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## ***Aina-Cheeni* (Mirror Therapy) – A forgotten effective Regimenal modality of unani medicine**

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**Abstract**

It is simple, inexpensive and most importantly patient directed mode of treatment that focus on moving the unimpaired limb or body part that can stimulate the brain noninvasively. *Āina-Chīnī* is a Persian word comprising with two components i.e. *Āina* = Mirror and *Chīnī* = to watch. Some physicians translated *āina-chīnī* as Chinese Mirror. Therapeutically, it is used for *Tehreek wa Taqwiyaat-e-Asab* and exercise of the muscles. It is basically a neuro-rehabilitation regimenal modality. The principle of *āina-chīnī* therapy is very simple as, looking into the mirror; the patient observes the reflection of the unaffected limb positioned as the affected limb. When performing motor or sensory exercises with the non affected limb, the reflection in the mirror is often perceived as the affected, paretic limb.

**Keywords:** *Aina-Cheeni*, mirror therapy, neuro-rehabilitation, *Tehreek*, *Taqwiyaat*

**Introduction**

*Āina-Chīnī* is a Persian word comprising with two components i.e. *Āina* = Mirror and *Chīnī* = to watch. Some physicians translated *āina-chīnī* as Chinese Mirror. Mirror is usually taken into account for the grooming but in some cases it may be used as therapeutic equipment. Therapeutically, it is used for *Tehreek wa Taqwiyaat-e-Asab* and exercise of the muscles. It is basically a neuro-rehabilitation regimenal modality<sup>[1]</sup>.

The principle of *āina-chīnī* therapy is very simple as, looking into the mirror; the patient observes the reflection of the unaffected limb positioned as the affected limb. When performing motor or sensory exercises with the non affected limb, the reflection in the mirror is often perceived as the affected, paretic limb. This strong visual cue from the mirror can therapeutically be used to improve motor performance and the perception of the affected limb. Various published research evidence indicated the effectiveness of *āina-chīnī* therapy in improving upper limb motor function in stroke patients. Human brain consists of millions of neurons and trillions of connections. These neurons are able to represent things. The effects of *āina-chīnī* therapy have mainly been related to the activation of neuron in the brain. By using *āina-chīnī* therapy, one can trick the brain into believing that an injured part is actually okay, thus providing a powerful synaptic exercise. For example, if the left hand affected, it could be hidden and by using the mirror image of the unaffected hand, the brain would construct that the left hand was now somehow working. It is the way of signalling the brain that the hand is fine and now time is to represent it properly and look after it<sup>[2, 3]</sup>.

**Historical Background**

*Hakīm Akbar Arzānī* in eighteenth century recommended the *āina-chīnī* therapy for the first time in history of medical science for the patients of *Laqwa* (Facial Paralysis) which is clearly mentioned in his treatise "*Mēzān-ut-Tib*". It is assumed by a major group of therapists that mirror therapy is invented by S. Ramachandran in twentieth century. But according to earlier discussion it is clear that *Hakīm Akbar Arzānī* had already mentioned the use *āina-chīnī* therapy in his book *Mizān-ut-Tib*. It seems accurate to state that *Akbar Arzānī* invented the *āina-chīnī* therapy, and Ramachandran standardised and popularised the mirror and technique for therapeutic uses<sup>[4, 5]</sup>.

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**Definition**

It is simple, inexpensive and most importantly patient directed mode of treatment that focus on moving the unimpaired limb or body part that can stimulate the brain noninvasively. In *āina-chīnī* Therapy, a mirror is used to create a reflective illusion of an affected limb in order to trick the brain into thinking movements has occurred without pain. It enhances the motor recovery in poststroke hemiparesis.<sup>6,7</sup>

**Requirement****1. Mirror**

The dimension of the mirror should be big enough to cover the entire affected limb and should allow the patients to see all the major movements in the mirror

For upper limb - 25×20 inches

For lower limb - 35×25 inches

**2. Other materials**

Objects for functional motor training materials like; plastic bowl or tubs filled with sand, Hedgehog ball, temperature stimuli, sand paper etc

**Selection of patients for *Āina-Chīnī* Therapy:** There are various characteristics that are important while choosing eligible patients. Treatment aims and how the circumstances and materials can be chosen in relation to the goals of treatment are possible after getting eligible patients.

**Characteristics** <sup>[2, 3]</sup>

The following patient characteristics are important to consider when choosing the patients for this therapy.

1. Eligible patient should have sufficient cognitive and verbal abilities (e.g. attention working memory and concentration) to focus atleast for 10 minutes on the mirror reflection and follow the instructions given by the therapist.
2. Eligible patient should have proper vision to see clear image of the entire limb in the mirror.
3. The patient who has sufficient trunk control to be able to sit unsupervised in a wheelchair or a normal chair atleast for the duration of the therapy.
4. The patients who have severe cardiopulmonary abnormalities and are not able to sit for the duration of the therapy will not be considered as eligible for the therapy.
5. The non-affected limb of the patient should ideally have a normal and pain free range of motion. Severe constraints of non-affected limb (e.g. range of motion, pain) could hamper execution of the purpose of *āina-chīnī* therapy.

**Aims and Objectives** <sup>[2, 3, 8]</sup>

- Improving motor functions
- Improving activities of daily life
- Reducing pain
- Reducing sensory impairment

**Indications** <sup>[5, 6]</sup>

- Facial Paralysis
- Post stroke patients
- Cerebral palsy
- Complex regional pain syndrome
- Phantom limb pain
- Fracture rehabilitation

**Frequency of therapy and duration of sessions**

The available literature recommends performing the therapy at least once daily for five days in a week upto four weeks with a minimum duration of 30 minutes. The maximum duration of each session is even dependent on the cognitive abilities of the individual patient and / or negative side effects. It is also possible to split one session into two shorter sessions of 15 minutes with a short break between, if the patient's abilities do not allow longer sessions. This therapy consists of variety of movements like wrist and finger flexion and extension, hand opening and closing, forearm pronation and supination, grasp lift and release <sup>[7]</sup>.

**Manual Operating Procedure (MoP)**

1. Instruct the patient about the background and aims of the therapy.
2. Aware the patient about the possible side effect of the therapy.
3. Ask the patient to imagine that the mirror image is his affected limb.
4. Ask the patient to remove the jewellery and other visual marks to make it easier for the patient to perceive the reflection as his affected limb when he is looking into the mirror.
5. Teach the patients about having the realistic expectations with respect to the improvement that are achievable by using the *āina-chīnī* therapy.
6. Position the mirror on the table in front of the patient in mid sagittal plane, so that the affected limb is fully covered by the mirror's non-reflective side and the reflection of the un-affected limb is completely visible through the reflective side of the mirror.
7. The affected limb should be positioned on a height adjustable table in a safe and preferably comfortable position behind mirror.
8. The non-affected limb should be positioned in a similar position as the affected limb but in front of the mirror, as this facilitates the intensity of the mirror illusion.
9. Ask the patient to lean forward and look at the image created in the mirror
10. Ask the patients to move the unaffected limb only or both limbs in a synchronised manner, as much as possible or to do some activities with unaffected limb or both, for at least 30 minutes if possible.

**How *Āina-Chīnī* Therapy works**

*Āina-Chīnī* therapy is a non-pharmacological mode of treatment strategy that has been proposed as a means of rehabilitation in the patients of post-stroke hemi-paresis and managing phantom limb pain. The intervention unquestionably has neural foundation. But the underlying neural mechanism inducing motor recovery is still unclear. It is a technique designed to re-modulate cortical mechanism in neuro-rehabilitation. With this technique patients perform movements using the unaffected limb whilst watching its mirror reflection superimposed over the (unseen) affected limb. This creates a visual illusion and provides positive feedback to the motor cortex that movements of the affected limb have occurred. The approach is sought to offer potential relief through the visual dominance upon motor and sensory processes. The neural mechanisms leading to the favourable improvement are component of a complex phenomenon that needs to be explored and comprehended <sup>[9]</sup>

## Conclusion

*Aina-Cheeni* Therapy has a strong neural basis for *Tehreek-i-A'sab* in the motor rehabilitation of stroke. This simple and economical technique stimulates the *A'sab* and *Dimagh* noninvasively. The concept of *Tehreek-i-A'sab wa Dimagh* helps this regimen to activate not only the *a'sab* corresponding to the moving hand but also the ipsilateral *Dimagh*. Although it has been seen that *Aina-Cheeni* Therapy helps recovering functions in hemiplegia, facial paralysis, phantom limb but still it is unclear that to which stage is benefitted the most in the above mentioned conditions. Many other researches on specific disorder on large sample size have to be conducted in order to streamline the feasibility, dosage and the patient population who would be benefitted the most.

**Conflicts of Interest:** None

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