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editor@iajav.com
iajav.editor@gmail.com



Examine the benefits and drawbacks of the Hubbard purification rundown procedure for those exposed to Dioxin and Agent Orange.

G. Divya¹ , N. Rajeswari² , K. Pavithra³ , K. Sandeep kumar Reddy⁴ ,

Abstract

Objective: The purpose of this research was to evaluate the efficacy of the Hubbard purification rundown (PR) method for agent orange victims undergoing detoxification at designated facilities.

The research included 30 dioxin patients, 21 health care providers, and 299 medical records from CDD facilities in Hanoi and Da Nang, Vietnam, and was conducted as a cross-sectional study using quantitative and qualitative methodologies.

Approximately 35% of patients were clinically assessed before to enrollment, and 0% were clinically checked following treatment completion. In the second phase, 15% of patients did not complete their PR session daily, and in the fourth phase, 20% of patients were not examined daily for treatment success by health professionals. In addition, 20% of people in the Hubbard PR study did not complete all 6 of the program's components.

A lack of human resources, inefficient use of equipment, and a failure to apply technology for electronic medical records management were all identified as obstacles to implementing the Hubbard PR process, despite centers having adequate infrastructure and equipment. Problems that patients face include: extended PR duration (47%), too many drugs and supplements (37%), high expense of therapy (35%), and lack of knowledge and comprehension of the program (63%).

The health of dioxin patients may be improved by ensuring they follow the Hubbard PR procedure from start to finish.

Keywords: Overview of the Hubbard Purification and Detoxification Procedures; Detoxification Program Administration; Hanoi and Da Nang

Introduction

The United Nations Development Program estimates that 4.8 million Vietnamese have been exposed to dioxin [1]. Once dioxin is absorbed by the body, it may cause extensive harm in a number of organs and systems, increasing the risk of developing numerous illnesses [10, 11]. Today's dioxin detoxification protocols focus mostly on relieving symptoms by holistic means, such as eating a protein- and vitamin-rich diet, activating the immune system, supplementing with glucosamine and choline to protect liver cells, or combining antioxidant pills with steaming.

Hubbard purification rundown (PR) is a nonspecialized detoxification approach that has shown promising effects in the treatment of chronic poisoning in a number of countries [2, 14-15]. In particular, adipose tissue may have its deeply buried toxins expelled, pushed into the circulatory system, and eventually excreted (mostly through sweat, urine, and feces). There is scientific evidence to suggest that Hubbard PR may lower

the amount of toxins stored in adipose tissue [2, 14, 16]. In the early 2010s, physicians in Vietnam began using the Hubbard PR strategy. Agent orange/dioxin victims who have had therapy so far have been quite pleased with the outcomes [3].

No comprehensive studies or reviews of the implementation process or its associated benefits and drawbacks have been conducted, while individual reports for each patient cohort from detoxification facilities do exist. This study was undertaken to: i) evaluate the degree to which Hubbard PR has been implemented at detox centers; ii) evaluate the efficacy of the Hubbard PR process in treating patients who have been exposed to dioxin/agent orange; and iii) examine the advantages and disadvantages of this approach. The findings of this study will provide policymakers with the evidence they need to establish standards for implementing the Hubbard PR approach in treatment facilities throughout the nation..

1. G. Divya, Assistant professor, Department of Pharmaceutical Analysis, Sri Venkateswara College of Pharmacy, Etcherla, Srikakulam. Email: jayadivya07@gmail.com

2. N. Rajeswari, Assistant professor, Department of Pharmacology, Sri Venkateswara College of pharmacy, Etcherla, Srikakulam.

3. K. Pavithra, Assistant professor, Department of Pharmaceutical Analysis, Sri Venkateswara College of Pharmacy, Etcherla, Srikakulam.

4. K. Sandeep kumar Reddy, Assistant professor, Department of Pharmaceutical Analysis, Sri Venkateswara College of Pharmacy, Etcherla, Srikakulam.,



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

Total population sampling was used for the quantitative analysis. CDD data suggests that a therapy cohort comprises of around 30 patients, and that a typical treatment course lasts about 21 days. From enrollment all the way through discharge, patients are monitored using a single electronic medical record.

As a result, about 300 patient data were inventoried using pre-designed checklists in the first half of 2019. One of these records was considered unsuitable for numerical evaluation. Using the criteria, we tallied up the people power, infrastructure, technology, and paperwork that would be needed to get Hubbard PR up and running in the two CDDs located in Hanoi and Da Nang.

Purposive sampling was employed in the qualitative study to guarantee a wide range of ages, sexes, education levels, occupations, and experience levels with non-specialized detoxification saunas. 14 HWs and 30 patients make up the qualitative sample size. Two leaders from CDDs were asked to take part in key informant interviews (KIIs), and a total of 12 HWs and nurses were asked to join two separate focus groups (FGDs). Thirty people from the patient group were spoken to for KIIs.

Data collection method

Quantitative data collection

The primary investigator (PI) was in charge of reviewing patient data and completing out all necessary forms. To begin, the researcher contacted the head of the CDDs to

request permission to collect data and to start receiving data and reports. After reviewing patient records, facility reports, and medical equipment, the researcher created an inventory of books and reports pertaining to patients who underwent Hubbard PR for victims of agent orange/ dioxin in the first half of 2019 (January through June).

Qualitative data collection

The PI contacted the heads of the CDDs to set up KIIs and coordinate when and where they would take place. After obtaining the subject's permission, each KII lasted between 45 and 60 minutes and was recorded. The PI and an aide who acted as notetaker and recorder attended each KII. The interviews were structured according to a CDD leader KII standard.

FGD: The FGDs were scheduled after the PI contacted the HWs at the CDDs who deal directly with the PR therapy. About 120 minutes went by throughout each FGD. The PI led the FGDs while an aide recorded and made notes on the discussions in accordance with the FGD guidelines.

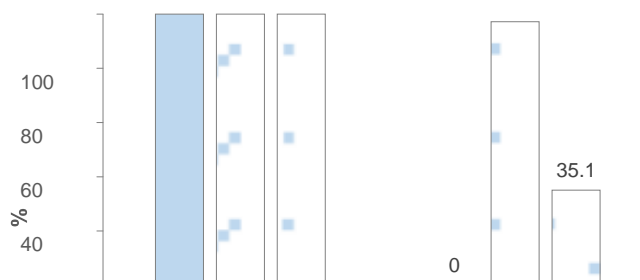
KII with patients: The PI purposefully selected 30 patients from each CDD who were receiving Hubbard PR therapy at the time of the trial. The study's participants were divided into subsets defined by their age and gender. The PI would arrange a time and place for the FGDs, get the participants' permission to record the conversation, and then conduct the interview. Following the KII with patient protocol, each interview lasted for about 60 minutes.

Data analysis

Epidata 3.1 was used for data entry, while Stata 14.2 was used for analysis of the quantitative data. Frequency and percentage were used to characterize the variables. Transcripts of the interviews used to compile the qualitative data were saved as Word documents. The PI read the KIIs and FGDs in order to code the data and categorize the results in Excel 2016 based on common themes. Several crucial aspects of the topic were gleaned in order to illustrate the findings of the research.

Results and Discussion

General descriptions of patient subjects



Agricultural	38,7	37,0	38,1
Others	71,3	73,0	71,9
Average age (years)	68±5	57±13	63±8

Examined of clinical indicators Sub-clinically tested
 ■ Hanoi (n=191) □ Da Nang (n=108) □ Overall (n=299)

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

According to Table 1, the median age of patients exposed to agent orange/dioxin was 63 (range, 50-80). During the categorization phase, all patients had their blood pressure, height, and weight taken, as shown by the result clinical indicators. Nguyen Hoang Thanh, Duong Quang Hien, Tran Xuan Thu, and Pham Cong Nong find the same thing in their research [4, 6-8]. These are the bare minimum for signing up for Hubbard PR with our preferred service providers.

From Table 2, we can see that 92 percent of patients exercised daily for at least 30 minutes (step 2), 85 percent participated in sauna sessions for 2 to 4.5 hours (step 3), 100 percent took their vitamins and minerals as prescribed (step 4), and 92 percent followed their prescribed daily diet. This conclusion is consistent with a research done in Thai Binh but diverges from those made by the Military Medical Academy [4, 7]. Patients in this research were also instructed to spend four hours per day in the sauna, which is consistent with other previous studies [4, 9, 15-16] from Finland, Thai Binh province, and Ha Tinh province. With regards to the sex distribution of patients, the first half of 2019 saw 80% male patients undergo Hubbard PR at 2 CDDs. The 103 Military Hospital's research yielded similar results (70% and 89%) [7]. Ninety percent of patients did not work in agriculture before to retirement but instead had employment in the military, government, or the service sector. Similar findings were found in a research by Duong Quang Hien, whereby 91% of patients were military officials and 9% were enlisted men.free agents [8].

Figure 1 shows that although the number of patients in both cities who did not undergo sub-clinical testing at CDDs before to registering for Hubbard PR was low, the difference between the two cities was enormous, with 97% of patients in Da Nang undergoing such testing and 0% in Hanoi. Since the Da Nang CDD is centrally placed in the city, patients may easily visit other medical institutions for testing, despite its absence of a laboratory section. The laboratory division of the CDDs in Hanoi is understaffed. As a result, the Hubbard PR process requires both more personnel and tools for its realization. However, in the pre-treatment evaluation 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			

In accordance with the Hubbard PR process (steps 2-5), patients engage in physical activity (every 3 minutes), get nutritional supplementation (every 3 minutes), have a health assessment and receive counseling for 5-20 minutes daily (see Table 2). Patients in the research conducted by the Military Medical Academy only used the saunas for up to 25 minutes each session [7]. Patients were instructed to sauna anywhere from 5 to 30 minutes at a time, or for 30 to 240 minutes in total [13], according to a study of detoxifying sauna/steaming treatments. Patients in another American trial steamed for an average of 14.2 (7.5) minutes each session [12]. Due to the higher sauna temperatures associated with the Hubbard method compared to the traditional method, and patients' general lack of understanding of what was expected of them throughout the course of treatment, this study found that 15% of patients did not complete the full sauna session.

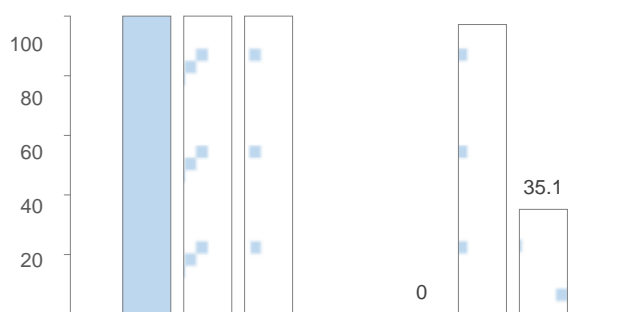
Step 5 of the Hubbard PR model indicated that daily health checkups and counseling were provided to 80% of the patients. This finding is absent from Nguyen Hoang Thanh and Duong Quang Hien's research [7-9]. HWs did provide counseling and evaluation of patients' conditions in those trials, but they did not do so on a daily basis. Shorter sessions of therapy might have been more appropriate. The aims of the various studies explain this variation. We are measuring Hubbard PR conformance in this analysis. The changes in clinical biological indicators have attracted the attention of other researchers, who are also interested in the detoxification steaming method. Results from patients who were followed up with after treatment showed that the vast majority (91%) completed the full 21-day course of Hubbard PR treatment at 2 CDDs. Hanoi's rate (96%) was much higher than Da Nang's (83%). Several individuals may be deemed ineligible for treatment owing to the lengthy duration of the surgery, as seen in Figure 3. Therefore, it is important to explain the treatment process to the patient and maximize the length of the treatment regimen to promote the patient's complete involvement. Similar percentages of patients in Hanoi (93%) and Da Nang (92%), both before and after therapy, followed the

vitamin/mineral and food recommendations. Patients' health is improved and maintained by post-treatment drug tapering and dietary regimen adherence.

The efficacy of Hubbard PR treatment for dioxin/agent orange sufferers Hubbard PR therapy demonstrated remarkable improvement in a large percentage of patients with dermatological, neurological, musculoskeletal, gastrointestinal, and cardiovascular diseases. After therapy, around 20% fewer individuals had neurological or musculoskeletal issues (p .0001).

Chi-squared test, p 0.001). Reductions of 15%, 10% (p 0.001), and 5%, respectively, in the percentage of patients with cardiovascular, gastrointestinal, dermatological, or immunological diseases were also seen.

As can be seen in Figure 2, none of the patients in our research had any sub-clinical testing after medication. Meanwhile, this rate was a perfect 100 in investigations of CDDs at 103 Military Hospital, Ha Tinh, and Thai Binh [4, 7, 9]. This divergence can be explained by the fact that the authors of the other studies focused on measuring clinical indicators of patients before and after treatment in order to evaluate the efficacy of their intervention, a specialized detoxification sauna method, or to monitor the long-term effectiveness of the treatment. Moreover, 103 Military Hospital's research relied on inadequate sample sizes.



Clinical markers including ALT enzyme activity, GGT, and blood protein content were examined, yielding a score of 97.2% (34 and 35 patients, respectively) [7]. Over the course of two years, researchers in Thai

Binh followed 28-32 patients in each of four cohorts to see what effect detoxifying sauna therapy had on 820 individuals [4]. To determine whether or whether the Hubbard PR approach is effective as a therapy, this research received substantial funding. Therefore, prior to enrollment in therapy, it is vital to assess the clinical signs during the categorization phase. Meanwhile, we conducted a cross-sectional research to assess the utilization of Hubbard PR in patient record management. Patients' most recent general health information was taken into account during categorization at Hanoi's CDD.

Examined of clinical indicators tested Hanoi (n=191) Sub-clinically Da Nang (n=108) Overall (n=299)

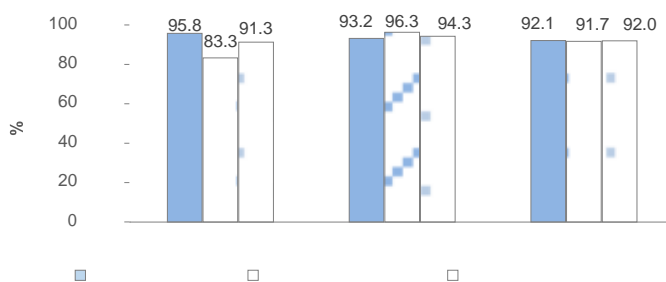


Figure 2: Clinical and sub-clinical evaluation during Hubbard PR of patients and after treatment ends (Step 6)

health examination results as well. Therefore, almost all

patients who were enrolled in Hubbard PR treatment during the first 6 months of the year were not clinically tested before enrollment.

Figure 3: Follow-up on vitamin/mineral supplements and nutritious diet adherence of patients one month after the end of treatment

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

The Chi-Square Analysis. respectively 8% and 5% (Chi-

squared test, p 0.001). While the percentage of patients who had urinary or lung issues fell, the changes were not



statistically significant ($p > 0.05$, Chi-squared). Nguyen Xuan He's findings are comparable to this one: Improvement was shown in 76% of those struggling with mental health issues and 92% of people struggling with cardiovascular disease [9]. The VAVA study in Thai Binh province found that limb numbness, osteoarthritis pain, sleeplessness, headaches, and hypertension all improved significantly.

A total of 13.7% of patients in Hanoi and 12% in Da Nang reported no improvement or worsening fatigue after therapy. The patient may have felt fatigued in the sauna because he or she had not followed the prescribed diet and dosage of medicine. As a result, it's crucial to keep a close eye on patients' intake of vitamins and minerals and to help them find an activity and dietary plan that works for them.

Human resources

FGDs with HWs and KIIs with CDD leaders both confirmed the lack of available human resources for Hubbard PR at the moment. Both CDDs had just 16 HWs overall, which was much too few. This meant that throughout therapy, a single individual had to take on many roles. That's probably because the pay and perks on offer right now aren't competitive enough to lure in top talent. Meanwhile, perks and income were more positively received at private practices and service providers than at CDDs. Therefore, CDDs need to have plans for further recruiting and upgrading present perks and remuneration for workers in order to provide sufficient human resources for the process.

The existing status of the CDDs' human resources was insufficient since the CDDs had only just begun operations, and because certain HWs lacked the necessary work experience or the CDDs lacked the competitive perks and pay packages necessary to recruit top-tier employees. All of these factors lead to an inadequate supply of qualified workers. The HWs were upbeat, committed, and resourceful while working with limited facilities, tools, and personnel. Improve the quality of human resources by holding capacity building sessions for HW and encouraging HW to self-learn and self-develop their technical capacities; host panels featuring HW from the CDDs and other facilities discussing medical specializations; invite experts to work as consultants at the CDDs; increase benefits/salary to attract high-quality professionals; and so on.

Facilities, equipment, and medical material

In order to get the CDDs up and running, numerous organizations donated money toward infrastructure costs. Each CDD, however, must devise its own maintenance strategy appropriate to the present while also planning for growth to meet the growing need.

Financial factor

The Social Protection Centers of the Department of Labor, Invalids, and Social of provinces/cities is one major source

of financing for all CDDs; the other is socialization, which is supported by contributions from corporations, organizations, and people. Participants' travel and living expenses are often covered by this source of financing. It is challenging to repair, maintain, and buy new equipment, as well as recruit and cultivate high-quality human resources, when resources are restricted. Therefore, in order to enhance financing for each center, the heads of the CDDs have advocated developing a plan to build a branch for general population care, i.e., those who are not victims of agent orange/dioxin (chemical poisoning, occupational hazards, heavy metal poisoning, heroin addiction...).

Technology application

There were still significant challenges in maintaining and monitoring patients since the CDDs lacked electronic medical records management software. On top of that, there simply weren't enough people to run the system. Therefore, in the future, it will be essential to adequately protect both human resources and technological infrastructure.

Management and related documents

The provincial Association of Agent Orange Victims oversees the CDDs, which are run with guidance from the Department of Health's counseling and under the parameters set by the City People's Committee. Victims of agent orange/dioxin and other poisoned patients will undergo steaming, detoxification, rehabilitation, and health enhancement by the CDD. The CDD can more readily keep up-to-date on the association's rules, guidelines, and operational procedures and collect the essential data on the people undergoing detoxification using this setup. High levels of professionalism and simplicity of implementation in the PR process are the result of a strict organizational structure, in which units operate in one process under the guidance of the Board of Directors. Inadequate personnel meant that management could not function at peak efficiency. Creating strategies for recruiting and attracting high-quality human resources is the key to overcoming this challenge. There are Hubbard PR implementation recommendations for the CDDs, but they haven't been adapted for the region's specifics. As a result, CDDs need a set of guidelines tailored to the specifics of the area.

Patient-related factors

Patient KII data revealed that patients were mostly exposed to Hubbard PR by healthcare providers at CDDs, and that overall awareness of the condition was low, perhaps because to a lack of marketing and exposure. To this end, CDDs should work with the Central Association of Agent Orange/Dioxin Victims to publicize Hubbard PR via various channels (print, broadcast, online, etc.), as well as host events like seminars and conferences for those affected by the poison. Patients who were asked about their experiences with Hubbard PR generally agreed that it would be helpful for those who had been exposed to agent orange or dioxin. Detoxification via perspiration, digestion, and urology formed the basis for the Hubbard PR approach, which also incorporates the use of other nutritional supplements to promote good health. Dioxin



sufferers, who often have health issues over the long term, are excellent candidates for this approach.

Some benefits of Hubbard PR implementation were HWs' positive, introspective, and innovative demeanor. The patient's loved ones also had faith in Hubbard PR. One benefit that has helped both patients and healthcare providers cope with treatment challenges is the ability to talk about such challenges openly. Additionally, several users have commented on how user-friendly Hubbard PR is. Hubbard PR ran into a few snags along the way, including high temperatures, medication dosages, and strenuous physical activity. Because of the high prevalence of several chronic illnesses among the elderly patient population, this may be the case. Therefore, it is crucial to properly categorize each subject's health and establish a Hubbard PR. Some patients also found the 21-day timeframe to be excessive since it included not just steaming but also frequent checks for other chronic conditions like as hypertension, diabetes mellitus, and chronic obstructive pulmonary disease...); and, after 10-14 days, patients reported feeling mostly better. Because of this, numerous patients have proposed cutting treatment times in half.

Conclusion

Although most patients and CDDs have followed Hubbard PR's implementation guidelines, only 35% of patients received clinical testing before therapy and 0% received them subsequently. Nearly 20% of patients were not examined by physicians utilizing questionnaires after each day of therapy, and 15% did not attend all PR sessions lasting 2-4.5 hours/day. Also, about 20% of patients did not follow the recommended 6 steps. After a therapy period of 1

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Declaration of Conflicting Interests

The authors of this work have stated that they have no competing interests related to its research, writing, or dissemination.

Author Contributions

HDH and TNT conceptualized the concepts, gathered the data, evaluated the data, and mostly wrote the paper.

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month had concluded, 94% of patients were still taking their vitamins and minerals as prescribed. Finally, 92% of them ate the recommended amounts of vegetables, fruits, and protein every day. Patients with neurological, musculoskeletal, cardiovascular, gastrointestinal, or immunological problems made up a smaller percentage of those treated with Hubbard PR, with reductions ranging from 5 to 20 percent. Urinary and respiratory disease patients, however, did not benefit from the Hubbard PR method. Improper personnel, unattractive benefits and salary, poorly designed and deteriorating saunas, inefficient use of equipment, or a lack of indoor exercise equipment, and lengthy drug transfers from the central to local branches all pose challenges to CDDs's efforts to implement Hubbard PR. The CDDs also suffered from a severe shortage of resources in the form of personnel to run and administer technological initiatives like electronic medical records management. The Ministry of Health and the Provincial Department of Health have not provided any guidelines for CDDs to follow in order to adopt Hubbard PR at this time. There were additional difficulties for patients, such as a lack of knowledge about the therapy or a failure to follow the prescribed course of action. Too many drugs are required during therapy (37%), the expense of treatment is too high (35%), and the temperature of the PR is too hot (63%).

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