



CONCEPTUAL STUDY OF *KUTHIRAI VALI NOI* (GRANDMAL TONIC CLONIC SEIZURE) IN SIDDHA MEDICINE

Krishnamoorthy Bavithra* and Vijitha Paheerathan

*Demonstrator, Unit of Siddha Medicine, Trincomalee Campus, EUSL, Sri Lanka.

Senior Lecturer, Unit of Siddha Medicine, Trincomalee Campus, EUSL, Sri Lanka.

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*Corresponding Author

Krishnamoorthy Bavithra

Demonstrator, Unit of
Siddha Medicine,
Trincomalee Campus,
EUSL, Sri Lanka.

ABSTRACT

Epilepsy is common neuroleptic disorder with high prevalence. The disease and management having high impact on quality of life of affected person. It has been estimated that about 7%-8% of the population experiences at least 1 epileptic seizure during their lifetimes. In Siddha Medicine, the similar presentation is known as *vali noi*. According to Siddha Medicine (*Pothu*) by *Kuppuswamy mudaliyar* (2004) provide detailed descriptions about *vali noi* including definition, etiopathology, prodermal symptoms, general symptoms, prevention and treatments. This study aims to establish a correlation between *kuthiraivali* and Grandmal Tonic Clonic Seizure. The literary materials were collected from *Siddha Maruthuvam* and *Noi Naadal*

Noi Mudhal Naadal, as well as from peer reviewed journals. This literature review shows that *kuthirai vali noi* can be correlated with grandmal tonic clonic seizure based on their sign and symptoms having moreover similar characteristics and several internal and external medicines which can used for future trials.

KEYWORDS: Epilepsy, Grandmal Tonic Clonic Seizure, *Kuthirai vali noi*.

INTRODUCTION

Sri Lanka is a nation with rich biodiversity contains numerous medicinal plants to treat many diseases, epilepsy is one of them. Epilepsy is a common neurological disease. A “seizure” is a paroxysmal alteration of neurologic function caused by the excessive, hypersynchronous discharge of neurons in the brain. “Epilepsy” is the condition of recurrent, unprovoked seizures. Epilepsy has numerous causes, each reflecting underlying brain dysfunction

(Shorvan, 2011). The main subtypes of seizures are absence, generalized tonic–clonic (GTC), myoclonic, atonic and absence seizures (Fisher, 2017).

Epilepsy is a common disorder, affecting approximately 0.5%-1% of the United States population at any time with an incidence of 30.9%- 56.8% per 100000 (Hauser,1990). It has been estimated that about 7%-8% of the population experiences at least 1 epileptic seizure during their lifetimes (So, 1995). Approximately 75% of epilepsy begins during childhood, reflecting the heightened susceptibility of the developing brain to seizures (Carl, 2015). Prevalence of Epilepsy are unknown in > 50% of the patients till date (Kumar, 2018).

According to Siddha Medicine (*Pothu*) by *Kuppuswamy mudaliyar* (2004) provide detailed descriptions about *vali noi* including definition, etiopathology, prodromal symptoms, general symptoms, prevention and treatments. Epilepsy is described as *vali noi* or *izhupu noi* means that causes transient loss of memory with consciousness, paresis of upper and lower limbs with frothy mouth. It describes the causes as mega diseases, psychological factors and food which increases *kapham* (Mudaliyar, 2007).

Two literatures state about classification of *vali noi*. Among, one literature mention as 5 types namely *muppini vali*, *kuthirai vali*, *kurangu vali*, *kaakai vali* and *muyal vali*. Another categorizes as 15 types namely *thimir vali*, *konnu vali*, *sandala vali*, *marana vali*, *mano vali*, *nanjuvali*, *mukutra vali*, *iya vali*, *vil vali*, *sura vali*, *vikkal vali*, *thalai vali*, *kozhai vali*, *odu vali*, *marbu vali* and *thamaraha vali* including above 5 types. The line of treatment indicates pacification of vitiated *doshas*, administration of purgative drugs for *kazhichal* and administration of internal and external medications. The internal drugs consist of *choornam*, tablet, *mezhu* and external application includes oil application, *melpoochu*, fumigation, *naasigaparanam* and application of *kallikam* (Mudaliyar, 2007).

This literature study focused on *kuthirai vali noi* in correlation with grandmal tonic clonic seizure (Mudaliyar, 2007).

OBJECTIVE

To establish a correlation between *kuthiraivali* and Grandmal Tonic Clonic Seizure.

MATERIALS AND METHODS

The literary materials were collected from specially *Siddha Maruthuvam* and *Noi Naadal Noi Mudhal Naadal*, as well as from peer reviewed journals.

RESULTS

Table 1: Etiology of *kuthirai vali noi* (Sandra, 2001; Mudaliyar, 2007).

Epilepsy	Genetic predisposition Developmental hippocampal sclerosis, brain trauma, surgery, encephalitis Pyrexia intracranial mass lesions, vascular, metabolic abnormalities Hypocalcaemia, neural degenerative disorders Provoked seizures, sleep deprivation Alcohol withdrawal
<i>Kuthirai vali noi</i>	Mega diseases Psychological factors Excessive <i>kapha</i> increasing foods Lifestyle modification.

Table 2: Comparison of Sign symptoms of *kuthirai vali* and Grandmal Tonic Clonic Seizure (Davidson, 2010; Mudaliyar, 2007).

SERIAL NO	<i>KUTHIRAI VALI</i>	GRANDMAL TONIC CLONIC SEIZURE
1	Numbness of the body occurs before the occurrence of symptoms (<i>Noi kaanum munbae thinivu undahum</i>)	Body become rigid before the episode
2	Pain like severe injury (<i>Kaiyum kaalum adithu thuvaithathu pol vanmai uttru, kuthalum kudaichalumai</i>)	Serious injury
3	Unconscious (<i>mayakam uttru</i>)	Cry and falls
4	Clenching of the teeth (<i>pal illikm</i>)	Tongue bite
5	Excess sweating of the body (<i>Thalai, kazhuthu thol mugathil viyarvai undahum</i>)	Incontinence of urine and faeces
6	After the episode severe pain and burning of the body	Postictal confusion, fatigue
7	Jerking of tongue and face (<i>naakum mugamum oru pakathae illuthu kollum</i>)	Rhythmic jerking of muscles

Pathogenesis of *Kuthirai vali* and epilepsy

The pathogenesis of the disease is due to our diet and regimens, *vatham* increases, then it associates with *pitham*, alter the functions of *keel nokkukaal* and produce constipation and further it affects all the other *kaalkal* of the body and alter the activities (Mudaliyar, 2007).

The pathology of epilepsy indicates the spread of electrical activity between neurons is normally restricted and synchronous discharge of neurons takes place in confined group, producing normal EEG rhythm, during a seizure. Large group of neurons are activated repetitively, unrestrictedly and hypersynchronously (Davidson, 2010).

Drugs available in Siddha Medicine

Table 3: Medicines in Siddha for *kuthirai vali noi* (Mudaliyar, 2007; Ponnaiyapillai, 1999).

Serial No	Name of the Medicine	Main Ingredients	In Dose (Physical form) indications
1	Kalatchi oil	<i>Kalatchiverpattai (Caesalpinia bonduc root bark)</i> <i>Kalatchi leaf katkam</i> <i>Kalatchi parupu(Seed)</i> <i>Castor oil</i> <i>Elarisi (Elatrria cardamom)</i> <i>Paragipattai(Smilex chinensis)</i> <i>Vaalmilagu (Cubeba offinalis)</i> <i>Sannalavangapattai (Cinnomomum zeylanicum)</i> <i>Nervalam seed(Croton tiglium)</i> <i>Rasakatpooram (Hydragyrum subchloride)</i>	<i>Keelveekam,</i> <i>Vithai veekam</i> <i>Vithai vaaivu</i> ¼-1/2 palam Heat in fire before consumption
2	Merugan oil	<i>Merugan kilangu (Alocasia indica)</i> <i>Amukara kilangu (Withania somnifera)</i> <i>Peramutti(Hibiscus microcanthus)</i> <i>Koraikilangu (Cyperus rotandus)</i> <i>Thaneervitan kilangu(Asparagus racemosus)</i> <i>Laavangapattai(Cinnomomum zeylanicum)</i> <i>Lavangailai(Cinnomomum tamala)</i> <i>Devadaru(Cedrus deodara)</i> <i>Sirunaagapoo</i> <i>(Messua ferrea)</i> <i>Kaatu milagu(Toddalia aculeate)</i> <i>Perarathai(Zingeber zerumbet)</i> <i>Kiranthi thagaram</i> <i>Maramanjai(Berberis aristata)</i> <i>Agil kattai(Aquilaria agallocha)</i> <i>Santhanam(Santalum album)</i> <i>Kadugu rohini(Picrorhiza kurroa)</i> <i>Vilamichai(Plectranthus amboinicus)</i> <i>Adimaduram(Glycerrhiza glabra)</i> <i>Korosanam(Hyocymus niger)</i> <i>Manjisti(Rubia cordifolia)</i>	<i>Vatha veppu,</i> Fever
3	Sithathi oil	<i>Perumkayam(Ferrula asafetida)</i> <i>Venkaram(Borax)</i> <i>Sathurakallipaal (Euphorbia antiquarum)</i> <i>Induppu (Sodi chloridum impura)</i> <i>Karumseeragam(Nigella sativa)</i> <i>Thippili (Piper longum)</i> <i>Nervalam(Croton tiglium)</i> <i>Veellaipoondu(Allium Sativum)</i>	Head diseases <i>Valipu vaaivu</i> <i>Pathyam-</i> Sour butter milk Rice 1-5 drops

		<i>Kadukai(Terminalia Chebula)</i> <i>Castor oil</i> <i>Veliparuthi(Pergularia daemia)</i>	
		<i>Perungakayam (Ferrula asefoetida)</i> <i>Kadugu(Brassica nigrum)</i> <i>Induppu (Impure Sodium Carbonate)</i> <i>Rasam(Hydra gyrum)</i> <i>Venkaram (Sodium biborate)</i> <i>Naabi (Aconitum ferox)</i> <i>Manosilai (Arseni disulphidum bisulphuret)</i> <i>Omam (Carom copticum)</i> <i>Aritharam</i> <i>Karumseerakam (Nigella Sativa)</i> <i>Vaalam (Croton tiglium)</i> <i>Castor oil</i>	Headache-fumigation 130mg
6	<i>Kummati mezhugu</i>	<i>Kumatikai saaru (Citrullus colocynthis)</i> <i>Pazhacharu (Lemon juice)</i> <i>Velluli charu(Allium sativum)</i> <i>Notchi charu (Vitex negundo)</i> <i>Inji charu (Zingiber officinale)</i> <i>Rasam (Mercury)</i> <i>Lingam (Redsulphide of mercury)</i> <i>Perumkayam (Ferula asofoetida)</i> <i>Induppu (Sodium chloridium impure)</i> <i>Venkaaram (Sodium biborate)</i> <i>Kadugu (Brassica nigrum)</i> <i>Manjal (Curcuma longa)</i> <i>Venthayam (Trigonella foenum gracium)</i> <i>Milagu (Piper nigrum)</i> <i>Kantham (Magnetic oxide of iron)</i> <i>Nervalam(Croton tiglium)</i>	<i>Vatha noi</i> <i>Thuthuvalai kaai</i> size 11/4 varahen
7	<i>Rasa patpam</i>	<i>Rasam (Mercury)</i> <i>Kadal neer</i> <i>Sotruppu (Common salt)</i> <i>Sengal thool</i> <i>Sanga thirvagam</i>	<i>Vatha noi</i> <i>Vali noi</i> <i>½ kasu edai</i>
8	<i>Korosanai mathirai</i>	<i>Korosanam</i> <i>Kunkumapoo (Michelia champaca)</i> <i>Pachai karpooram(Borneo camphor)</i> <i>Lavangam (Cinnomomum zeylanicum)</i> <i>Jathikostam(Costus speciosus)</i> <i>Jadikai (Myirsitca fragrans)</i> <i>Rasa chendooram</i> <i>Abraka senthooram(Mica)</i> <i>Karpooram(Camphor)</i> <i>Akarakaram</i> <i>Elam (Elataria cardomum)</i>	Convulsionin children with <i>anda thailum</i> 1-2pills
9	<i>Velli patpam</i>	<i>Velli(Silver)</i> <i>Karupu manithakali charu(Solanum nigrum)</i> <i>Karupu oomathai charu(Datura niger)</i>	<i>Kaaki mookin 1/6</i> <i>vali noi due</i>

		<i>Karupu aathi moola charu (Bauhinia tomentosa)</i> <i>Karupu saamanthi charu</i>	to vathaincrease with difficulty in breathing, difficult in speech and hiccough and diarrhea adjuvant- <i>milagu</i>
10	<i>Naga patpam</i>	<i>Naagam (Zinc)</i> <i>Pasumkaai charu</i> <i>Nelli ilia charu (Phyllanthus emblica)</i> <i>Karupam charu</i> <i>Kuru aal verpatai charu (Ficus benghalensis)</i> <i>Vellali samoola charu (Nymphaea nouchali)</i> <i>Kaanthal samoola charu</i> <i>Thaneerviattan kilangu charu (Asparagus racemosus)</i>	Weakness of body <i>Vithirpu vatham</i> with butter milk 1/6 th of <i>avarai</i> seed
11	<i>Vanga patpam</i>	<i>Vangam (Lead)</i> <i>Pasari ilia charu</i> <i>Agayathamarai ilai charu (Pisticia stratiotes)</i> <i>Vanni ilia charu (Prosopis spicigera)</i> <i>Pasu manjal charu</i> <i>Seppu nerunil charu (Indigofera ennaphylla)</i> <i>Karunai ilia charu (Amorphophallus paenoiifolius)</i>	Head diseases <i>Naduku vatham</i> <i>Thimir vatham</i> <i>Kaakai vali-kattralai</i> juice 1/4 th of <i>thuavarai</i> seed
12	<i>Sandarasa patpam</i>	<i>Rasam (Mercury)</i> <i>Vediyuppu thiravagam (Potassium nitrate)</i>	<i>Sannipatha suram</i> ¼-1/2 <i>arisisize</i>
13	<i>Sandamarutha chendooram</i>	<i>Naval (Syzygium cumini)</i>	<i>Mukkutra</i> diseases
14	<i>Ayaveera chendooram</i>	Iron powder (Ferrum) <i>Rasam (Mercury)</i> <i>Veeram (Mercury perchloride)</i> <i>Navacharam (Ammonium Chloride)</i>	<i>Soolai</i> <i>Vatha neer</i> 130mg
15	<i>Vaan mezhugu</i>	<i>Rasam (Mercury)</i> <i>Rasa chendooram</i> <i>Kanthagam (Sulphur)</i> <i>Veeram (Hydragyrum perchloride)</i> <i>velai paadanam (Arsenium acidum arseniosum)</i> <i>Pooram (Hydra subchloride)</i> <i>Lingam (Redsulphide of mercury)</i> <i>Abin (Cannabis sativa)</i> <i>Kaantham (Magnetic oxide of iron)</i> <i>Saambirani</i> <i>Katpooram (Camphor)</i> <i>Thalagam (Arsenit trisulphidium trisulphuret)</i>	<i>Valipu</i> <i>Uzhunthu</i> size
18	<i>Kanthaga sudar thailam</i>	<i>Kanthagam (Sulphur)</i> <i>Vediyuppu (Potassium nitrate)</i> <i>Manosilai (Red orpiment)</i> <i>Cowghee</i>	<i>Vatham</i> 130mg Adjuvant- <i>sarkarai</i>
19	<i>Pachonthiennai</i>	<i>Onan</i> <i>Veppaenai</i> <i>Velai poondu (Allium sativum)</i> <i>Veeram (Hydragyrum perchloride)</i> <i>Rasa karpooram (Hydra subchloride)</i> <i>Lingam (Redsulphide of mercury)</i>	All types of <i>vallipu</i> 5-10 drops

		<p><i>Thalagam (Arsenit trisulphidium trisulphuret)</i> <i>Manosilai (Red orpiment)</i> <i>Vellaipaadanam (Arsenium acidum arseniosum)</i> <i>Kanthagam (Sulphur)</i> <i>Paalthutham (Zinc sulphas sulphate of zinc)</i> <i>Thurusu (Copper sulphate)</i> <i>Navacharam (Ammonium chloride)</i> <i>Padikaram (Alum)</i> <i>Nervalam (Croton tiglium)</i> <i>Venkaram (Sodium baborate)</i></p>	
20	<i>Myna thailum</i>	<p>Bee wax Sakkikal Common salt River sand <i>Omam (Carum copticum)</i> <i>Kappu manjal (Curcuma longa)</i> <i>Jadamanjil (Nadostachys jatamansi)</i></p>	<p>Convulsion in infants R.Q</p>
21	<i>Pirami nei</i>	<p><i>Pirami charu (Bacoppa moneri)</i> <i>Pachai vasambu charu (Acorus calamus)</i> <i>Pachai sitrathai (Alpinia officinarum)</i> Cows ghee Cow's milk <i>Sivathai ver (Turperculina opernthum)</i> <i>Sukku (Zingiber officinale)</i> <i>Thipili (Piper longum)</i> <i>Nelli vatral (Phyllanthus emblica)</i> <i>Vila vithu (Feronia elephantum)</i> <i>Induppu (Sodii chloridium impura)</i> Seena katkandu <i>Kasthuri manjal (Curcuma aromatica)</i></p>	<p><i>Vazhipu</i> Improves memory power 1/2- 1/ oz</p>
22	<i>Mezhugu thailaum</i>	<p><i>Nannari root powder (Hemedesmus indicus)</i> <i>Manjisti (Rubia cordifolia)</i> Gingelly oil <i>Kungiliyam (Commiphora mukul)</i> Bee wax</p>	<p>Vatha diseases Exteranl</p>
23	<i>Jadamanjil thailum</i>	<p><i>Sadamanjil (Nadastachys jadamansi)</i> <i>Omam (Carom copticum)</i> <i>Kappu manjal (Curcuma longa)</i> <i>Poongarpooram</i> <i>Navacharam (Ammonium chloride)</i> Gingelly oil</p>	<p><i>Vatha noi</i> <i>Keel vatham</i> R.Q</p>
24	<i>Sivanar amirtham</i>	<p>Iruvi <i>Rasam (Mercury)</i> <i>Karu nabi (Aconitum ferox)</i> <i>Kanthagam (Sulpher)</i> <i>Sukku (Zingiber officinale)</i> <i>Manosilai (Red orpiment)</i> <i>Venkaram (Sodium baborate)</i> <i>Thipili (Piper longum)</i></p>	<p><i>Vali noi</i> 1/2-1 grain With honey</p>
25	<i>Vidamuti</i>	Gingelly oil	Vatha diseases

	<i>thailum</i>	<i>Etti seed (Strychnus nux vomica)</i> Goat milk <i>Vellai poondu (Allium sativum)</i> <i>Ayil pattai</i>	
26	<i>Smoke of seeragam</i>	<i>Cuminum cyminum</i>	
27	<i>Agathiyar kulambu</i>	<i>Karu nabi (Aconitum ferox)</i> <i>Manosilai (Red orpiment)</i> <i>Omam (Carum copticum)</i> Aritharm <i>Karunseeragam (Nigella sativa)</i> <i>Nervalam (Croton tiglium)</i>	<i>Vallipu</i> 1-2 grains
27	<i>Pancha sootha mezhugu</i>	<i>Lingam (Redsulphide of mercury)</i> <i>Rasa karpooram (Hydragyrum sub chloride)</i> <i>Veeram (Hydragyrum per chloride)</i> <i>Rasa chendooram</i> <i>Rasam (Mercury)</i> <i>Seppu nerunjil juice (Indigoferaennaphyla)</i> <i>Murungaipoo juice (Moringa oleifera)</i> Breast milk	<i>Isivu- breast milk</i> <i>Valipu- vellaipoondu thailum</i> 1-2 grains

DISCUSSION

The pharmaceutical industry is facing serious challenges as the drug discovery process for epilepsy is becoming extremely expensive, riskier, and critically inefficient. A significant shift from a single-target to a multi-target drug approach, especially for chronic and complex disease syndromes, is being witnessed. Approaches based on reverse pharmacology (from the clinic to the bedside) also offer efficient development platforms for herbal formulations. The Ayurvedic system of medicine has garnered increasing recognition in recent years with regard to diet and treatment options. Early development of traditional herbal supplements required only anecdotal or epidemiologic information (or both) without an understanding of the mode of action. The Traditional Medicine industry has come a long way from when it was considered unnecessary to test Siddha Ayurvedic formulations prior to use, to several randomized, double-blind, controlled studies and to the introduction of good manufacturing practice guidelines for the industry. It has taken a more rigorous scientific and quality-enhanced approach to provide 'proof of concept' and a 'mode of action'. It might be worth pointing out that, while Siddha Ayurvedic therapeutics has been prescribed for centuries for Epilepsy. It is hoped that the strong knowledge base of Siddha Ayurveda coupled with combinatorial sciences and high-throughput screening techniques will improve the ease with which Siddha Ayurvedic products and formulations can be used in drug discovery campaigns and development process.

Epilepsy is a major common neuroleptic disorder, due to paroxysmal alteration of neurological functions. This literature review shows that *kuthirai vali noi* can be correlated with grandmal tonic clonic seizure based on their sign and symptoms having moreover similar characteristics such as numbness or rigidity of the body, unconsciousness, clenching of teeth, and incontinence of urine and postictal confusion with fatigue. The treatment process includes the internal and external medicines namely *kalatchi oil, merugan oil, sithathi oil, kummati mezhugu, rasa patpam, korosanai mathirai, velli patpam, naga patpam, vanga patpam, sandarasa patpam, sandamarutha chendooram, ayaveera chendooram, vaan mezhugu, kanthaga sudar thailam, pachonthi ennai, myna thailum, pirami nei, mezhugu thailaum jadamanjil thailum, sivanar amirtham, vidamuti thailum, smoke of seeragam, agathiyar kulambu and pancha sootha mezhugu*. This treatments improves the quality of a GTCs patients through physically and mentally.

CONCLUSION

Epilepsy is a high prevalence disease worldwide. But Siddha system of Medicine has exclusive treatments and even have definite cure for *Vali noi*. This review paper has mentioned the cause, sign and symptoms and treatment for *kuthirai vali noi* especially in reference to the principles of Siddha system. By using the above mentioned Medicines, the protocols can be developed for future trials.

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