

Joint Event on

7th International Conference and Exhibition on

PHARMACOLOGY AND ETHNOPHARMACOLOGY

&

5th GLOBAL PHYSIOTHERAPY, PHYSICAL REHABILITATION AND SPORTS MEDICINE

March 27-28, 2019 | Amsterdam, Netherlands

ETHNOPHARMACOLOGY 2019 & PHYSIOTHERAPY CONGRESS 2019



POSTER

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Antonios Trochopoulos et al., Asian J Biomed Pharmaceut Sci 2019, Volume 9 | DOI: 10.4066/2249-622X-C1-018

NEW CURCUMIN FORMULATION FOR THE TREATMENT OF CUTANEOUS T-CELL LYMPHOMA

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Cutaneous T-cell lymphomas (CTCL) are a group of heterogeneous life-threatening extranodal T-cell lymphoproliferative neoplasms, of which Mycosis Fungoides (MF) and Sézary syndrome (Séz) are the most prominent subtypes. Taking into account the acquired resistance of malignancies in general, curcumin, a natural pigment with proven antineoplastic effect and insignificant toxicity, could serve as a therapeutic agent in combination regimes. Moreover, with inflammation playing a major role in the pathogenesis of CTCL, it is clear that compounds with antineoplastic/anti-inflammatory activity like curcumin, are favorable. In this study, we tested the antitumor efficacy of curcumin in ethanol solution, as well as incorporated into nanoparticles (mixed micelles based on Pluronic[®]123 and Pluronic[®] 127). Both forms of curcumin were tested on 3 CTCL cell lines, namely HuT-78, HH and MJ. MTT-dye reduction assay showed cytotoxic effects in all 3 CTCL cell lines for both curcumin formulations with the IC₅₀ values varying from 29.01 μM to 31.17 μM (ethanol solution) and 4.134 μM to 29.76 μM (nano-curcumin). The nano-formulation exerted faster cytotoxic effects (MTT-dye assay), which can be explained by its faster internalization into the cells as measured by fluorescent microscopy and HPLC analysis of the curcumin content in cell culture medium. Western blot analysis showed downregulation of important protein molecules regarding proliferation and survival such as: WT-1, ALK, p-JAK2, p-JAK3 for both formulations. In conclusion, in this study we compared two different curcumin formulations and, as the active ingredient is the same, we saw similar down-regulating effects on signal transduction proteins responsible for proliferation and apoptosis escape. It can be assumed that the inclusion of curcumin into polymeric nanoparticles will ameliorate its low bioavailability and support its faster internalization into the tumor cells.

BIOGRAPHY

Antonios Trochopoulos did master's in pharmacy at Medical University of Sofia, Bulgaria. In 2016 he did his PhD in department of pharmacology, toxicology, pharmacotherapy in Medical University of Sofia. In 2017-2018 he worked in German Cancer Research Center (DKFZ), Germany.

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Ervin Ivanov et al., Asian J Biomed Pharmaceut Sci 2019, Volume 9 | DOI: 10.4066/2249-622X-C1-018

COMPARISON OF THE ANTINEOPLASTIC ACTIVITY OF THE FREE *CANNABIS SATIVA L* EXTRACTS AND *CANNABIDIOL* (CBD)

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Background: The unfavorable side-effect profiles of most chemotherapeutics create incentive toward finding active substances with less toxicity. We compared the anti-neoplastic activity of different botanical substances (BDS) from *Cannabis Sativa L* (hemp) made using different manufacturing technologies by PBG Global in lymphoma, mammary gland adenocarcinoma and urinary bladder cancer. We also aimed to determine the benefits of different *Cannabis Sativa L* extracts compared to pure CBD reference in normalized doses.

Materials & methods: Cytotoxicity was measured by the MTT assay. Used preparations - BDS#1 THC-free 30% CBD *Cannabis Sativa L* extract (Hemp), BDS#2 THC-free 60% CBD hemp extract, BDS#3 99% CBD isolate, all produced by PBG Global and BDS#4 99% CBD isolate analytical standard as reference compound was sourced from Sigma-Aldrich. We used following cell lines: T-24 (urinary bladder transitional cell carcinoma), MDA-MB-231 (mammary gland adenocarcinoma), HuT-78 (Sézary syndrome CTCL), and MJ (mycosis fungoides CTCL).

Results: All concentrations were normalized to equal amount of active ingredient CBD. There was significant difference between tested extracts compared to pure CBD. THC-free 30% CBD *Cannabis Sativa L* extract demonstrate stronger antineoplastic efficacy against HuT-78 (IC₅₀ of 7, 78 µmol/L) and MDA-MB-231 (IC₅₀ of 5,32 µmol/L) cells as compared to BDS#2. In contrast, THC-free 60% CBD *Cannabis Sativa L* extract was more active in T-24 (IC₅₀ of 0, 12 µmol/L) and MJ (IC₅₀ of 2, 45 µmol/L) cells. Taken together our data indicate that all tested natural products have varying antitumor effects and the method of manufacturing influences the final composition and activity. All studied plant extracts and pure CBD appear to exert beneficial effects thus making them perspective Ingredients of the complex treatment of some human malignant diseases.

BIOGRAPHY

Ervin Ivanov from Bulgaria holds master degree in general medicine from Medical University of Sofia. He is a onco chest surgeon in Military Medical Hospital, Sofia and curenly he is working as a managing director in Pobeltsch Gle, Romania.

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RESISTANT EXERCISES IN THE TREATMENT OF SARCOPENIA

Sandra Shiguemi Fukunaga, Leonardo Kenji Nakamura and Daniel Kenji Nozawa

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Introduction: The aging of the human being is a biological process in which the body systems undergo numerous changes, and it is in this same context that the locomotor system undergoes the decline of its functionality and equilibrium (Pedrinelli et al., (2009)). Another factor related to aging sarcopenia is a process of loss of musculoskeletal structures of slow and generalized progression with multifactorial etiology due to the biological aging of the body, which may affect even the active individuals (Silva et al., 2006) and may occur in both sexes, but in the more advanced stages there is predominance in females (Silva et al., 2006).

Results: Endurance exercises associated with aerobic exercise are ways of intervening and treating the process of muscle mass loss in the elderly, and its long-term practice benefits the maintenance of the gains obtained (Pedrinelli et al., 2009). Fidelis et al., 2013 also testifies to the importance of practicing physical exercises in the elderly to improve strength, flexibility and mobility. Martinez et al., 2014 states that the strength exercises associated with aerobic are effective in the treatment of sarcopenia, but also that adequate nutrition is of great importance for the therapeutic effects.

Conclusion: With these considerations, we can suppose that the resistance to physical exercise associated with aerobic activity and better nutrition, improve the functional capacity in individuals suffering from the process of loss of muscle mass due to sarcopenia, but its prescription should be individually based in the physical capacity and need of each elderly person.

BIOGRAPHY

Sandra Shiguemi Fukunaga is a physiotherapist and post graduate in lato sense of exercise physiology and acupuncture. She is a professor of the Institute of Technology Education and Health (ITEC). She is also a technical coordinator in one of the largest physical rehabilitation centers in Sao Paulo, Brazil with the team of physiotherapy orthopedic, neurological, oncology and acupuncture.

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ACCEPTED ABSTRACT

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COMPREHENSIVE JOINT PROGRAM IN THE TRANSITION TO OUTPATIENT ARTHROPLASTY

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The current progression of total joint arthroplasty surgeries in the United States is moving towards an increasingly short length of stay with patients going home as soon as same day. However, what is the impact on overall patient outcomes? With the progression of surgical techniques and changes in medicare reimbursement, the burden on physiotherapists is how to rehabilitate and educate these patients without compromising long-term functional return. The institute for joint restoration and research has been highly successful in combining high patient volume, decreasing length of stay, high functional outcomes and patient satisfaction. The interventions introduced in acute care are the foundations of recovery, with a shift in the recovery process to home health and outpatient rehab. The sequence of recovery is critical to moving patients through the care continuum. We will discuss the key factors to these new parameters and the promotion of successful outcomes for our patients.

THE IMPORTANCE OF PROPIOCEPTIVE AND FUNCTIONAL WORK PRIOR TO SPORTS TRAINING

Daniel Dulanto Domenack

Ricardo Palma Clinic, Peru

The importance of speaking about the proprioceptive and functional work in sports is for the preventive contribution that this program offers you against the sport gesture of your own sports. The objective is to prevent an injury and thus to improve the physical condition of the sportsman. Be a conventional athlete or a disability athlete in the two high performance cases. In this talk we will see the work by phases from stable surfaces as unstable surfaces from the static position to the dynamic. This lecture aims to show the potential of Ursodeoxycholic Acid (UDCA) as a promising therapeutic option for NAFLD. This is a 10-years systematic review of randomized controlled trials on the effects of Ursodeoxycholic Acid on Non-Alcoholic Fatty Liver Disease (NAFLD). Ursodeoxycholic Acid may yet prove to be a therapeutic option for Non-Alcoholic Fatty Liver Disease.



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TRIGGER POINTS TREATMENT IN SOCCER PLAYERS: AN INTEGRATIVE REVIEW

Leonardo Kenji Nakamura

Sol Institute, Brazil

Introduction: Soccer is the well-known collective sport, worldwide it is the largest in terms of number of players and in the last few years the number of new players has been increasing (STOLEN et al., 2005), characterized by competitiveness, physical contact and maximum involvement of the musculature. The practice of soccer can cause muscle trauma, with maximal and eccentric concentric contraction or muscle imbalance between agonist and antagonist leading to injuries such as Triggers Points (TP). Defined by Sharkey (2017) as a small nodule found in muscles and fascia resulting from trauma. Costa and Torres-Lacomba (2016) analyzed the musculature of soccer players and verified the presence of TP. Haser et al., (2017) investigated the effects of dry needling on the treatment of TP and concluded that there was improvement in pain and also observed a significant resistance of the thigh muscle strength of the players, Williams et al., (2017) showed benefits such as improvement of the pain by suction cup.

Conclusions: The research shows that unconventional therapies are used in the treatment of Trigger Points. Further studies of the treatment techniques of TP with soccer players are necessary.

STRENGTH TRAINING FOR ENDURANCE SPORTS: AN OVERVIEW OF THE CURRENT RESEARCH

Mike James

The Endurance Physio, United Kingdom

The role and importance of strength and conditioning in endurance sports has become a much-debated topic in recent years. Despite the emerging evidence supporting its role in performance enhancement and injury reduction, consensus is lacking on its effectiveness across all endurance populations, and implementation is often met with resistance by those with traditional, long held beliefs that strength and endurance training are conflicting ends of a physical spectrum. The presentation provides an overview of current research pertaining to strength training for endurance sports.



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USE OF SPECIFIC IMMUNE CELLS AND THEIR SIGNALING SYSTEMS FOR R&D OF CANDIDATE ANTI-TUMOR METASTASIS PHYTOCHEMICALS

Ning-Sun Yang

Agricultural Biotechnology Research Centre, Taiwan

Recent studies showed that a spectrum of innate immune responses, various immune cell types and their cross-talks, and the associated inflammatory activities are involved in tumor metastasis. Tumor metastasis is now known to be strongly affected by the surroundings or even "remote" tumor microenvironments. These findings strongly suggest that, by modulating and regulating specific immune cell responses or mechanism-defined, molecular and cellular inflammation-suppressive activities, we could then design new approaches for therapeutics or treatment of cancer metastasis. Interestingly, it's increasingly known and appreciated that various Traditional Chinese Medicines (TCM), especially some commonly used medicinal herbs, have been claimed with functional specificity (e.g. anti-dermatitis, suppress severe inflammation, promote wound-healing) and routinely used historically for hundreds to thousands of years. These activities recently have also been re-established for their "strong anti-inflammatory" activities at the cellular and tissue levels and are being actively evaluated toward control of specific anti-inflammation at the organ/tissue levels. With the above observations and understandings, my laboratory has investigated a group of phytoextracts or the derived pure phytochemicals from specific TCM plants, and evaluated their bioactivities/effects, *in vitro* and *in vivo*, on dendritic cells, MDSCs, Th17, Tregs and other immune cell types in mouse models relevant to specific tumor metastasis systems. Experimentally, we employed functional genomics, proteomics, transgenic promoter analysis, cytokine/chemokine profiling, micro RNA arrays and signaling pathway analysis systems in various cross-examination studies. Results and findings published in eight key papers during the past several years will be discussed and projected for future research directions.



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**BIOLOGICAL EFFECTS OF EF24, A CURCUMIN DERIVATIVE, ALONE OR
COMBINED WITH MITOTANE IN ADRENOCORTICAL TUMOR CELL LINES**

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Background: Curcumin is a polyphenol extracted from the plant *Curcuma longa L.* It has numerous properties and is used in many preclinical conditions, including cancer. Curcumin has been tested in colorectal, lung, breast, liver and many others tumor cell lines. It is known that curcumin has low bioavailability, while its derivative EF24 showed enhanced solubility. However, its effects have been never explored in adrenocortical tumor cell models.

Aim: This work analyzed the efficacy of EF24, a curcumin derivative, in 2 adrenocortical tumor cell line models, SW13 and H295R.

Results: EF24 reduced cell viability by MTT with IC50 of $6.5 \pm 2.4 \mu\text{M}$ and $4.9 \pm 2.8 \mu\text{M}$ for SW13 and H295R cells, respectively. Combination index (EF24 associated with mitotane) suggested an additivity effect in both cell lines. Cell cycle analysis revealed an increase of subG0/G1 phase, while motility assay showed a decrease in migratory cell capacity after drug treatment and similarly clonogenic assay indicated that EF24 (alone or combined with mitotane) could reduce colonies number. Also, Wnt/ β -catenin, NF- κ B, MAPK and PI3k/Akt pathways were modulated by western blot analysis when treating cells with EF24 alone or combined with mitotane.

Conclusions: This work analyzed for the first time a derivative of curcumin, EF24, in adrenocortical tumor cell lines. These results suggest that EF24 could potentially impact on adrenocortical tumors, laying the foundation for further research.



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