

Evaluate Effectiveness of Hubbard Purification Rundown Process for Victims of Dioxin/Agent Orange and Related Strengths, Challenges

K N Jyothirmayi¹, Dr Cheepurupalli Prasad²
Assistant Professor¹, Professor²

PYDAH COLLEGE OF PHARMACY, KAKINADA YANAM ROAD, PATAVALA

Abstract

Objective: The purpose of this research was to analyze the efficiency of Hubbard purification rundown (PR) method for victims of agent orange in the centers of detoxification.

methodologies: The research was planned as a cross-sectional study integrating quantitative and qualitative methodologies and conducted out on 30 dioxin patients, 21 health professionals, and 299 medical records in Hanoi and Da Nang facilities for dioxin detoxification (CDD) of Vietnam.

Results: A limited number of patients were clinically assessed before enrolling in and after concluding the therapy, 35%, and 0% correspondingly. In addition, 15% of patients did not complete their daily PR session in the second stage, while 20% of them were not examined daily for treatment success in the fourth step by health personnel. Furthermore, 20% of patients did not follow all 6 phases of the Hubbard PR program.

Although centers were sufficiently equipped in terms of infrastructure and equipment, the study showed that there remained barriers in implementing the Hubbard PR process, such as the lack of human resources, wasteful usage of equipment, and the lack of technology application for electronic medical records management. For patients, the obstacles include the lack of information and comprehension about the program, and high temperature during the PR sessions (63%), extended PR duration (47%), too many drugs and supplements (37%), as well as expensive cost of therapy (35%).

Conclusion: Ensuring adherence and compliance at all levels in the Hubbard PR process may have a favorable influence on the health improvement of dioxin patients.

Keywords: Hubbard purification rundown, detoxification programmanagement, purification, detoxification, Hanoi, Da Nang

Introduction

According to the latest statistics from UNDP, there are 4.8 million people in Vietnam who were exposed to dioxin [1]. Many studies have shown that dioxin, once pervades the body, can cause complicated damages at multiple sites, leading to several diseases [10-11]. Current dioxin detoxification methods mainly address symptoms through integrated measures such as improving health with a diet rich in protein, vitamins, stimulating immunity, taking liver supplements to protect liver cells, or taking antioxidants in combination with steaming. Hubbard purification rundown (PR) is a nonspecialized detoxification method that is being used for the treatment of chronic poisoning and has brought some quite effective results in several countries around the world [2, 14-15]. This method can expel deeply embedded toxins from tissues, especially adipose tissue, push these into the circulatory system, and dispose of these through the excretory system (mainly through perspiration, urine, feces). Scientific evidence shows that Hubbard PR is capable of reducing the concentration of toxins in the body fat [2, 14, 16]. In Vietnam, the Hubbard PR method was implemented by specialized doctors in the early 2010s. The initial results were highly regarded by those who were exposed to agent orange/dioxin and underwent the treatment [3].

However, there are only individual reports for each patient cohort from the detoxification centers, but no overall researches and assessments of the implementation process, as well as the related advantages and challenges. Therefore, we conducted this study with the purpose to i) Assess the current state of Hubbard PR implementation at the detox centers, ii) Assess the treatment effectiveness of the Hubbard PR process for patients who were exposed to dioxin/agent orange, and iii) Analyze the strengths and challenges related to the implementation. The results of this research will be the scientific basis for policymakers to provide guidelines for the implementation and expansion of the Hubbard PR method in detoxification centers across the country.

Materials and Methods

Study subject

For quantitative study: Patient management records of those who underwent Hubbard PR, facilities, equipment, and human resources of the process.

For qualitative study: management board of directors, head doctors at 2 centers for dioxin detoxification (CDDs). Service providers, including doctors and nurses who work directly with victims of agent orange/dioxin. Patients who underwent Hubbard PR at Da Nang and Hanoi's CDDs.

Study design

This is a cross-sectional descriptive study, combined with qualitative research methods. The qualitative portion was conducted simultaneously with the quantitative portion, to supplement information regarding the advantages and challenges related to the implementation of Hubbard PR at CDDs.

Sample size

For the quantitative research component, we used the total population sampling method. According to the statistics of the CDDs, a treatment cohort consists of roughly 30 patients, and 1 course of treatment lasts about 21 days. Patients are treated in cohorts and each patient is managed with a medical record from enrollment until the end of the treatment process.

Thus, in the first 6 months of 2019, there were about 300 patient records that were inventoried through pre-designed checklists. Among these, one record was deemed ineligible for quantitative analysis. Reports on human resources, facilities, equipment, materials, and documents facilitating the implementation of Hubbard PR at two CDDs of Hanoi and Da Nang were also inventoried through the checklist.

The qualitative research component used purposive sampling to ensure diversity in terms of age, gender, professional qualifications, working positions, number of years of medical work related to non-specialized detoxification sauna. The qualitative sample size includes 14 health workers (HWs) and 30 patients. For the HW group, two CDDs leaders were invited to participate in key informant interviews (KIIs), 12 HW and nurses were invited to participate in two focus group discussions (FGD). Regarding the patient population, 30 were interviewed during KIIs.

Data collection method

Quantitative data collection

The principal investigator (PI) was the main responsible person for examining medical records and filling out the pre-designed checklists. First, the researcher contacted the leader of the CDDs to obtain approval for data collection and received data and related reports. After accessing the records, reports, as well as reviewing the facilities and medical equipment, the researcher inventoried books and reports related to patients who underwent Hubbard PR for victims of agent orange/ dioxin within the first 6 months of 2019 (from January 2019 to June 2019) and fill in the pre-designed checklist

Qualitative data collection

KII with leaders of CDDs: the Principal Investigator (PI) contacted the leaders of the CDDs to agree on times and locations for KIIs. Each KII lasted 45 to 60 minutes and was recorded after consent was obtained from the subject. Each KII was conducted by the PI and one assistant who was in charge of taking notes and recording. A CDD leader KII guideline was used to guide the interviews.

FGD: the PI contacted the HWs who directly work with the PR treatment at the CDDs to schedule the FGDs. Each FGD lasted about 120 minutes. The PI facilitated the FGDs based on the FGD guideline, with an assistant who took notes and records.

KII with patients: the PI deliberately chose 30 patients who were undergoing Hubbard PR treatment (at the time of the study) from each CDD. Patients who participated in the study were grouped based on their sex and age. After scheduling and agreeing upon a location for the FGDs, the PI

recorded the discussions after obtaining their consent and the conduct the interview. Each interview was about 60 minutes long and followed the KII-with-patient guideline.

Data analysis

The quantitative data were entered using Epidata 3.1 and were analyzed using Stata 14.2. Variables were described through frequency and percentage. For qualitative data, information from the qualitative portion was transcribed and stored as Word files. The PI read the content of the KIIs and the FGDs to code the information and group them based on themes, using Excel 2016. Several important details of the subject were extracted to demonstrate the results of the study.

Results and Discussion

As Figure 1, the percentage of patients who were not sub-clinically tested at CDDs before registering for Hubbard PR was low, about 35% for both cities, although there was a huge gap between this proportion of Da Nang (97%) and Hanoi (0%). This is because the CDD of Da Nang, while lacks a laboratory department, is located at the city's center, where patients have access to other medical facilities for testing. In Hanoi, the CDDs lacks the personnel for the laboratory department. Thus, there is a need for human resources, along with additional equipment to implement the Hubbard PR process. However, the pre-treatment assessment of

Table 1: General characteristics of patients who underwent Hubbard PR

Indicator	Hanoi n=191, (%)	Da Nang n=108, (%)	Total n=299, (%)
Sex			
Male	82,7	66,7	83,3
Female	7,3	33,3	16,7
Occupation			
Agricultural	38,7	37,0	38,1
Others	71,3	73,0	71,9
Average age (years)	68±5	57±13	63±8

Figure 1: Proportion of patients examined clinically and sub-clinically before Hubbard PR registration (step 1)

Indicator	Hanoi n=191, (%)	Da Nang n=108, %	Total n=299, (%)
Patient exercise 15-30 minutes/day	94,2	88,0	92,0
Patient participates in all PR sessions 2,5 – 4 hours/day	86,4	83,3	85,3
Daily vitamin and mineral supplements	100,0	100,0	100,0
Adhere to daily doctor-prescribed diet	92,1	91,7	92,0
Daily health evaluation with counselling from HW	80,6	78,7	79,9

Table 2: Patients' daily exercise, steaming, nutrition supplement, health examination and counseling according to Hubbard PR process (step 2-5)

cooling baths (every 3 minutes) or rests (5-20 minutes). Meanwhile, patients in the Military Medical Academy's study only participated in saunas for up to 25 minutes/session with no cooling break in between [7]. A review of different detoxification sauna/steaming methods showed that patients were asked to participate in a sauna with different duration, from 5-30 minutes/session or 30-240 minutes over several times [13]. Another study in the US showed that the duration of the patient's steaming sessions was 14.2 (\pm 7.5) minutes/ session [12]. Therefore, in this study, there were 15% of patients who did not stay in the sauna for the whole duration, which may be due to the temperature of the Hubbard method was higher than that of the traditional method, along with the lack of awareness of patients regarding the treatment requirements and process.

At step 5 in the Hubbard PR process, we found that 80% of the patients were received daily health examinations and counseling throughout the treatment. This result is not found in the study of Nguyen Hoang Thanh and Duong Quang Hien [7-8]. Although in those studies, HWs did provide counseling and assessment of patients' condition, this activity was not performed every day. The counseling time was too short to meet patient expectations. This difference is due to each study's purposes. In this study, we are gauging the Hubbard PR compliance. Meanwhile, other studies are interested in the effectiveness of the detoxification steaming method, as shown in the changes of clinical biological indicators.

Post-treatment follow-up results showed that the majority (91%) of patients participated in the full 21 days course of Hubbard PR treatment at 2 CDDs. This rate in Hanoi (96%) was higher than that of Da Nang (83%). This may be due to the long duration of the procedure, causing several patients to become ineligible for the treatment as presented at Figure 3. Therefore, it is necessary to optimize the duration of the treatment regimen to encourage patients' full participation, in addition to explaining to the patient about the treatment process. The percentage of patients who complied with the vitamin/mineral and diet recommendation after treatment was similar between Hanoi and Da Nang: 93% with 96% and 92% with 92%. Adherence to nutrition regimens and gradual reduction of medication after treatment helps to enhance and maintain patients' health condition after treatment.

Treatment effectiveness of Hubbard PR with victims of dioxin/agent orange On the effectiveness of Hubbard PR treatment, the results showed the proportion of patients with either dermatological, neurological, musculoskeletal, gastrointestinal, or cardiovascular disorders improved significantly after undergoing the treatment. The proportion of patients with neurological disorders or with musculoskeletal disorders reduced by about 20% at post-treatment time ($p < 0.001$, Chi-squared test). The proportion of patients with either cardiovascular, gastrointestinal, dermatological, or immunological disorders decreased by 15%, 10% ($p < 0.001$,

Table 3: Treatment effectiveness of Hubbard PR with victims of dioxin

Patient group based on type of disorders	Pre-treatment	Post-treatment	P-value	Statistical test
Dermatological	8.4	0.3	0.01	Chi-Squared
Neurological	22.7	2.7	0.001	
Musculoskeletal	23.4	3.7	0.001	
Cardiovascular	18.7	4	0.001	
Pulmonary	5	1.7	0.03	
Immunological	8.7	3.7	0.01	
Gastrointestinal	10.7	1	0.001	
Urinary	3	1.3	0.17	

Challenges in implementation of Hubbard PR

Chi-squared test). 8%, and 5% ($p < 0.001$, Chi-squared test), respectively. Meanwhile, the proportion of patients with urinary disorders or with pulmonary disorders decreased by 2% and 3% respectively, showing reduction but remained statistically insignificant ($p > 0.05$, Chi-squared). This result is similar to the results of Nguyen Xuan He: 92% of patients with cardiovascular diseases, 76% of patients with mental diseases/disorders saw improvement [9]. According to the VAVA report in the Thai Binh province, symptoms that improved the most were: limb numbness, osteoarthritis pain, insomnia headache, hypertension [4].

The proportion of patients who did not see any changes or felt more tired after treatment was 13.7% (15.7% in Hanoi and 12% in Da Nang). This may be because the patient did not adhere to the nutrition and medication regimen, thus feeling tired while participating in the sauna. Therefore, it is necessary to strictly monitor and control the vitamins and minerals supplements and diet of patients, while developing a specific exercise regimen and diet suitable for each patient.

Human resources

KII with CDDs' leaders and FGDs with HWs showed that the current human resources for Hubbard PR operation remained

scarce. The total number of HWs at both CDDs was 16, which was not sufficient. Therefore, one person had to be responsible for multiple positions during the treatment process. This could be explained by the current benefits and salary, which were not appropriate for attracting high-quality personnel. Meanwhile, at private practices and service providers, the benefits and salary were more well-received compared to that of the CDDs. Therefore, to ensure the appropriate human resources for the process, the CDDs need to have plans for additional hiring and improving the current benefits and salary for employees.

Regarding the quality of the human resources, the current state at the CDDs was not sufficient, as the CDDs had become operational for only a short amount of time, as well as some HWs lack work experience or the lack of good benefits and salary package to attract high-quality professionals. All of these contributed to a lack of high-quality professionals. Despite the lack of facilities, equipment, and human resources, the HWs were enthusiastic, passionate, and creative in their jobs. To better the human resource quality, the CDDs should organize panel discussions on medical specializations between HWs from the CDDs and other facilities, inviting experts to work as consultants at the CDDs, improve the benefits/salary to attract high-quality professionals, and organize capacity building sessions for HW while encouraging HWs to self-learn and self-develop their technical capacities.

Facilities, equipment, and medical material

The initial facilities and equipment were sponsored by various funds to ensure the initial basic operation of the CDDs. However, each CDD needs to have their plan for maintenance that is suitable for the current situation, while developing a strategy for expansion in order to meet the increasing demand.

Financial factor

All CDDs depend on 2 main sources of funding, one from the Social Protection Centers of the Department of Labor, Invalids and Social of provinces/cities, and the other source from socialization, funded by businesses, organizations, and individuals' donations. However, this source of funding is often used for travel and allowance expense of treatment participants. With such limited fundings, it is difficult to repair, maintain, and purchase new equipment, as well as attracting and fostering high-quality human resources. Therefore, the leaders of the CDDs have proposed to develop a plan to establish a branch for general population service, those who are not agent orange/dioxin victims (chemical poisoning, occupational hazards, heavy metal poisoning, heroin addiction...) to increase funding for each center.

Technology application

The CDDs were not equipped with electronic medical records management software, so there were still many difficulties in managing and monitoring patients. Besides, there were not enough human resources to operate the system.

Therefore, in the future, it is necessary to sufficiently secure human resources and electronic equipment

Management and related documents

The CDDs are under the provincial Association of Agent Orange Victims and operate based on the counseling of the Department of Health, following the guidelines of the City People's Committee. The CDD is responsible for performing steaming, detoxification, rehabilitation, and health improvement for victims of agent orange/dioxin and other poisoned patients. With such a structure, the CDD can easily update on the policies, guidelines, and operating policies of the association as well as obtain the necessary information of the subjects involved in the detoxification. Strict organizational structure, units operating in one process under the direction of the Board of Directors leads to high professionalism and ease in implementing the PR process. Management efficiency was not optimal, due to the lack of human resources. The solution to overcome this is to develop recruitment plans and attract high-quality human resources. Although the CDDs have Hubbard PR implementation guidelines, the documents were not localized to be suitable with the current conditions of the CDDs. Therefore, the CDDs need to develop a set of instructions to suit the local conditions.

Patient-related factors

The results of patient KIIs showed that patients were mainly introduced by health workers at the CDDs, and the level of knowledge about Hubbard PR was limited, which may be due to the lack of promotion and publicity. In this regard, the CDDs should cooperate with the Central Association of Agent Orange/Dioxin Victims to introduce, advertise Hubbard PR using media (newspaper, radio, internet...), organize seminars and conferences for victims of agent orange/dioxin, and the community. Most of the patients interviewed considered the Hubbard PR method as effective and suitable for agent orange/dioxin victims. The Hubbard PR method was developed based on the principle of detoxification through sweat, digestion, and urology while combining additional vitamins and minerals to improve health. Meanwhile, victims of dioxin often suffer from chronic diseases that affect their health, so this method is very suitable for the subjects.

During the implementation of Hubbard PR, some advantages were the enthusiastic, thoughtful and creative attitude of HWs. In addition, Hubbard PR was also trusted by the patient's family members. This is one of the advantages that helped patients and health workers share difficulties in the treatment process. In addition, a number of patients thought that Hubbard PR was quite

simple and easy to implement. However, there were still some difficulties in the process of Hubbard PR, such as excessive temperature, dose of drugs, and exercise. This may be due to the fact that patients were mostly elders and were suffering from many associated chronic diseases. Therefore, the initial classification of health and development of the Hubbard PR for each subject is very important. In addition, some patients felt that the duration (21 days) was relatively long for them because, in addition to steaming, patients were also periodically examined for other chronic diseases (hypertension, diabetes mellitus, COPD

...); and, patients found themselves feeling relatively well after about 10-14 days. Therefore, many patients suggested shortening the treatment time, to ensure continuous treatment.

Conclusion

Regarding the execution of Hubbard PR, while the CDDs and the majority of patients have followed the directions, the percentage of patients getting clinical testing before and after therapy was rather low, respectively 35% and 0%. The number of patients who did not engage in all PR sessions with a length of 2-4.5 hours/ day was 15%, approximately 20% of them were not assessed by physicians utilizing questionnaires after each day of therapy. In addition, roughly 20% of patients did not comply to 6 phases of the procedure. Regarding adherence to diet and vitamin consumption at the completion of therapy 1 month, the proportion of patients who complied with taking vitamin and mineral supplements was 94%. Lastly, 92% of them adhered with the daily diet of vegetables, fruits, and protein. Regarding the efficacy of Hubbard PR in reducing clinical symptoms of patients, the percentage of patients with either neurological, musculoskeletal, cardiovascular, gastrointestinal, or immunological diseases fell dramatically, with the reduction ranging anywhere from 5% to 20%. However, the Hubbard PR procedure did not demonstrate any benefit with patients with urinary or pulmonary problems. For CDDs, the barriers in the implementation of Hubbard PR include inappropriate human resources, unattractive benefits, and salary, inappropriately designed and deteriorating saunas, inefficient use of equipment, or the lack of equipment for indoor exercise, or long time for drugs transfer from the central to local branches. In addition, there was a lack of implementing of technology and electronic medical records management at the CDDs, which created various difficulties owing to the shortage of staff to run and administer the system. Currently, there is no formal guideline released by the MOH or the Provincial Department of Health to assist CDDs on how to adopt Hubbard PR. For patients, there were other obstacles, such as the lack of comprehension of the therapy or patients not following to the treatment plan. In addition, some additional issues were: PR temperature too hot (63%), extended PR session duration (47%), too many drugs required during treatment (37%), and the cost of therapy is too high (35%).

References

1. UNDP Ministry of Natural Resources and Environment. 50 Q&A about Agent Orange/dioxin (2015).
2. Mai Nam VO and Dinh Khuynh. Results of the application of the National Criteria for Commune Health in 2013 (2014).
3. Nguyen Van Tuong. Evaluation of changes in several hematological and biochemical markers in exercise individuals according to the revised Hubbard technique, Hanoi Medical University (2010).
4. Survey of the Central Scientific Committee of the Association and the Association of Victims of Agent Orange - dioxin in Thai Binh province. Assessing the efficacy and expense of therapy to enhance the health of those contaminated with Agent Orange by use of a technique. Hubbard detox sauna, Hanoi (2016).
5. VO Ha. Healing without medications, Oriental Publishing House (2008).
6. The Scientific Committee of the Central Association and the Association of Victims of Agent Orange - dioxin in
7. Thai Binh Province. Survey; analyze the efficacy and cost of therapy to enhance the health of those afflicted with Agent Orange by way of procedures. Hubbard detox sauna, Hanoi (2016).
8. Nguyen Hoang Thanh, et al. "Evaluation of non-specific detoxification effectiveness in people exposed to Agent Orange/dioxin at 103 Military Hospital", Journal of Military Medicine and Pharmacology 1 (2015): 98-103.
9. Duong Quang Hien. Studying the safety and efficiency of detoxification of the technique "GD-103" on persons exposed to Agent Orange/dioxin (2017).
10. Nguyen Xuan He. Detoxification by Lerol Huberd method, Ha Tinh (2015).
11. Institute of Medicine. "Veterans and Agent Orange: Update 2012", 2014: Washington DC (2014).
12. Andrey A, Panteleyev and David R Bickers. "Dioxin- induced chloracne-reconstructing the cellular and molecular mechanisms of a classic environmental disease", Experimental dermatology 15 (2006): 705-730.
13. CG Maulfair. Sauna detoxification of metals, pesticides and chemicals: Addressing the background exposures and rising health issues of an industrial culture, New York (2005).
14. Cochrane Systematic Review "Inpatient versus other venues for detoxification for opioid dependency" (2005).

15. Joy Hussain and et al. "Clinical Effects of Regular Dry Sauna Bathing: A Systematic Review", PubMed access (2018).
16. Kunutsor SK. Sauna bathing decreases the risk of stroke in Finnish men and women: A prospective cohort study (2018).