Bias in Traditional Medicine in East Asia

Key Words
Historical information
Publication bias
East Asian medicine
Randomized controlled bias

Summary
The statement that traditional East Asian medicine has a history of several thousand years can operate as a bias. However, there is also a 'publication bias' stemming from the imbalance between formally tested traditional drugs and informally accumulated historical knowledge. Randomized controlled trials on traditional Kampo drugs must be done. In the meantime, the truth about the efficacy of both modern and traditional drugs does not lie in a single formal study, but lies in the continuous circle of experience and reevaluation – from phase I data to phase IV data.

Zusammenfassung
Bias in der traditionellen Medizin Ostasiens

I will discuss 2 kinds of biases concerning traditional medicine in East Asia, and I particularly refer to China and Japan. These biases, up to now, have prevented a rational use of and research on East Asian medicine.

First Bias

The first bias is the statement that traditional East Asian medicine has a history of several thousand years. This is commonly said by researchers, citizens, and even politicians in East Asia, and sometimes by Western researchers.

The diagram in figure 1 shows on the left the growth of information on the safety and efficacy of a modern drug. The vertical axis represents the quantity of information from phase I to phase II and phase III studies, and when it reaches an acceptable level, it is approved for marketing by the drug regulatory authority. It also includes information on phase IV studies, i.e. postmarketing surveillance. The horizontal axis represents the resulting product of time multiplied by money.

In contrast, the diagram on the right shows the information growth regarding traditional drugs. Here, the horizontal axis is a product of time (length of use) multiplied by the number of patients using traditional drugs. The horizontal axis goes from the Han dynasty to Tang, Song, Ming, etc. to the modern time. Information has been accumulated since the Han dynasty in China 2,000 years ago, and this system was introduced to Japan 1,000 years ago. And since 1976, Kampo drugs, the Japanese

1 Speech delivered at the 1st Scientific Symposium in Einsiedeln «Paracelsus – 500 years after», October 1993.
variation of Chinese drugs, have been covered by the National Health Insurance Scheme. The decision to include Kampo drugs in the National Health Insurance Scheme was based on historical experience, not on (randomized) controlled trials. After that, the consumption of Kampo drugs nearly doubled every year, and now, more than one billion US dollars are spent annually on these drugs, or roughly 10 US dollars per person. This growth is partly due to the aggressive sales promotion and also due to the complicated health insurance scheme which spends more money if physicians prescribe more drugs.

I have strong doubts whether the rationality in the use of traditional drugs has improved since 1976. The vertical axis of safety and efficacy is closely related to the rational use of drugs, including the 5 aspects quality, safety, efficacy, cost, and information.

Figure 2 shows the population development in China since the time before Christ. The data comes from tax documents from ancient China, from the famous ‘Shanhaijing’, the classic of Chinese medicine writing 140 BC. Information on the safety and efficacy of traditional drugs has been basically produced by the experience of their usage by humans.

This chart reminds us that the amount of experience gained can be numerically analyzed. You may already have realized that the safety and efficacy of drugs is not based on the length of their use, but on the product of the time multiplied by the number of patients who actually used them. We may use pharmacoepidemiological methods to analyze this information growth. If we can find information about disease patterns and the quantity of drugs used in a particular time and region of ancient China, we may find out more about the efficacy and safety of traditional drugs. I think the amount of bias in ancient times is much less than that of today. Here, today we have a very strong bias produced by the industry, by ambitious research, or by the so-called ‘new age’ movement which favors traditional herbal medicine.

Paul Cohen [1] of the Wesley University in the USA wrote that Americans' view of China has changed, reflecting their own sociopolitical attitude. The Japanese translation of his book has a slightly modified title: 'Intellectual Imperialism',

Fig. 1. Growth of information in modern and traditional drugs.

Fig. 2. Population growth in ancient and modern China.
subtitle: 'Orientalism and Image of Chinn'. I think the Westerners' view, particularly in the USA, has changed after the Vietnam war. And myself, I believe that their view on traditional medicine in Asia is now sometimes too generous, too sympathetic and emotional. This reflects a loss of trust in their own sciences which to some extent has created an inhuman and cold atmosphere and adverse reactions in the medical field. I think the value of a drug in its usefulness, no matter how old or how new it is. That is why I recommend to the physicians in Japan, as well as to the pharmaceutical industry and the government that they should conduct randomized controlled trials of Kampo drugs.

Second Bias

The second bias we have to consider is the publication bias in the results of modern drugs, and extended to traditional drugs, the bias from the imbalance between formally tested drugs and indications and informally accumulated historical knowledge. Thus, putting too much weight on published studies by ignoring unpublished studies or less formally accumulated historical knowledge and experience, leads to a biased comparison of western drugs with traditional drugs.

The diagram on the left in figure 3 shows the concept of publication bias of modern drugs. It is widely known that negative study results are less likely to be published. Thus, the mean effectiveness of published studies is usually higher than the mean of all studies. This does not necessarily represent the truth of the parent population. This is a serious problem particularly in metaanalysis.

The diagram on the right shows the current state of randomized controlled trials of traditional drugs in East Asia. So far in Japan, only about 60 controlled studies of Kampo drugs have been conducted, including studies in which the randomization method was not well described. Out of the 60, only about 10 are of high quality with proper randomization and blinding, proper monitoring and statistical analysis and interpretation. As the number of such studies is so small in comparison to the information which is historically accumulated, we cannot establish the validity. It may still be too early to make a final judgement on the value of traditional drugs in East Asia. Although metaanalysis is a powerful and sophisticated method, we still have to interpret the results carefully.

How can we bridge the gap between historical accumulated knowledge and the scarcity of randomized trials? I practice some Kampo medicine myself, without having solid data based on randomized controlled trials. So, should I stop practicing Kampo medicine because there are so few randomized trials, or should I continue to practice it as it has a long history? How can I feel comfortable in this situation?

Figure 4 shows the information cycle on new drug developments from the ecological point of view. Based on the non-
clinical studies, phase I studies are conducted, followed by phase II and phase III studies. Bias and delay may occur at any time during these phases until the drug finally reaches the consumer. But this is not the end. Information is still collected and other studies are conducted in phase IV postmarketing surveillance, and information is fed back to the earlier phases. For instance, if there is a finding indicating new effects and indications of a drug, such information is considered exploratory data, and one has to go back to earlier phases to confirm its efficacy. It is important to note that there are no rational drugs as such, but only a rational use of drugs.

Basically, I think these information cycles should be the same in modern and traditional medicine. If we have a good ecological system, say a forest (see fig. 4), the system can produce not only timber, but fish, prawns, shellfish, and others. I think the truth of both modern and traditional drugs does not lie in the single study, but lies in this type of cycle. Thus, my practice of Kampo medicine also evolves around this cycle. This cycle in traditional drug evaluation should be made more efficient to increase the reliability of the information.

After having reached this conclusion, I feel comfortable with my daily practice of Kampo medicine in Japan.

Reference

Further Reading