

Use of Chinese herbal medicine in veterinary science: history and perspectives

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Summary: *Veterinary acupuncture has been receiving greater acceptance in veterinary medicine communities throughout the world in recent years. The American Veterinary Medical Association, for example, is beginning to accept acupuncture as a form of veterinary treatment.*

Another branch of traditional Chinese veterinary practice, herbal medicine, deserves similar recognition throughout the veterinary world. While herbal medicine carries a strong reputation for healing potential in the Orient, this treatment system is new to Western veterinary practices. Chinese herbal medicine should be incorporated into wider veterinary practice only after close scientific examination of these techniques.

The authors examine the reasons for investigating Chinese herbal medicine, including the historical background, strategies of development, research plans and prospects for the use of Chinese herbal medicine in veterinary sciences. Potentially, this could lead to a unique combination of traditional and modern medicines, and to links whereby veterinary findings might acquire applications in human medicine.

KEYWORDS: Acupuncture – Development – Herbal medicine – Traditional medicine – Veterinary medicine.

INTRODUCTION

Following the scientific demonstration of the analgesic effect of acupuncture in the 1970s, the study and application of acupuncture techniques have increased rapidly throughout the world. This is evidenced by a proliferation of clinical and basic veterinary acupuncture research reported in the international journals. After examining this research, the American Veterinary Medicine Association finally agreed that qualified veterinarians in the United States of America (USA) may use acupuncture in their clinics: 'Veterinary acupuncture and acutheraPy are considered valid modalities, but the potential for abuse exists [...]. These techniques should be regarded as surgical and/or medical procedures under State practice acts.' Recently, C. Smith published an overview of veterinary acupuncture, praising the achievements of traditional medicine (3).

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Chinese herbal medicine is another main branch of traditional medicine in China which is capable of making a similar contribution to international veterinary practice. This will only be possible if the necessary effort is made in conducting research to verify the efficacy of this treatment system.

HISTORICAL BACKGROUND OF TRADITIONAL CHINESE VETERINARY MEDICINE

The history of traditional Chinese veterinary medicine, including acupuncture and herbal medicine, dates back to the Three Emperors era, approximately 10,000 years ago, when Emperor Fusi founded animal husbandry and veterinary medicine in China. According to legend, he taught the Chinese ancestors how to domesticate animals and fishes, and brought civilisation to the primitive society existing in China at the time. Fusi is therefore venerated as the forefather of Chinese culture.

The administration of the West Zhou dynasty (1111-771 BC) installed Medicine, Surgery, Nutrition and Veterinary Departments in the national health care system. Animal health and human health were considered equally important during this period.

According to another legend, the veterinarian Zhao Fu performed blood-letting from the jugular vein of horses as a treatment for 'lung heat' during the reign of the Zhou Emperor Mu (947-928 BC). Another famous veterinarian, Sun Yang, alias Baile, wrote *Baile Zhen Jing* (Baile's Canon of Veterinary Acupuncture) at the time of Qin Mu-Gong (659-621 BC).

The most fundamental text for Chinese human as well as animal medicine is the *Huang Di Nei Jing* (The Yellow Emperor's Classic of Internal Medicine), which was published during the Qin and Han period (221 BC-AD 220). During the same period, animal therapies using a combination of acupuncture and herbal medicine were described in a book entitled *Lie Xian Zhuan* (The Legend of the Immortals).

Three important textbooks of traditional Chinese veterinary medicine were published during the first seven centuries of the Common Era. In the West Jin dynasty (AD 265-317), Ge Hong published *Zhou Hou Bei Ji Fang* (Pocket Book for Emergency Therapies), which listed treatment of sunstroke in horses by blood-letting at the *Weijian* point and other points. *Qi Min Yao Shu* (Basic Techniques for Farmers), published in the 6th century AD, listed many animal acupuncture and herbal medicine treatments. *Ma Jing Kong Xiue Tu* (Atlas of Equine Meridians and Acupoints) was published during the Sui dynasty (AD 581-618).

A highly-developed veterinary service system evolved in China during the Tang dynasty (AD 618-907), and a comprehensive system of Chinese veterinary education was established, named *Tai Pou Shi* (Tai Pou College). This system attracted many Japanese and Korean scholars to China. *Si Mu An Ji Ji* (A Collection of Ways to Care and Treat Horses), written by Li Shi, was published during the same time and was used as the principal text at the college. This book included 'Baile's Canon of Veterinary Acupuncture', 'Diagrams of Acupoints', 'Baile's Diagrams of Cauterisation', 'Rhymes for Cauterisation Diagrams' and 'Methods of Blood-letting'. Furthermore, in the chapter 'Seventy-Two Important Diseases', the pathophysiology of diseases was discussed and acupuncture/herbal therapies were recommended. Other important texts were published during the Song dynasty (AD 960-1279), namely *Fan Mu Cuan Yan Fang*

(Proven Prescriptions of Nomad Origin) written by Wang Yu and *Ming Tang Jiu Ma Jing* (Ming Tang's Canon of Equine Moxibustion).

Quan Ji Tong Xuan Lun (a dissertation on the treatment of sick horses), published during the Yuan dynasty (AD 1279-1368), described the treatment of sick horses by acupuncture and moxibustion.

In 1608, one of the most significant writings on veterinary acupuncture, *Yuan Heng Liao Ma Ji* (Yuan and Heng's Therapeutic Treatise of Horses), was published by the Yu brothers, Yu Ben-Yuan and Yu Ben-Heng, two of the most famous veterinarians in Chinese history. The treatise covers many aspects of equine medicine and discusses the use of acupuncture, moxibustion and herbal medicine. In addition, the Yu brothers published two further treatises on the treatment of oxen and camels. During the Qing dynasty (AD 1644-1911), *Huo Shou Ci Zhou* (Humane Care of Animals) was published in 1873, containing a large section on herbal medicine.

In 1904, the first Western-style veterinary school was established at Paoden in Haupei province. This signalled the introduction of Western veterinary medicine into China. Subsequently, the new Western educational system became the major trend, rather than the traditional system. As a result, Western veterinary medicine made a major contribution to animal disease control in China, especially with regard to infectious diseases. However, traditional veterinary medicine was still practised and widely accepted, especially in rural areas. Therefore, a Society of Traditional Chinese Veterinary Medicine was established in 1956, to evaluate the therapeutic value of acupuncture and Chinese herbal medicine for animals. Since 1956, the Society has expanded rapidly and branches exist throughout the country. The work of the Society includes publishing books, performing research and organising symposia.

In 1974, H. Grady Young and his colleagues founded the International Veterinary Acupuncture Society, based in the USA, which promotes veterinary acupuncture at the international level. Through the efforts of this Society, and others, the American Veterinary Medicine Association finally accepted acupuncture as a valid alternative veterinary practice in 1988 (2).

Recently, increasing numbers of Western veterinarians have become interested in the use of Chinese herbs for therapy. The problem with this new interest is that many veterinarians are beginning to use these techniques on the basis of trial and error, rather than strict scientific investigation.

THE WAY FORWARD

Western veterinary medicine and traditional Chinese veterinary medicine are derived from different backgrounds: the former is objective and scientific, while the later is subjective and empirical. Each system has its own advantages and disadvantages. If the advantages of both systems can be combined and the disadvantages avoided, it may be possible to create a synergistic system of medicine for animals. Thousands of years of experience have been gained in the use of medicinal herbs in China. If historical therapeutic claims can be evaluated by modern veterinary science, Chinese medicinal herbs may provide new methods for treating diseases in both animals and humans. Achievement of this goal requires consideration of the following:

a) The only way to reveal the clinical value of Chinese herbal medicine is to subject this system to testing by the methods of Western veterinary science. One example involves a clinical trial in which a Chinese herbal formula *Ko-Ken-Huang-Lien-Huang-Chin-Tang*, traditionally prescribed for treatment of diarrhoea in humans, was successfully used to treat diarrhoea in piglets (1).

b) Preparation of traditional herbal medicines using modern techniques can standardise formulas and make herbal drugs much more convenient in clinical use.

c) Unlike synthetic drugs, almost all Chinese herbal medicines are made from natural ingredients. The use of these natural products in veterinary and human medicine may improve the usage of natural sources.

d) Medical care for animals may be improved by using modernised Chinese herbal medicine, which produces fewer side-effects than the use of synthetic drugs.

STRATEGIES FOR THE DEVELOPMENT OF TRADITIONAL CHINESE VETERINARY MEDICINE

Financial support from governments, university teaching and training, and the activities of interested organisations are three major factors in the development of all sciences, as demonstrated in the recent development of biotechnology. Although modern veterinary medicine in China is relatively under-developed, these three factors are present. However, most other countries lack these three factors. Fortunately, the developed countries may use their modern veterinary science capabilities and educational systems to study and develop traditional Chinese veterinary medicine, including herbal medicine. Presented below are a number of suggestions which may facilitate such developments.

Financial support from governments

Investment by governments is the most crucial factor in the development of modernised Chinese herbal medicine. If governments provide sufficient financial support for research and training, this will accelerate the achievement of results. Unfortunately, the present level of government support for research on traditional medicine is minimal at best.

University training and research

Courses in traditional medicine at Western universities are rare. Only two or three veterinary schools in the USA offer basic acupuncture classes. Veterinary schools should send faculty members to China for training, or invite Chinese herbal medicine experts to the West for teaching. Also, relevant research must be encouraged and financially supported. Universities are the centres of education and science, and their involvement is necessary for the advancement of Chinese herbal medicine.

Societies and organisations

Interested societies and organisations may promote Chinese herbal medicine by offering courses, publishing journals and organising symposia.

Personal efforts

Although efforts made on a personal level might appear to be the least powerful force in the development of Chinese herbal medicine in veterinary science, it must be recognised that no results will be achieved without such personal efforts. Therefore, it is essential to encourage veterinarians and students to become involved. Interested societies may play a role in recruitment and by providing basic information.

Co-operation between traditional Chinese veterinary and human medicines

In general, traditional Chinese human medicine is more advanced than its veterinary counterpart. Veterinarians should be encouraged to seek consultation from human medical doctors, and an exchange of information between the two fields may improve results. Thus, both sides may benefit from shared experience.

PRESENT RESEARCH PLANS

Traditional Chinese veterinary medicine is an integrated science which involves veterinary and human medicine, and animal and agricultural sciences. Only sincere co-operation between these various disciplines can produce the best results. A central plan should be established by governments, to manage integrated development and provide sufficient financial support for training and research. This plan would also establish links between basic studies and clinical trials in the fields of veterinary and human medicine. Experts in universities need to take the responsibility for planning, guidance and basic research. Veterinary hospitals should conduct clinical trials. Pharmacology departments should study the pharmacological action of medicinal herbs and develop new means of administering these medicines. Agricultural scientists could develop improved cultivation systems for medicinal herbs, to provide a sufficient quantity of good quality natural products. Possible subjects for further research are suggested below.

Clinical trials

Preventive medicine to aid the growth of domestic animals

At present, antibiotics, preservatives and steroids are added to feed rations to protect animals from infection and enhance growth. Farmers may gain immediate benefit, but problems also result from the use of these additives, especially with regard to drug residues in human food and bacterial resistance to antibiotics. Consideration should be given to the use of medicinal herbs (e.g. ginger, garlic, etc.) instead of these additives. Many medicinal herbs are claimed to have immune-enhancing properties. The clinical use of these herbs needs to be examined under scientific scrutiny.

Reproductive problems

Reproductive failure of domestic animals is a major problem in animal husbandry. Reproductive diseases provide a good model for endocrinological research because most causes can be discovered by hormone monitoring. For thousands of years, many medicinal herbs have been successfully used to treat animal reproductive problems in China. Models of abnormal reproduction may be used to evaluate the endocrine effects of Chinese herbal medicine.

Treatment of common diseases

Common cold, fever, indigestion and diarrhoea are very frequent ailments in animals and humans. Patients are usually treated with Western-style medicine. The use of herbal medicine may be considered as an alternative. Comparative studies of herbal and Western medicine techniques can be made to evaluate the effectiveness of Chinese herbal medicine.

Comparative medicine

Some animal diseases can be treated with Chinese herbal medicine as a model for human diseases. For example, enzootic bovine leukosis may be considered as an animal model of human leukaemia, and canine hepatitis can be treated as a model for human hepatitis. The results of these treatments in animals can provide highly valuable information for the corresponding human conditions.

Increased usage of plants and animal tissues for medicinal purposes

Specific medicinal uses are ascribed to roots, flowers and leaves of plants, and various tissues from animals. For example, sugar-cane root has an anti-diabetic action, and blood from a slaughtered animal can be prepared for treating anaemia. Many other claims have been made, but these must be examined through research on domestic animals and clinical use. After strict examination of these claims through veterinary scientific research, the specific medicinal usage of these natural products may be explained.

Understanding the pharmacological action of medicinal herbs and preparing new forms

Pharmacologists may apply their knowledge and techniques in the study of Chinese herbal medicine. Study of the pharmacological action of medicinal herbs will help to explain the clinical efficacy of these substances. New techniques for herbal medicine, such as intravenous injection, may simplify the administration and increase the therapeutic effect of these treatments. Furthermore, new forms of administration will allow a more efficient use of herbs, some of which are rare and expensive.

Cultivating medicinal herbs

From an economic viewpoint, farmers may achieve a higher income by growing medicinal herbs than from the cultivation of other agricultural products. However, the production of good medicinal herbs requires special conditions and techniques. Agricultural scientists can perform research to help meet these challenges.

Development of 'plant medicine' using herbs

Traditional methods of disease control and treatment, including Chinese herbal medicine, have been used to treat diseases of plants for thousands of years. Farmers now depend heavily on chemicals for the production of agricultural crops. The value of traditional methods in this area must be reconsidered, as Chinese herbal medicine may be able to provide innovations in this domain.

CONCLUSION

If Chinese herbal medicine can be modernised and used widely in veterinary medicine, the demand for Western-style drugs will be reduced, and the usage of natural

products will be increased. This will also encourage the use of Chinese herbal medicine in human clinics. Of course, considerable effort will be required. Acupuncture therapy now has a strong foundation in Western veterinary science, but the movement for Chinese herbal medicine has just commenced. This movement should be encouraged and supported in all of the areas mentioned above.

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APPLICATION DE LA PHYTHÉRAPIE CHINOISE À LA SCIENCE VÉTÉRINAIRE : HISTOIRE ET PERSPECTIVES. – J.H. Lin et R. Panzer.

***Résumé :** Depuis quelques années, l'acupuncture est de mieux en mieux acceptée dans les milieux vétérinaires du monde entier. L'Association américaine de médecine vétérinaire, par exemple, s'apprête à la considérer comme une forme de thérapeutique.*

Une autre branche de la pratique vétérinaire chinoise traditionnelle, la phytothérapie, commence également à être reconnue. Alors que la réputation de la médecine par les plantes et de ses propriétés curatives n'est plus à faire en Orient, ce mode de traitement est radicalement nouveau pour les vétérinaires occidentaux. La phytothérapie chinoise devrait être plus largement intégrée dans la pratique vétérinaire une fois que ces techniques auront été soumises à une analyse scientifique approfondie.

Les auteurs expliquent les raisons pour lesquelles la phytothérapie chinoise constitue un intéressant sujet d'étude tout en analysant le contexte historique, les stratégies de développement, les plans de recherche et les perspectives d'application de ce type de médecine aux sciences vétérinaires. On aboutirait ainsi à une association unique entre les médecines traditionnelle et moderne, avec des applications possibles des découvertes vétérinaires en médecine humaine.

MOTS-CLÉS : Acupuncture – Développement – Médecine traditionnelle – Médecine vétérinaire – Phytothérapie.

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APLICACIÓN DE LA FITOTERAPIA CHINA A LA CIENCIA VETERINARIA: HISTORIA Y PERSPECTIVAS. – J.H. Lin y R. Panzer.

***Resumen:** Desde hace algunos años, la acupuntura recibe cada vez más aceptación en los medios veterinarios del mundo entero. La Asociación de Medicina Veterinaria de los Estados Unidos de América, por ejemplo, empieza a considerarla como un tratamiento terapéutico aplicable en veterinaria.*

La fitoterapia, otro aspecto de la práctica veterinaria tradicional china, está también empezando a ser reconocida. Si en Oriente el prestigio de esta

medicina basada en las propiedades curativas de las plantas se considera evidente, para los veterinarios occidentales se trata de una modalidad terapéutica radicalmente nueva. Bajo la condición de que sus técnicas sean sometidas a análisis científicos rigurosos, la fitoterapia china podrá ser integrada en mayor medida a la práctica veterinaria occidental.

Los autores explican por qué la fitoterapia china es un tema de estudio de interés y analizan el contexto histórico, las estrategias de desarrollo, los planes de investigación y las perspectivas de aplicación de este tipo de medicina a las ciencias veterinarias. Esto podría llevar a una combinación única entre medicinas tradicional y moderna, y a la aplicación a la medicina humana de los descubrimientos realizados en el ámbito veterinario.

PALABRAS CLAVE: Acupuntura – Desarrollo – Fitoterapia – Medicina tradicional – Medicina veterinaria.

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