Did you know?

Another option of dialysis therapy.
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※ The content of this guide can be downloaded from the website of Shinagawa Garden Clinic (http://www.gardenclinic.org).
Home hemodialysis (HHD) is a treatment option that allows patients to perform hemodialysis at home under the supervision of physicians. I often hear patients saying that they do not have a clear picture of this therapeutic modality, but the illustration on the left will provide an image of the reality and possibility of HHD.

This illustration was drawn by a painter with profound knowledge of HHD, and shows that dialysis can be woven into the fabric of daily life. With this modality, it is possible to dialyze a large volume of blood any time at home, and improved QOL and patient prognosis can be expected.

Actually, HHD is a traditional therapy which has been used safely and effectively by many patients and healthcare professionals for more than thirty years. In honor of their consistent efforts, Reiseikai has actively introduced new systems and been promoting HHD as a second-generation of HHD community.

I have prepared this guide for patients as part of our project to promote HHD. I sincerely hope that this guide will contribute to your understanding of HHD.

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Guest professor of Sen Sok International University

Japanese Society of Internal Medicine: Board certified member
Japanese Urological Association: Board certified urologist
Japanese Society for Dialysis Therapy: Fellow (Board certified member)
Japanese Society for Transplantation: Board certified transplant physician
Japanese Society for Clinical Renal Transplantation: Board certified member
Japanese Society for Home Hemodialysis: Council member and Secretary of the Society
Japanese Society of Nutrition and Renal Insufficiency: Inspector of the Society
Japan medical Association: Certified occupational health physician
Member of International Society of Nephrology (ISN) and International Society of Blood Purification (ISBP)
What is HHD?

What kind of therapy is HHD?

HHD is a treatment option that allows patients to perform hemodialysis at home under the supervision of physicians. A hemodialysis machine is installed in the home, and the patient performs hemodialysis by manually assembling the circuit, performing shunt puncture, monitoring his/her condition during dialysis, and retransfusion.

What are the benefits of HHD?

HHD has various benefits. It allows dialysis to be performed at home at any time, and the biggest benefit is that it is possible to dialyze a large volume of blood, which is known to yield a good prognosis. Dialysis should be performed gradually over time. It can loosen food restriction, improve nutrition, and help physical conditioning. Since it can be performed at home at any time, it allows a large volume of blood to be dialyzed more easily. Outpatient dialysis is provided up to fourteen times a month in principle, while HHD can be performed every day or every other day. When the number of dialysis days is increased, adequate dialysis can be provided “more frequently”, which helps in stabilizing the physical condition of the patient.

What is the difference between HHD and peritoneal dialysis (PD)?

PD is a treatment in which a catheter is inserted into the peritoneal cavity, and the dialysis fluid is infused. Both PD and HHD are home dialyses, but they are completely different methods and involve completely different mechanisms.

Are there any benefits of HHD?

Here is a list of benefits of HHD.

1. It allows a large volume of blood to be dialyzed more easily (gradually, over time, and frequently).
2. Patients can have more time with family members and friends, and less restriction on working.
3. The burden of outpatient visits will be substantially reduced.
4. Since the patient can use a hemodialysis machines exclusively, it is easy to change the dialysate, etc. (prescribed dialysis).
5. There is a lower risk of hospital-acquired infection (influenza, infectious enteritis, hepatitis, HIV, etc.).
Can everyone perform HHD?

Basically, HHD is safe. However, in terms of emergency responses, it is associated with more risks than outpatient hemodialysis, where healthcare professionals are always on standby. Therefore, outpatient dialysis is recommended for patients with cardiac disease, who are at a high risk of heart attack or large fluctuations in blood pressure during dialysis. Also, since HHD is provided at home, self-management skills are very important. HHD is not recommended for those with inadequate self-management skills.

Is it possible to perform HHD alone at home?

Reiseikai trains and instructs patients so that they can perform all the procedures related to HHD. However, to ensure safety, HHD alone, in the absence of an attendant, is prohibited. There should always be someone available to attend to the patient during HHD.

Who will perform puncture?

The patient must perform the puncture by himself/herself. However, if a family member is a qualified physician, nurse or clinical engineering technologist, he/she can also perform the puncture. Many patients feel anxious about self-puncture, but patients rarely give up HHD because of difficulty in self-puncture. If the patient can become used to self-puncture, he/she will be responsible for the puncture, and can perform the puncture more stably, with few errors.

Can an artificial vessel, a subcutaneously fixed superficial artery, or an indwelling catheter be used for HHD?

Patients with an artificial vessel graft serving as a shunt can adopt HHD, but adequate care is needed for the puncture and hemostasis. Since it is necessary to detect and respond to any problems, such as infection of the artificial vessel graft as early as possible, HHD is associated with a high level of difficulty and risks. For the case of a subcutaneously fixed superficial artery, self-puncture and self-hemostasis are considered to be extremely difficult, and HHD cannot be performed, in principle. If there is an indwelling catheter, HHD may be possible, but adequate attention to infection control is required as same as the case of artificial vessel grafts. Patients with ordinary shunts who face extreme difficulty in puncture may also not be able to adopt HHD.
Reiseikai trains and instructs patients so that they can perform all the procedures related to HHD. Therefore, it would be helpful to have a helper who can be trained with the patient and would understand all the procedures, but it is not essential. However, the patient should have someone to attend to him/her during the dialysis sessions to ensure his/her safety. The attendant should meet all of the four conditions listed below.

① Should be in the same home as the patient, and be in relatively close proximity to the patient during treatment.
② Should be able to make an ambulance call or contact the clinic in case of any emergency.
③ Should be able to stop bleeding by applying pressure in the event of bleeding, and also be able to immediately stop the dialysis machines.
④ Should fully agree with the patient to perform HHD.

An attendant for the patient who meets all of the above conditions is essential for the adoption of HHD.

As with the case of outpatient hemodialysis, HHD is also covered by health insurance. Therefore, the patient can perform HHD "with no co-pay" or "with a certain amount of co-pay, depending on income (usually 10,000 to 20,000 yen/month). However, the patient should bear the initial costs of installation of the dialysis-related equipment and also the utility costs after the start of HHD. The initial costs include costs for increasing the electrical capacity (usually, several thousand yen), installing a grounding wire to an electrical outlet (usually, several thousand to 10,000 yen), installing a circuit breaker for the dialyzer (optionally, and usually 10,000 to 20,000 yen), preparing a water supply and drainage system for the HHD room (about 20,000 to 400,000 yen, which varies widely according to the conditions and methods selected), and installing a valve or pump to adjust the running water pressure (usually, 0 to 100,000 yen, which varies according to the water pressure). In addition, installation of an alarm system for water leakage, should the patient choose to have one, will incur separate costs. No maintenance costs other than the utility costs are usually required after the start of HHD. Utility costs will differ according to the frequency of dialysis, but the costs are expected to be 1.2 to 1.5 times higher than the costs incurred before the start of HHD.

In general, it is not necessary for the patient to bear the cost of installing, changing and removing the equipment, but if the patient moves the installation site for personal reasons, such as moving homes, the expense will be borne by him/her, in principle. While it seems that HHD will incur a lot of costs, it must be remembered that the cost of outpatient visits will be considerably decreased. HHD will enable patients to work and live smoothly, and provide substantial economic benefits. This point should be carefully taken into account.
What is the length of the training period before HHD can be initiated?

Adequate training is essential prior to the initiation of HHD; starting HHD without adequate training is very dangerous. Reiseikai utilizes its own manual, etc., to allow transition to HHD after the shortest training period, but usually training should be conducted at least three times a week for two months. A longer period of training may be required depending on the circumstances. The patient should visit the clinic three times a week, and receive outpatient dialysis during the training period.

Is it necessary to renovate the home?

Depending on the position that the patient might wish to adopt (seated, lying, etc.) during the HHD, at least a two-tatami mat room (about 2m×2m) is necessary. In addition, another two-tatami mat room is necessary for the storage of materials. The electrical capacity should be increased to 60A or higher, however, this is usually possible even without much construction work. If possible, use of a circuit breaker exclusively for the HHD equipment would be preferable. In regard to the water supply and drainage system, it would be preferable for the system to be connected to the HHD equipment, but use of the water supply and drainage system for the washing machine is feasible as well.

Is it possible to perform HHD at rental apartments?

It is certainly possible to perform HHD at rental apartments with minimal renovations of the apartment. In fact, many patients perform HHD at rental apartments. However, prior consultation with the owner or the condominium association is necessary to avoid potential problems.
What will be done at the preview visit?

Situations where HHD cannot be performed because of inadequate environmental improvement at home should be avoided. Therefore, when the training proceeds to a certain stage, the clinic staff will make a preview visit. At the preview visit, our medical staff and a responsible person from the equipment manufacturer will visit the patient to carefully inspect the electrical connections, the water supply and drainage system, the installation site, etc. At the preview visit, we can make adequate preparations for the installation and provide appropriate advice according to the circumstances of the patient.

Can HHD be started soon after completion of the training period? Will your staff help in the initiation?

When training is completed, and our medical staff judges after the preview visit that the patient can safely perform HHD, the patient is considered ready for the initiation of HHD. Usually, HHD is started soon after completion of their training. On the day of initiation of HHD, our medical staff and a responsible person from the equipment manufacturer will install the equipment, and perform the first HHD after installation. At the time of the first HHD, the medical staff will stay until they confirm that the dialysis can be operated without any problems. Thereafter, the second and subsequent HHD sessions will be performed by the patient and his/her attendant.

In the event of trouble or the patient needing to consult the clinic after the start of HHD, how should the patient proceed?

Usually, questions should be posed to our medical staff at the time of the outpatient consultation for HHD, but any inquiries in the event of an emergency or trouble can be made over the phone. Since there is a 24-hour follow-up system via phone on all 365 days of the year in Reiseikai, the patient can feel safe performing HHD at any time. We always keep two satellite-based mobile phones to stay in contact with patients in emergencies.
Will the necessary materials be delivered to the patient? How about waste disposal?

The necessary materials will be delivered to the patient’s house free of charge (except for small materials such as containers for blood examination, recording paper, etc.) However, it will not be possible to designate delivery times. The patient can designate the desired delivery day, however such requests cannot always be met. With regard to the disposal of medical waste, except for dangerous materials such as needles, the responsible municipal authority would collect the waste, in principle. If the municipal authority cannot collect the waste for any reason, our clinic will. The patient should bring hazardous materials, such as needles, directly to our clinic at the time of the outpatient visits.

How will periodic blood examinations be done?

The patient should collect blood samples periodically and send them by mail. This way, all the examination results will be ready by the time the patient makes an outpatient visit, which will enable treatment to be corrected based on the latest examination results. In addition, since it will enable blood sampling before and after dialysis, as in the case of outpatient dialysis, it would be possible to calculate the efficiency of the dialysis. The centrifuge necessary to process the collected blood specimens will be lent to the patients free of charge.
**Outpatient visits of HHD patients**

**Q** How often should the patient visit the clinic after the start of HHD?

**A** At the beginning, the patient should visit the outpatient department once every two weeks; thereafter, the frequency can be reduced to once a month. Outpatient visits for HHD patients are very important. Reiseikai sets an appointment time-frame of about one hour for each patient to ensure provision of adequate treatment. Patients may need to make unscheduled outpatient visits for trouble associated with the vascular access (shunt), changes in physical condition, more frequent administration of a hematopoietic agent for aggravated anaemia, etc. Also, the patient or his/her family member would need to stay at home on other days than the visit days, such as the days of material delivery, collection of waste, periodic inspection, etc. Therefore, they should keep several days of the month open for activities associated with HHD.

**Q** What will be done at HHD outpatient visits?

**A** Each outpatient visit will involve history-taking, physical examination, confirmation of HHD records, confirmation of the results of the examination of blood sent by mail, etc., and also checking of the situation and physical condition of the patient during HHD. Additional examinations (X-ray, ultrasound, examination of the body composition, etc., will be performed depending on the situation. Based on the results, the patient will be advised on any changes in dialysis settings, oral medication, administration of the hematopoietic agent, etc.. Also, the patient can receive re-training for the procedure.

**Q** How will the schedule for HHD be drawn up?

**A** Physicians and patients will discuss and decide the schedule for HHD at the time of the training or outpatient visit. Reiseikai advises that dialysis be performed “gradually”, “over time”, and “frequently”. Therefore, we advise prolongation of the duration of dialysis per week while ensuring that it does not result in excessive dialysis. Next, we advise that the dialysis be performed in as many divided sessions as possible. Under ordinary circumstances, HHD would involve four to six dialysis sessions a week at two to six hours per session. If the patient ensures adequate dialysis, then excessive trouble can be avoided when it becomes impossible to perform dialysis due to vascular access (shunt) trouble, physical deconditioning, equipment trouble, etc., and unscheduled outpatient dialysis sessions can be avoided at a higher rate.
Will the equipment be periodically inspected?

Our medical staff or a responsible person from the equipment manufacturer will visit the home for periodic inspection every three months. Since we always keep a portable measuring instrument, the dialysate can be adjusted at home. In the event of any equipment trouble, staff from the equipment manufacturer will visit the home for equipment maintenance/repairs. However, it may be difficult to resolve equipment trouble immediately, and in such circumstances the patient will be required to undergo unscheduled outpatient dialysis until the trouble is resolved. Such cases, however, are very rare.

Please explain the safety measures for HHD.

Slow dialysis can ensure the safety of HHD. Therefore, the fluid removal rate per hour (amount of redundant water and sodium to be removed per hour) should be set at lower levels. Removal of a large amount of fluid within a short time may cause hypotension and is dangerous; therefore, it should be avoided, or the patient has to deal with his/her hypotension by himself/herself. Excessive food and drink intake should be treated by increasing the duration of dialysis and gradually removing the toxins. It is important to allow an adequate time-frame for the dialysis.

What should be done if the patient becomes sick during HHD?

If one’s physical condition deteriorates during the HHD, the patient should immediately consult a medical institution. This is why the presence of an attendant is important. It is advisable for the patient to always keep a mobile phone ready. Reiseikai will also install an “Emergency Report System for HHD”* at home free of charge.

* We will install a security system provided by SECOM at the patient’s home. This security system can be used to report any emergencies during HHD. An emergency dispatcher from SECOM will rush to the patient’s house in case of emergency.
**Information of clinic**

Reiseikai Medical Corporation
Home Care Support Clinic  
Shinagawa Garden Clinic

**Access**

Imas Osaki Bldg. 2F, 1-20-3, Osaki, Shinagawa-ku, Tokyo, 141-0032, Japan  
(across the Yamate-dori from Gate City Ohsaki)

- 2 minute walk from Osaki Station, JR Yamanote Line
- 2 minute walk from Osaki Station, JR Saikyo Line
- 2 minute walk from Osaki Station, JR Shonan Shinjuku Line
- 2 minute walk from Osaki Station, Tokyo Waterfront Area Rapid Transit Rinkai Line

Accessible from Tokyo, Kanagawa, Chiba, Saitama, Shizuoka, etc.
- 2 minutes from Shinagawa to Osaki by Yamanote Line
- 11 minutes from Tokyo to Osaki by Yamanote Line
- 17 minutes from Yokohama to Osaki by Shonan Shinjuku Line
- 18 minutes from Shinobashi to Osaki by Rinkai Line
- 25 minutes from Akabane to Osaki by Saikyo Line
- 40 minutes from Omiya to Osaki by Shonan Shinjuku Line
- About 70 minutes from Shizuoka to Osaki via Shinkansen
- About 25 minutes from Haneda Airport to Osaki via Shinagawa

**TEL…03-3779-4970**

- FAX …… 03-3779-2345
- E-MAIL … Please use the contact form on the following website.
- Website … http://www.gardenclinic.org

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