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Dispensing Operation Analysis of Herbal Medicine in Khanh Hoa Traditional Medicine and Rehabilitation Hospital



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ABSTRACT

The combination between traditional medicines and modern medicines now is an inevitable pharmaceutical trend in Vietnam. Besides modern medicine, recently studies have pointed out that the dispensing operation of herbal medicines at hospitals should be concerned. The aim of the study is to analyse the process of dispensing operation on herbal medicines. The cross – sectional description data were collected from KhanhHoa Traditional Medicine and Rehabilitation Hospital in the fiscal year 2013. In addition, the study was organized to interview the staffs in accordance with the principles of selection, procurement, storage, and distribution status of operated indicators in the hospital. For the selection, and procurement, herbal medicines are developed in the list of hospital medicines which consisted of 180 herbal medicines with 24 groups. The proportion of herbal medicines in the list of essential hospital medicines including modern and herbal medicine was accounted for 83.2 percent in 2013. For the origin of herbal medicines, the percentage of herbal medicines is derived the highest proportion from the Northern (51.1%), combination between North and South (17.8%), and from South (31.8%). The structure of cost had purchased 756 million Vietnam Dong. For the storage, and distribution status, the deterioration of 30/180 herbal medicines under 3%, from 3% to 5%, and over 5% is 53.3 %, 26.7%, and 20%, respectively. The average of prescription per day is 22.2, and 95.8 for herbal remedies. In conclusion, it should be enhanced the quality of the provision and dispensing operation of traditional medicines and herbal medicines through reform policy.



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INTRODUCTION

Viet Nam is famous as an old system of traditional medicines. Medicinal plants have enormously contributed to the national health. Vietnam, especially in the countryside and the mountains, have used locally medicinal plants for medical treatment and certain vegetables and spices as food to protect their health. Therefore, the combination between traditional medicines and modern medicines now is an inevitable pharmaceutical trend in Vietnam (1). Because the successful combination of modern and traditional medicines has given impetus to the gradual modernization of herbal medicines to facilitate handling and promote exports. The government has adopted a policy of integrating modern and traditional systems of medicine and pharmacy. To accomplish this policy of integration, scientific research on medicinal plants plays an important role. Previous studies have reported that the ancient traditional medicines had been manipulated and contributed for treatments. The percentage of herbal medicines prescribed in medical treatment is still increasing. Several places have already succeeded in using 100% herbal medicines which reduce the burden of the State's subsidy on medicines. Hundreds of hospitals have achieved a certain percentage of herbal drugs to be used in treatment, as set by the Ministry of Health (2). However, the management of traditional remedies remains a major challenge in which herbal quality has been uncontrollable, the source of medicinal plants has not been stable. Moreover, almost quality control criteria, based on sensory criteria, are quite modest and simple. This leads to difficulties for the assurance of quality of treatment at the hospital. The aims of this study are to analyse the process of dispensing operation on herbal medicines. Based on the significant results, one more purpose of this study was to propose some solutions to enhance the quality of herbal medicine dispensation in hospital. The paper highlights the important role to develop the dispensing operation in KhanhHoa traditional medicine and rehabilitation specialized hospital, where these aspects are quite new and should be emphasized.

MATERIALS AND METHODS

The study was carried out in KhanhHoa Traditional Medicine and Rehabilitation, a provincial specialized hospital, Vietnam. With a scale of 200 beds, the hospital achieved the position for the leader about general health care and rehabilitation using traditional medicine combined with modern medicine (3). The cross – sectional description data were collected in the fiscal year

2013. In addition, the study was organized to interview the staffs in accordance with the principles of selection, procurement, storage, and distribution status of operated indicators in the hospital

RESULTS AND DISCUSSION

It is noticed that drug dispensing operation in the hospital is a very large field. More specifically, this is the process of taking drugs from the manufacturer to the end-users, including medicine selection, medicine procurement; medicine storage, and medicine distribution. Each step has an important role to be a prerequisite for the next step.

The medicine selection status

The results indicated that the process of formulating lists of herbal medicine in KhanhHoa traditional medicine and rehabilitation hospital in 2013 was based on significant scientific grounds and in accordance with the principles and criteria of pharmaceutical selection (4, 5). However, the standard treatment protocol is not a scientific basis for drug selection; the process of set up standard treatment protocol is limited, especially for diseases related to traditional medicines. As shown in Table 1, the list of remedies selected into list of hospital medicines in 2013 was based on used drugs and unused drugs (accounting for 97.8% and 2.2%, respectively) in 2012, without adding new medicines. The list of used medicines in 2012 was selected in hospital category list in 2013 with a higher rate of 50% while unused drugs only accounted for 31.3% and in particular, the list of Herbal preparations and products added into Hospital category list in 2013 also included new drugs. Herbal preparations and products (HPP) are produced by subjecting herbal materials to extraction, fractionation, purification, concentration, or other physical or biological processes. They may contain excipients, or inert ingredients, in addition to the active ingredients and are generally produced in larger quantities for the purpose of retail sale (6). This was an evident orientation in drug selection for treatment. Hospital prefers using herbal medicines to HPP for treatment.

Table 1. The structure of herbal medicines and HPP selected list of hospital medicine in 2012

| Medicines | | To be used for treatment | Not to used for treatment | New medicines added | Total |
|--------------|------------|--------------------------|---------------------------|---------------------|-------|
| Herbs | Quantity | 176 | 4 | 0 | 180 |
| | Percentage | 97.8% | 2.2% | 0.0% | 100% |
| HPP | Quantity | 8 | 5 | 3 | 16 |
| | Percentage | 50.0% | 31.3% | 18.7% | 100% |

The medicine procurement status

It can be seen from the data in Table 2 that the quantity and the effect groups of herbal medicines were more than those of HPP. All of herbal medicines and HPP are developed in the list of hospital medicines which consisted of 180 herbal medicines (91.8%) with 24 groups; 16 HPP (8.2%) with 6 groups. Which lead to the choice of herbal medicines with lower costs and encouragement many development program related to traditional medicines aspects as medicines production and allocation in hospital. Following the addition of medicine selection, the proportion of herbal medicines in list of essential hospital medicines including modern and herbal medicine was accounted for 83.2 percent in 2013. For origin of herbal medicines mentioned in Table 3, Chinese Herbal medicines (north source) had both the highest quantity and value (51.6% and 51.1%, respectively), while the proportion of the Vietnamese Herbal medicines (south source) were accounted for 30.6% of the quantity and but only 12.1% of the value. The cause of this difference is explained by many factors such as the prescribing habit of doctor, policy of department of pharmacy or ability cultivation of medicinal plants in local. This is also the reason for the Chinese Herbal medicines to be bought with the highest volume.

Table 2. The structure of herbal medicine and HPP selected list of hospital medicines in 2013

| Classification | Quantity | Percentage | Number of group |
|----------------|------------|-------------|-----------------|
| Herbs | 180 | 91.8% | 24 |
| HPP | 16 | 8.2% | 6 |
| Total | 196 | 100% | |

Table 3. The structure of herbal medicines source purchased at hospital in 2013

| Source of herbals | Quantity | Percentage | Volume (kg) | Percentage | Cost | |
|-------------------|------------|---------------|--------------|---------------|---------------------|---------------|
| | | | | | (thousand VND dong) | Percentage |
| North | 93 | 51.6% | 2,442 | 49.9% | 221,057 | 51.1% |
| South | 55 | 30.6% | 903 | 18.5% | 52,331 | 12.1% |
| North-South | 32 | 17.8% | 1,549 | 31.7% | 159,106 | 36.8% |
| Total | 180 | 100.0% | 4,894 | 100.0% | 432,494 | 100.0% |

It is apparent from the study that traditional drugs procurement activities had suitable processes. Pharmacy department purchased traditional medicines according to tender result from the Department of Health and competitive offer process. About the herbal medicines procurement process, the first step is that the board of directors received permission of the Department of Health to purchase medicines under the form of competitive offers for 182 products corresponding with 180 herbal medicines in the list of hospital medicines. This was followed by the second step that the information of all remedies in offer was published for 3 terms consecutively on website of KhanhHoa newspaper and hospital. The process of receiving and assessment documents of contractors based on some following criteria: The validity and legality of the contractor; Assessment of technical standards in accordance with achieved, acceptable and not achieved level; Assessment of the appropriateness of medicines; and determining the bid price. The number of herbal medicines classified by components and brand name accounts for 90.8% and 89.0% respectively. The cost for those contributed 56.4% of the total drugs value that estimated to 433 million Vietnam Dong (Table 4).

Table 4. The costing structure of herbal medicines and HPP purchased by hospital in 2013

| Classification | | Classified by | Classified by | Cost |
|----------------|------------|---------------|---------------|---------------------|
| | | components | brand name | (thousand VND dong) |
| Herbals | Quantity | 128 | 130 | 432,494 |
| | Percentage | 90.8% | 89.0% | 56.4% |
| HPP | Quantity | 13 | 16 | 322,997 |
| | Percentage | 9.2% | 11.0% | 43.6% |
| Total | | 141 | 146 | 755,491 |

These findings may help us to understand that the cost of herbal medicines procurement was lower than those of HPP procurement when we compare two types with equal quantity. This shows that the purchased price average of herbal medicines classified by components and brand name is much lower than the HPP.

The medicine storage status

The efficiency and quality of storage activities are based on the quality of facilities systems (drugs warehouses, storage facilities) and the quality of pharmaceutical administration (management of drugs warehousing, monitor expiry date, arrangement and division medicines areas). The drugs warehouses are quite full of areas such as medicine import area, storage area, allocation area, management area, independent storage areas. This condition could help KhanhHoa hospital to avoid confusion and loss of medicines. However, the Council of inventory usually compares the quantity of actual medicines with medicines listed in storage system to identify proportion of damaged medicines quarterly and annually. As a result shown in Table 5, although the storage facilities are designed to ensure safety with the principle of Good Storage Pharmacy (GSP), the deterioration of 30/180 herbal medicines under 3%, from 3% to 5%, and over 5% is 53.3 %, 26.7%, and 20%, respectively.

Table 5. The level deterioration of herbal medicines in 2013

| Percentage of deterioration | 0 - < 3% | 3 - < 5% | 5 - < 10% | ≥ 10% | Total |
|-----------------------------|----------|----------|-----------|-------|-------|
| Quantity | 16 | 8 | 3 | 3 | 30 |
| Percentage | 53.3% | 26.7% | 10% | 10% | 100% |
| Value (thousand VND dong) | 83.6 | 286.0 | 10.2 | 19.0 | 398.8 |
| Percentage | 21.0% | 71.7% | 2.6% | 4.8% | 100% |

In addition, it can be seen that herbal medicines preservation was more difficult than HPP one because herbal medicines must be stored in wooden boxes, plastic boxes with a big lid and plastic bags. In retail allocation operation, plastic boxes were used to store fine powders, granules form and perishable herbal oil, which helps to avoid loss during the storage process. As a result, all of the medicines which were cancelled in 2013 related to herbal medicines but not HPP (Table 6). This made difficult to manage warehouse operations such as causing confusion,

loss, difficult to manage drug input and output. To improve the efficiency of storage process, the hospital also used management software connecting departments together so as to manage drugs and track books conveniently. These processes follow the circular 22/2011/Circular-MOH (7) and circular 23/2011/Circular-MOH (8) on the organization and operation of the department of pharmacy in hospital and Guideline for using medicine in health facilities with beds. Medicine distribution activities should be insured to control safety and efficiency to patients. Moreover, there were some differences of allocation activities between herbal medicines and HPP. The equipment of storage system including transportation equipment; storage equipment; fire protection and fire fighting equipment. The new pharmaceutical warehouse was fully equipped storage equipment, but the equipment of the herbal medicines warehouses is still limited (ventilators, fan), so the temperature and humidity in that were more frequently prescribed, especially in hot weather. Overall, medicine administration operation at hospital was accomplished in accordance with the rule of Ministry of Health (7). Using management software helps the medication more favourable. Herbal medicines have special requirements on quality indicators, so the medicine quality control process should be carried out properly with the rule of Ministry of Health.

Table 6. The percentage of medicines cancelled in 2013

| Type of medicines | Number of <u>group</u> | Percentage | Price (thousand VND dong) | Percentage |
|-------------------|------------------------|-------------|---------------------------|-------------|
| Herbs | 11 | 100% | 333.1 | 100% |
| Preparations | 0 | 0% | 0 | 0% |
| Total | 11 | 100% | 333.1 | 100% |

The medicine distribution status

Medicine distribution activities should be insured to control safety and efficiency to patients. Moreover, there were some differences of allocation activities between herbal medicines and HPP. These HPP were allocated like mordent medicines for the inpatients and outpatients while the herbal medicines were allocated according to two different paths. The first one is decoction applied to inpatients, and others is remedy applied to outpatients. The Clinical Department has responsibility for receiving decoction and allocating to inpatients while the outpatients receive

the prescription and remedies at Traditional medicines warehouse. The average of prescription per day is 22.2 including 7.9 prescriptions with HPP; 14.3 prescriptions with herbal medicines and 95.8 remedies were allocated at hospital (Table 7). These results make us to understand that the average of prescription with herbal medicines is nearly double more than prescription with HPP. Which is the added reason why the priority is given to using herbal medicines for treatment at traditional medicine hospital.

Table 7. The average of prescription/remedies per day in 2013

| | Prescription-with HPP | Prescription-with herbal medicines | Remedies |
|--------------------|-----------------------|------------------------------------|----------|
| Total prescription | 1,991 | 3,604 | 24,142 |
| Days | 252 | 252 | 252 |
| Average per day | 7.9 | 14.3 | 95.8 |

In general, drugs selection and procurement operation at hospital was followed principles and suitable criteria. Although the storage and distribution operation still has many shortcomings, it was put into effect faithfully and ensured the treatment quality. Dispensing operation of herbal medicine in KhanhHoa Traditional medicine and Rehabilitation hospital has many characteristics of traditional medicine hospital.

CONCLUSION

In conclusion, drugs selection and procurement operation in hospital was followed suitable principles and criteria. Although the storage and distribution operation had many limitations, the treatment quality was ensured faithfully. It should be enhanced the quality of the dispensing operation of herbal medicines through reform policy. This study has suggested lots of important solutions and proposals for the Ministry of Health, Department of Health, and hospital such as constructing a complete and modern List of hospital medicines; setting up a practical providing process of herbal medicines with electronic prescribing. This process could be seen as a basic foundation for other references and researches related to the dispensing of herbal medicines or in other traditional medicine hospitals. This study concurrently performs the role of scientific research, traditional medicines conservation and development. All medicines prepared from

medicinal plants can be used in Viet Nam as substitutes for Western drugs and Chinese herbs which, in former times, have been more important.

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