (score>3) were investigated before (T-0) as well as 25 (T-1) and 50 days (T-2) after onset of complementary treatment. An average score was calculated for symptoms to investigate the value of this complementary treatment. The Student's t-test was performed to calculate statistical significance.*

Since the tolerability of adjuvant HT determines its optimal administration, complementary treatment with sodium selenite, proteolytic plant enzymes and Lc-lectin may enhance the chance of curative treatment.

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