Oncothermia combination with Traditional Chinese Medicine: Proposal on Chinese herbal medicine approach

St Istvan University

Hegyi[1] G. Han Bingsheng[2] Li Jian[3] H-B. Andocs[4] G. Szasz[5] O. Szasz[6] A.

(1) Department of Complementary Medicine, Medical School, University of Pecs, Pecs, Hungary; (2) North China Coal Medical University, Tangshan City, China; (3) Shenzhen TCM Hospital, Shenzhen, China; (4) Department of Pharmacology and Toxicology, Faculty of Veterinary Science, St Istvan University, Budapest, Hungary; (5) OncoTherm Kft Paty, Hungary; (6) Department of Biotechnics, Faculty of Engineering, St Istvan University, Budapest, Hungary Szasz Andras@gek szie hu

Objective

Hyperthermia is an ancient oncology method It is the very first treatment modality for this type of disease, having 5000 year history [1], based on the Sun as the overall curative force in ancient Egypt Later Hippocratic paradigm described it using physiological process (acidosis) to eliminate the malignant tissue This natural approach is in well correlation with the far away developed medical concept in the same ancient time the Traditional Chinese Medicine (TCM) [2] This medical philosophy was also based on natural harmony inside and outside the human organism In progress of historical time TCM had been more sophisticated and developed, but the hyperthermia could not keep abreast with the development of the medicine, and was hindered by other western medical methods (WMM) However in late 80th of last century a new paradigm of hyperthermia was developed, the oncothermia method (OTM) [3] OTM applies the ancient hyperthermia on different way, replacing the static thermal driving force to dynamical equilibrium concept, promoting the natural processes in curative direction [4] It is a matter of course to make synergy between the two approaches, uniting the best line of TCM and OTM Our present article underlines the main connections with the herbal medicine of TCM (Chinese Herbal Medicine CHM) and oncothermia

TCM history sketches

TCM Oncology traces it's roots as far back as the 16th 11th centuries BCE, as recorded on bones & tortoise shells Oncology was first recorded in text form in *Zhou Li* compiled between 221 & 207 BCE Tumors were first discussed in the earliest recorded book on Chinese Medicine *Huang Di Nei Jing* The Jin, Sui & Tang Dynasties, 220 907 CE The etiology , pathology & treatment of tumors was explored & studied The use of Herbs, Acupuncture & Moxibustion for the treatment of tumors was further recorded in Chinese Medical texts Diet Therapy began to be discussed around 581 CE The Song & Qing Dynasties, 960 1911 CE Theories of tumors developed very rapidly during this period especially between 960 & 1368 CE Herbal prescriptions were more widely used in the treatment of Cancer Pattern identification & treatment as well as prognosis became more well developed Integrative Medicine, 1949 Present The development of Western Cancer treatments Large scale clinical & laboratory research into integrated Chinese & Western medicine on the prevention, diagnosis & treatment of Cancer Integrative medicine treatments of Cancer are the wave of the future

Method

TCM Diagnosis (Basic Principles)
- ✓Holism, complex approach of the living system and its environment
- ✓Identification of patterns & conditions (seeking root causes of disease)

Supporting Vital Qi & Cultivating the Root in TCM
- Nourish Qi & Yin/Blood
- Ton fy Spleen & Kidney
- Ton fy Liver & Kidney

Expelling Pathogenic Factors in TCM
- Soothe Liver & regulate Qi
- Invigorate Blood & Transform Blood Stasis
- Transform Phlegm & dissipate clumps
- Clear Heat & resolve Toxicity

TCM Etiology
- External pathogenic factors
- Internal damage of 7 emotions
- Improper diet
- Deficiency & depletion of the organs
- Stagnation of Phlegm Fluid
- Stagnation of Qi & Blood

TCM Treatment (Basic Principle)
- Same disease, many patterns
- Many patterns, same disease
- According to person, time & place

TCM Pathology
- Yin Yang imbalance
- Disharmony of Qi & Blood
- Dysfunction of Zang Fu organs
- Resultant local manifestation of Toxic pathogenic factors

Effects of TCM Treatment Western Perspective
- Enhance immune function
- Restore the balance of the endocrine system
- Promote blood production
- Protect the marrow & the function of the Heart, Liver & Kidneys
- Improve absorption in the digestive tract
- Boost the metabolic function
- Stimulate the body's self regulating ability
- Reduce the side effects of surgery, radiotherapy & chemotherapy while improving their effectiveness

TCM Asserts
- Vital Qi can strengthen the patient's resistance to infection & enhance cell mediated immunity
- Surgery damages Qi & Blood and affects the functioning of the Zang Fu organ This manifests as depletion & damage of Qi & Blood, disharmony of Ying Qi & Wei Qi & disharmony of Spleen & Stomach
- Treatment is aimed at reducing the possibility of recurrence & metastasis & creating an appropriate condition for future radiotherapy or chemotherapy

Cancer and TCM0

Combining TCM & Western Medicine in Surgery, Chemotherapy & Radiotherapy

The Role of TCM in Cancer Treatment Strategies
- Supporting Vital Qi & Cultivating the Root
- Dispel Pathogenic Factor

TCM in reducing the side effects & increasing the effectiveness of Radiotherapy & Chemotherapy:

- ✓Enhance the overall results of the treatment & prevent local constriction & recurrence
- ✓Reduce toxic reactions & adverse side effects
- ✓Improve hematopoiesis, protect renal & hepatic functioning
- ✓Reduce gastro intestinal side effects
- ✓Alleviate radiation pneumonitis, proctitis & cystitis
- ✓Reduce vomiting
- ✓Increase immune function & raise long term survival rates

TCM will:
- ✓Supplement Qi & nourish Blood
- ✓Fortify the Spleen & harmonize the Stomach
- ✓Enrich & supplement the Liver & Kidneys
- ✓Relieve toxicity & transform Phlegm
- ✓Clear heat & resolve toxicity

Before Surgery

Goal
- ✓Improve the body's ability to withstand surgery
- ✓Reduce post operative complications
- ✓Control the development of the disease
- ✓Benefit postoperative rehabilitation

TCM will:
- ✓Supplement Qi & nourish Blood
- ✓Fortify the Spleen & augment Qi
- ✓Enrich & Supplement the Liver & Kidneys

After Surgery

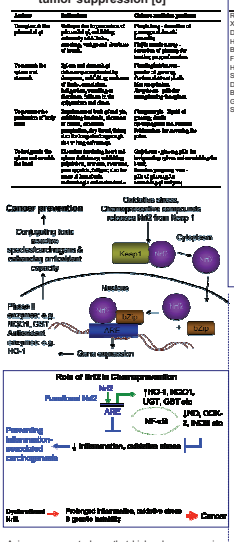
Goal:
- ✓Reduce the possibility of recurrence & metastasis
- ✓Create an appropriate condition for future radiotherapy & chemotherapy

TCM will:
- ✓Tonify Qi & Blood
- ✓Harmonize Ying & Wei Qi
- ✓Harmonize Spleen & Stomach

TCM Treatment of Tumors
- Phlegm Damp Transform Phlegm & Dispel Damp
- Liver Qi Stagnation Sooth Liver & Regulate Qi
- Blood Stasis Invigorate Blood & Transform Blood Stasis
- Heat Toxicity Clear Heat & Resolve Toxicity
- Spleen/Kidney Deficiency Tonify Spleen & Kidney
- Qi & Yin Deficiency (Qi & Blood Deficiency) Tonify Qi & Yin/Blood

TCM Diagnosis of TumorsPhlegm Damp
- Liver Qi Stagnat on
- Blood Stasis
- Heat Toxicity
- Spleen/Kidney Deficiency
- Qi & Yin Deficiency (Qi & Blood Deficiency)

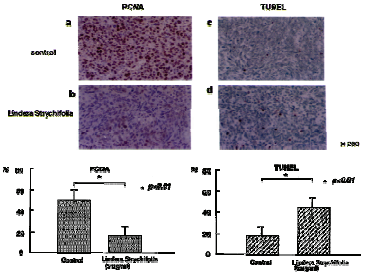
Effect of Ginseng on tumor suppression [8]



TCM diagnostic phenomena and actions for tumor

Qi & Yin/Blood Deficiency		Blood Stasis	Heat Toxicity	Spleen /Kidney	Phlegm /Damp	Liver Qi Stagnation
Qi & Yin	B ood					
Ren Shen Xi Yang Shen Dang Shen Huang Qi Bai Zhu Fu L ng Huang Jing Shan Yao Dang Gui Bai Shao Gou Qi Zi Shu Di Huang	Nu Zhen Zi Ji Xue Teng Ze He Che Gui Ban Jiao Xuan Shen Sha Shen E Jiao Dan Shen Da Zao Zhi He Shou Wu Long Yan Rou Gan Cao	Dang Gui Chuan X ong Dan Shen Chi Shao Yi Mu Cao Yue Ji Hua Ling X ao Hua Tao Ren Hong Hua Ji Xue Teng San Qi Ru Xiang Mo Yao San Leng E Zhu Pu Huang Ma B an Cao Hu Zhang Zhong J e Feng Xi Shu Shui Hong Hua Zi Liu Ji Nu Niu Xi Zao Jiao Ci Gui J an Yu Chuan Shan J a Tu Bie Chong Shui Zhi Meng Chong Xue Jie Shi Lian Chuan Wu L ng Zhi	Bai Hua She She Jin Y n Hua Ye Ju Hua L an Q ao Ban Bian L an Ban Zhi Lian Chong Lou Pu Gong Y ng Zi Hua Di D ng Yu X ng Cao Ban Lan Gen Bai J ang Cao Huang Q n Huang Lian Huang Bai Ku Shen Shan Dou Gen Long Dan Cao Shi Shang Bai Tu Fu Ling Bi X e Zhi Mu Da Qing Ye Ma Chi X an Bai Tou Weng Ren Gong N u Huang Ya Dan Zi T an Hua Fen	Ren Shen Dang Shen Bai Zhu Fu Ling Huang Qi Shan Yao Gan Cao Rou Gui Rou Cong Rong Y n Yang Hua Tu Si Zi Bu Gu Zhi Ba Ji Tian Gou Qi Zi Nu Zhen Zi He Shou Wu Shu Di Huang Huang J ng Zi He Che Shan Zhu Yu Sheng Di Huang	Gua Lou Zao Jiao Ci Fa Ban X a Bai J e Zi Dan Nan X ng Shan Ci Gu Zhe Bei Mu Ting Li Zi Q an Hu X ng Ren Cang Zhu Fu Ling Huo Xiang Pei Lan Yi Yi Ren Che Qian Zi Jin Qian Cao Bi X e Tong Cao Zhu L ng Niu Xi Du Huo	Chen Pi Ju Ye Zhi Ke Fo Shou Chuan L an Zi X ang Fu X ang Yuan Q ng Pi Zhi Shi Mu X ang Yan Hu Suo Da Fu Pi Yu Jin Da Dou Zi Ba Yue Zha Da Hui Xiang Chen X ang Hou Po D ng X ang Bai Dou Kou Mei Gua Hua Gou Qi Zi Ju X ang Chong

Extracts from the Roots of *Lindera strychifolia* Induces Apoptosis in Lung Cancer Cells [9]



Immunohis ochemical s aining of PCNA and TUNEL n LL 2 ce l s c transplanted n m ce At 1 week before transplantat on of LL 2 cancer ce ls mice rece ved *L. strychi ol a* extracted solution daily unt l the end of the experiment At 35 days af er *L. strych fo ia* treatment tumors were resected and examined his ologic ly (n = 11/group) Photographs show the typical immunoh stochem cal appearance in umor issues from mice of control (a and c) and *L. strychi ol a* extract (5 0 mg/m) treated mice (b and d) Cell prol feration and apoptosis were detected us ng anti PCNA antibody (a and b) and a mod fied TUNEL me hod (c and d) respectively Graphs show change in PCNA pos tive and TUNEL posit ve ce l number in the tumor t ssue Values represent the means ± SD

Asian governments hope that high volume screening and r gorous c nical trials will unlock the secrets of anc ent herbal remedies and that the results will pass mus er with Western scientists [10]

Proposal

There are various CHM substances ac ng palliative or curative on tumorous diseases For example of pain reduction the "Senecio palmatus" For curative treatments special moxibustion techniques with various complex mixture of herbs could be applied [5] Synergetic effects of the OTM and CHM is expected due to the well targeted tumor tissue by OTM in combination with the effective CHM like Tongyou sum plant Also the effect of ginseng and its Nrf2 cancerpreventive action with oncothermia is investigated, and genarlly the apoptotic possibilities for various TCM herbs The effect of synergy will be investigated by in silico, in vitro and in vivo experiments, using special OTM device for laboratory use (EHY110, Oncotherm) The latest histomorphological and mmunohistochemical methods will be used for evaluation,; mainly concentrating on p53 tumor suppressor protein and the apoptotic pathways, including beta catenin Protocols of clinical studies will be worked out on the basis of the experimental results

Potential of the synergy of high-tech OTM and TCM is extremely huge. We are ready to work out the European alternative of the "East meets West in cancer care collaboration" [6] on the basis of the widely applied TCM evidences [7].

References

[1] Seegenschmiedt MH Vernon CC (1995) A Historical Perspective on Hyperthermia in Oncology In: Seegenschm edt MH Fessenden P Vernon CC (eds) (1995) Thermorad otherapy and thermochemotherapy Vol 1 Springer Ver ag Berlin Heidelberg
[2] Unschuld Paul Ulrich (1985) *Med cine in China: A History of Ideas* University of Califom a Press
[3] Andocs G Szasz O Szasz A (2009); Onco hermia treatment of cancer: from the labora ory to c inic E ectromagn B ol Med 28(2):148 65
[4] Szasz A Szasz N Szasz O (2010) Oncothermia Principles and Pract ces Springer Ver ag (*http://www spr nger com/biomed/cancer book/978 90 481 9497 1?changeHeader*) Heidelberg Dordrecht
[5] Longo F (2007) Traditional Chinese Medicine in Oncology n Proceedings of the 56th S C I V A C Nat onal Congress ; June 1/3 2007 (pp 230 232) Rim ni
[6] McMaster un versi y Explores Evidence based Ch nese medicine http://www integrativeonc org/mcmaster un vers ty exp ores evidence based chinese med cine
[7] J n Ling Tang Bao Yan Liu Kan Wen Ma (2008) Traditional Chinese Medicine The Lancet 373:1938 1940
[8] Saw CL L Qing Wu Ah Ng Tony Kong Anti cancer and potent al chemopreven ive actions of ginseng by activating Nrf2 anti oxidat ve stress/anti nflammatory pathways Ch nese Medic ne 2010 5:37
[9] Yun Mo Li et al Extracts from the Roots of *L ndera strychifo ia* Induces Apoptosis in Lung Cancer Ce ls and Pro ongs Surv val of Tumor bearing Mice The Amer can Journal of Chinese Medicine Vol 31 No 6 857 869 2003
[10] Normile D The New Face of Trad tional Chinese Medicine 10 JANUARY 2003 VOL 299 SCIENCE www sciencemag org