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An Aerial view on *Garbhajanya Vishamayata* w.s.r. to Pregnancy Induced Hypertension

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ABSTRACT

The journey of pregnancy is most exciting and filled with joyous in a women's life. It's a gift to a women's life of creation and nurturing power. Hypertensive disorders of pregnancy is one of the common complication observed during pregnancy, plays a significant role in maternal and fetal morbidity and mortality. . *Garbhajanya Vishamayata* (Pregnancy induced hypertension) is the development of new hypertension in a pregnant woman after 20 weeks of gestation they are preventable by early detection and with appropriate treatment and possibly by prevention of disease itself. With an Ayurvedic approach, on looking to the symptoms and understanding etiopathogenesis, *Vata Dusti* is main causative factor in the manifestation of the disease. During progressive stage of disease involvement of other *Dosha* is seen. *Dushya* are *Hridaya*, *Dash Dhamanya*, *Sira*, *Ras Raktvaha Strotasa*, *Manovaha Strotasa*, *Ras Dhatu*, *Rakt Dhatu* and *Manna*, treatment should always be *Vaatashaman*, *Pittashamana*, *Hridya*, *Shothahara*, *Garbhasthapaka*, *Medhya*, *Brahman Raktashaman*, *Balya*, *Anulomana*. As a preventive care, *Pathyapathya* during Antenatal period is described under the heading of *Masanumasika Paricharya* & what should be avoided is mentioned under the heading of *Garbhopaghatakara Bhava's*. All these regimens were sincerely followed during pregnancy. This paper reviews about understanding gestational hypertension in terms of Ayurveda in order to prevent and treat *Garbha Vishamayata* (PIH) & ultimately help reduce maternal mortality & improve fetal outcome, Ayurveda can definitely contribute in this regard and ensure safe motherhood and healthy child.

Key words: PIH, Garbhini, Ayurveda, Pregnancy Induced Hypertension

INTRODUCTION

Pregnancy is a very crucial period for a woman as many changes take place during this period in woman's body. Among many conditions associated with pregnancy, hypertension is seen commonly now days during pregnancy known as pregnancy induced

hypertension, due to increased age of marriage and thus delayed conception. Classically termed as "Garbhajanyavishamayata". Garbhajanyavishamayata (Pregnancy induced hypertension) is the development of new hypertension in a pregnant woman after 20 weeks of gestation, where it is associated with hypertension and it is a sign of an underlying pathology which may be pre-existing or appears for the first-time during pregnancy and it remains an important cause of maternal and fetal morbidity and mortality.

Hypertensive disorders of pregnancy (HDP) remain amongst the most significant intriguing unsolved problems in obstetrics. 5-10% of all pregnancies are complicated with this disorder & 16% of all maternal deaths contribute to this disorder.^[1]

It complicates almost 10% of all pregnancies around the world. A report "Global Statistics – Pregnancy

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Induced Hypertension” estimated that Global prevalence of pregnancy induced hypertension among women is 13%.

In Asia & Africa, nearly one tenth of all maternal deaths are associated with hypertensive disorders of pregnancy.

It is one of the major causes of death among women in their reproductive age group. Pregnancy induced hypertension is seen in approximately 10-20% of all pregnant women in India, according to ICMR studies. Pregnancies complicated by hypertension are associated with increased risk of adverse fetal, neonatal and maternal outcomes, in maternal it includes preterm birth, acute renal & hepatic failure, antepartum haemorrhage, postpartum haemorrhage and maternal death. In fetal & neonatal it includes intrauterine growth restriction (IUGR), perinatal death.

According to Ayurveda, in case of unknown disease, it is important to understand the nature of disease through *Dosh Dushya* & *Samprapti* & then to initiate the treatment. So, it becomes our prime concern to understand gestation hypertension thoroughly with Ayurvedic perspective.

In Ayurveda specific description regarding pregnancy induced hypertension is not there but *Acharya Harita* mentioned *Shopha* as one of the *Updravas* of *Garbha* while mentioning *Garbhini Vyadhi*. The main *Dosha* responsible for the condition can be taken as *Vata* specially *Vyana Vayu* as it is responsible for normal circulation of blood in whole body due to *Chala Guna* of *Vayu*. *Vata* can be increased due to two reasons either *Vata Prakopa* directly due to intake of *Vataprakopaka Aahara Vihara* and second by *Aavarana*, we find most of the symptoms are because of *Vata* & *Pitta* vitiation.

In our Ayurvedic Classics we find clear description of symptoms related to severe Pregnancy induced hypertension such as *Garbhini Shotha*, (Pathological Oedema), *Garbhini Aakshepaka* (Convulsions), *Garbhini Mootragraha* (Oliguria), *Garbhashosha* (Intra Uterine Growth Restriction) etc. But these all are present in scattered form and at the same time

Aacharyas have mentioned that presence of such features denotes poor prognosis and they had described these features under the heading of *Garbhopadravas*, *Arishta Lakshanas*, *Asadhya Lakshanas* of *Mudhagarbha*, which itself indicates the severity of the condition. The description of Hypertension and proteinuria is not present as the reason; may be that the Ayurvedic diagnostic approach is mainly based on symptomatology while these two things are identified by the physician with the help of sphygmomanometer band urine routine investigation respectively.

In Ayurvedic classics during pregnancy *Masanumasika Paricharya* is described in details which is very efficient in preventing the development of PIH in the cases having mild degree of abnormal placentation and is result of faulty life style. So only the cases having severe degree of abnormal placentation manifests at that time and that could be there as on that a cardinal symptom of PIH like *Shopha* (Oedema) is mentioned under the heading of *Garbhopadravas*. *Kashyapahas* also included *Shophain* the list of features denoting *Arishta Lakshanas* that is having bad prognosis.

Aacharya Sharangadhara has described *Garbhavyapat* out of which description of *Upavishtaka* and *Jaraayudosh* are found to be closely related with PIH. The pathophysiology of PIH mimics the pathophysiology of *Upavishtaka Garbhavyapat*. For *Upavishtaka* *Aacharyas* has mentioned that if pregnant lady continues the use of *Katu Rasa* and *Ushna* article after attainment of *Sara* (after four month) by the fetus then bleeding or other types of vaginal discharges occurs.

Similarly, in *Kroshana Jataharini* the fetus situated in *Kukshi* (uterus) creates various complications. *Kroshana Jataharini* can be considered as an indirect reference of *Garbha Vishamayata*.

Every disease is the resultant of *Dosha Prakopa* and for *Dosha Prakopa Aaharadi* (*Aahara* and *Vihara*) plays a pivotal role. The primitive cause in the vitiation of *Doshas* is the *Ahita Sevana* of *Aahara* and *Vihara*. It is not surprising that independent risk factors such as

an excessive intake of tea, tobacco cigarette smoking, like *Vata Pitta Prakopaka Nidanas* significantly enhances the incidence of PIH. Our *Aacharyas* have mentioned *Garbhoghatakarabhava* i.e., dietetics and mode of life contraindicated for pregnant woman.^[2] So when pregnant woman follows *Garbhoghatkara Bhava* can lead to disease of *Garbhini*. Currently known etiological and provoking factors can be better understood when compared with different etiological factors given in Ayurvedic classics.

Causative Factors

As follows

Currently known etiological and causative factors can be better understood when compared with different etiological factors given in Ayurvedic classics

1. Potential causes of Hypertensive disorders of pregnancy.^[3]

- Abnormal trophoblastic invasion of uterine vessels or Poor placentation - *Kroshana Jataharin*,^[4] the fetus situated in *Kukshi* (uterus) creates various complications & with the delivery of the fetus (&placenta) most of the symptoms of HDP disappears. Also, *Sharangadhara* has described *Jaraayudosha* under *Ashta Garbhavyapa*.^[5] Which can be taken as abnormal formation of placenta. These mark the direct reference of defective placentation (abnormal trophoblastic invasion of uterine vessels)

Immunological intolerance between maternal and fetoplacental tissues *Acharya Sushruta* has denoted *Garbha* as '*Shalya*'.^[6] (Foreign body). Thus, it can create *Shoth* (inflammatory response) in the maternal body which denotes etiopathogenesis of Immunological maladaptive tolerance between maternal paternal (placental) & fetal tissues.

Excessive intake of Salt^[7]

Epidemiologic studies have repeatedly demonstrated a high direct correlation between dietary sodium intake and the prevalence of hypertension. *Aacharya Charaka* has specially quoted that people of *Saurashtra* and *Bahlika* consume more salt in their

diet. This type of diet is capable of aggravating *Doshas* and to do the further progress in the pathophysiology of PIH.

- Genetic considerations:** HTN is a disease which is an outcome of faulty food regime and lifestyle accepted generation by generation and entered in genetic predisposition group unknowingly which is nowadays called as X syndrome (*Beeja Dasha/Santana Dasha*).

This data shows that there is strong positive relationship between family history and PIH, though it is a multi functional disease but genetic can be a constitutional factors that play a important role. Hence Genetic and constitutional factors can be compared with *Beeja Dasha* due to *Shukra Shonita Vikrut*.

- Elderly and Young Primigravida:** Reason for this could be that Elderly *Primigravida* is *Pitta, Vata* dominant *Avastha* and Young *Primigravida* is a *Pitta* predominant *Avastha*, in the *Samprapti* of PIH also *Vata* and *Pitta* play important role, so *Avastha* (stage of life) helps in manifestation of disease along with this primi women's are unfamiliar with pregnancy changes and code of conducts which should be followed during pregnancy.
- Long intervals between pregnancies (*Nivritta Prasava*)^[8]** In *Sushruta Samhita* it is mentioned that after six years of *Nivritta Prasava* (from last six years one who had not delivered baby) if women conceived then born baby does not live for long period. Individual studies show that risk also increase with an interval of 10 years or more, since a previous pregnancy. Probable reason for this could be that with advancement in age DNA degeneration starts, which may lead to some defect signees that can cause defects information of placenta. This is again *Vata* predominant condition. This degeneration can be slowed with Ayurvedic *Rasayana* therapy.
- Environmental factors:** The number of environmental factors has been implicated in the development of pregnancy induced hypertension,

including Alcohol intake, Smoking and Obesity. These factors have made person to be more prone to PIH. Alcohol Intake creates *Pitta* dominancy in the body to enhance pathological condition for PIH. Tobacco Smoking may vitiate *Vata* and *Pitta* in the body. It also vitiates the seat of *Pranavaha Srotasa* i.e., *Hridaya*.

6. Psychological factors: *Chinta*, *Bhaya*, and *Shoka* these factors have the propensity to vitiate different *Dosha*. *Chinta-Vata Prakopa*, *Shoka-Vata Prakopa* and *Bhaya-Vata Prakopa*.^[9]

7. Seasonal Variations:^[10] Through researches it is found that the incidence of Eclampsia is significantly higher in monsoon, when the weather is cooler and humid with a lower barometric pressure than that of the year. Ayurveda says this is the period of *Vata Sanchaya*, *Vata Prakopa* and *Pitta Sanchaya*, so *Kaala* helps in manifestation of disease.

8. Low socioeconomic status:^[11] Pregnancy hypertension, Women of Poor and under privileged sector are malnourished because of nutritional deficiency; they have *Dhatu Kshaya Avasthathus Vata Vriddhi* in the body, which helps in manifestation of disease.

9. Other factors: Race, ethnicity have also been implicated as predisposing factors in the disease hypertension.

Purvarupa: Like *Vaatavyaadhi Purvarupa* of Hypertension disorder in pregnancy are *Avyakta*.^[12] i.e., absent or non-severe form.

Rupa: *Uchharaktchapa* (Hypertension): This condition is generally seen in old age which is *Vaata* predominant age. According to *Acharya Sushruta* and *Acharya Vagbhatta*, *Vyana Vayu* with its seat in *Hridaya* controls functions of *Rasa* and *Rakta Samvahana* in the entire body^[13] In this way *Vyana Vayu* controls Blood Pressure by maintaining blood circulation. Hence Hypertension can be considered as *Vaata* especially *Vyanavaayu* related condition.

1. Proteinurea

2. Oedema: *Acharya Kashyapa* describes *Vaayu* as a main cause of *Shotha*.^[14] Initially oedema starts on Lower extremities.

3. *Garbhini Chardi* (Vomiting) : It is present in severe condition only

4. *Garbhini Mutragaraha* (Oligouria): Due to Oedema the fluid is retained in the body results into Oliguria, thus it is actually a sequel, not an independent sign.

5. *Garbhini Shiroroga* (Headache): May be occipital or frontal, may be pulsatile or dull, continuous or intermittent. Pain itself is a *Vaata* predominant condition^[15] and its nature also denotes *Vaataja* type of *Shiroroga* with variations as per *Anubandha*.

6. *Bhrama* (Giddiness): *Pitta* and *Vaata* are responsible *Pittavrutta Vaata*^[16] also can be the cause.

7. *Klama* (Tiredness without work): *Vata Prakopa* results in the vitiation of *Rasa* and *Rakta* which causes *Klama*.

8. *Nidranasha* (Disturbed sleep): can be related to *Vaata* and *Pitta Vriddhi*.

9. *Garbhini Aakshepaka* (Convulsions): *Aakshepaka* is a *Vaatavyaadhi*. They occur more commonly in the third trimester and in 50% of cases fits occur before the onset of labour. More often, labour starts soon after it.^[17] It again denotes *Vaatakaala*.

10. *Viparitendriyarth* (Visual Disturbance): *Acharya Dalhana* has mentioned it in the symptoms of *Asadhya Mudhagarbha*.^[18]

Anushanghika Lakshana's are

- *Vamana*
- *Atisara*
- *Mutralpata*

Mukhya Lakshana's (cardinal features)^[19]

- *Shopha* (*Garbhini Upadrava*)

- *Akshepa*
- *Moorcha*

Upashaya

Aushadhi, Aahara and *Vihara* are helpful in *Shamana* of diseases, called as *Upashaya*.^[20]

1. Rest
2. Nutritious diet
3. Avoiding of excessive sodium diet (*Ati-Lavana Rasa*)
4. Avoiding smoking
5. *Yoga* and *Pranayama*
6. Cheerful mind
7. Following *Garbhini Paricharya*

Anupashaya are:

1. *Vatakara Aahara Vihara*.
2. Excessive intake of *Lavana*
3. *Vyavaya*
4. Stress, strain etc.
5. *Ratrijagrana, Divasvapa*

Understanding etiopathogenesis of Pregnancy induced hypertension from Ayurvedic Point of view:

Though there is no direct reference regarding hypertension during pregnancy in Ayurvedic classics. This pathology develops as a direct result of "Gravid state" & affecting the functioning of various systems that can be encountered in different disease conditions of Ayurveda.

In *Ashta Garbhopadravas* (Eight complications in pregnancy) *Shopha* (Oedema) and *Vivarnatva* (pallor) are the symptoms which is found in the patients of Pregnancy induced hypertension, *Vivarnatvamay* occur due to anemia or blood loss. Blood loss may occur due to APH in the form of *Abruptio-placentae* which is a commonest complication of Pre-eclampsia. *Acharya Kashyapa* has also mentioned specific treatment of *Shopha* and *Shopha* is also included in

the list of features denoting *Arishta Lakshanas*. *Kashyapa* has described Oedema presents on legs and face of the pregnant lady under the *Asadhylaxan* of *Mudhagarbha* (complicated position of fetus). *Aacharya Sushruta* and *Vagbhatta* have described *Viparitendriyarth* (abnormal function of sense organs) in the *Asadhya Lakshanas* of *Mudhagarbha*. Visual disturbances are common with severe pre eclampsia blindness is rare with pre-eclampsia alone. Thus, *Viparitendriyarth* can be correlated with visual disturbances. Another very common finding in women with moderate or severe pre-eclampsia is fetal measurement 2-4 weeks less than expected for Gestational age, suggesting the presence of fetal growth restriction. *Aacharya Charaka, Sushruta* and *Vagbhatta* have also mentioned the condition of *Garbha Shosha* indifferent manners. *Garbha Shosha* can be compared with intrauterine growth restriction. But they all have told that vitiated *Vata* is the cause of *Garbhashosha*. *Vata* aggravated due to this bleeding with holding *Pitta* and *Shleshma* compresses or obstructs the *Rasavahi Nadi* of the fetus. Obstruction to *Rasavahi Nadi* causes improper flow of *Rasa* and the fetus does not develop properly. *Arunadatta* specifying the period of disease says that it occurs when the fetus has become *Balavana* (strong i.e., 5th or 6th month). *Aacharya Vagbhatta* has further described that even at this stage if pregnant lady keeps on improper life style, then according to *Nidana* vitiation of *Dosha* occurs and lady suffers from different problems according to the vitiated *Dosha*. *Aacharya* has described different symptoms which appear on vitiation of specific *Doshas*. Oliguria is a condition which develops in later stage of Preeclampsia. *Acharya Kashyapa* and *Harita* had described the treatment of *Mutragraha* developed in *Garbhini*. *Kashyapa* has described specific treatment for *Aakshepaka* and *Apatantrakain Garbhini*.

Kashyapa has described management of fever, dyspnea, jaundice, anuria, abdominal pain etc. which are considered as ominous features of Eclampsia.

Sushruta has described *Panchabhutikatva* of *Raktadhatu* in which *Spandan guna* is karma of *Vayu*

Mahabhuta. Dalhan has also commented that *Spandan* means “*Kinchitchalanam*”^[21]

If this *Chal Gun* of *Rakta* is increased, it becomes one of the pathophysiological factors of gestational hypertension & can manifest high blood pressure. In Ayurveda blood is stated as “*Apyabhava*” of body & *Raktadhatu* is considered under *Rasa Dhatu* by *Chakrapani*.^[22]

Hence *Rasa Rakta Dhatu* are chief involved *Dushya* in symptomatology of gestational hypertension. *Kashyapa* has explained that the *Rasa Dhatu* formed by mother does three functions.^[23]

- Poshan* of mother
- Poshan* of *Garbha*
- Formation of *Stanya*

Due to nutritional deficiency *Rasakshaya* takes place, it leads to vitiation of *Vata* & it ultimately results in *Shotha* & hypertension. Main site of *Vayu* is *Pakvashaya*. After 5th month when fetus starts growing up in abdomen, uterus puts pressure on *Pakvashaya*, it causes vitiation of *Vata*, leading to development of *Shotha*.

Samprapti Ghatak

- *Dosha – Vatapradhantridosha*
- *Dushya – Rasa, Rakta*
- *Agni – Jatharagni, Dhatavaagnimandya*
- *Strotas – Rasa, Rakta*
- *Strotodushtiprakar – Sanga*
- *Udhbhavsth – Amashaya, Pakshyasa*
- *Vyaktasthana – Sarvasharir*
- *Rogmarga – Bahyamadhyam*
- *Avayava – Hridayadhamani*
- *Sadhyasadhya – Kricchasadhya*

Ashepaka, Garbhiniapatantrika, Garbhiniapatana, Mudhagarbha, Garbhashosha, Jataharini and *Garbhiniarishtalakshanas* are the conditions which give some understanding of HDP. *Vatadusti* is main causative factor in the manifestation of the disease.

As disease progresses involvement of other *Dosha* is seen. As *Dushya* are *Hridaya, Dash Dhamanya, Sira, Rasraktvahastrotasa, Manovahastrotasa, Rasdhatu, Raktadhatu* and *Manna*, treatment should be *Vaataashaman, Pittashamana, Hridya, Shothahara, Raktashaman, Balya, Anulomana*.

Another hypothesis related to *Samprapti* of disease that can be *Dosha Dushya Sammurchhana* also takes place at the placental site after which some *Vishama* entity may generate in modern which is termed as pressor substances and free radicals which when again reaches into circulation aggravates the pathogenesis.

Equating clinical features of modern system & predominant *Dosha* according to Ayurveda can be Gestational Hypertension is *Vatapradhan Tridoshajvyadhi*.

- Oedema – *Vata + Kapha*
- Headache – *Vata+ Pitta*
- Palpitation – *Vatta*
- Insomnia – *Pitta + Vata*
- Easy fatigability – *Vata + Pitta*
- Fainting – *Pitta +Vata*
- Dizziness – *Vata*
- Blurring of vision – *Vata + Pitta*
- Constriction of vessels – *Vata*

Dushya Adhishtan

- *Dash Dhamanya*
- *Sira*
- *Hridaya*
- *Rasraktvahastrotasa*
- *Manovahastrotasa*
- *Rasdhatu*
- *Raktadhatu*
- *Manna*

Preventive measures and management

Various medicines are mentioned in contemporary science for treatment of pregnancy induced hypertension but Ayurvedic medicines are found to be successful to treat this condition.

It is preventable by early detection & appropriate treatment & through Ayurvedic approach ensuring safe motherhood & healthy child & to decrease maternal & fetal mortality.

Contemporary science believes that best thing to manage the syndrome is to prevent it, but how to prevent; Ayurveda can contribute in this regard. On looking to the symptoms present in this disorder with an Ayurvedic approach, we find most of the symptoms are because of *Vata* and *Pitta* vitiation, *Vata* and *Pitta* So drug having properties of *Vata Pitta Shamana*, *Hridya*, *Shothahara*, *Garbhasthapana*, *Balya* and *Brimhana Vatanulomaka*, *Vatashamana*, *Mridu Virechana*, *Raktashodhaka*, *Anulomana*, *Rechaka* (incase of *Aavranajanyaprakupitvata*), *Agnideepana*, *Pachaka Medhya* and *Nidrajanana* are helpful in *Garbhajanyavishamayata* (PIH). *Nidanaparivarjana Chikitsa*

Shamana Aushadhi's Prayoga.

1. *Gokshuraadiguggulu*
2. *Gokshuradichoorna*
3. *Punarnavamandura*
4. *Sarpagandhadi Yoga*
5. *Yashtimadhuchoorna + Guduchisatva*

Kashaya

1. *Balajeerakadikashaya*
2. *Punarnavadikashaya*
3. *Punarnavarishta*

Rasaushadhi's

1. *Swarnamalinivasantarasa*
2. *Prabhakaravati*

Gritha

1. *Pippalyadighrta*

2. *Kalyanakaghrta*
3. *Mahapaishachakaghrta*
4. *Panchagavyaghrta*

Garbhini Paricharya as Pathyapathya

As a preventive care, *Pathyapathya* during Antenatal period is described as *Garbhini Paricharya* comprises of *Masanumasik Pathya* (month wise dietary regimen), *Garbhopaghatakar Bhavas* (activities and substances which are harmful to fetus) and *Garbhasthapak Dravyas* (substances beneficial for maintenance of pregnancy). The main intend behind advising *Garbhini Paricharya* is *Paripurnatya* (provide proper growth of the fetus and mother), *Anupaghata* (uncomplicated pregnancy), *Sukhaprasava* (for normal healthy delivery and healthy child of desired qualities and longevity).^[24]

DISCUSSION

Based on the above statement intervention during pregnancy includes early detection of pregnancy induced hypertension may improve Maternal & Fetal out comes. *Pathyapathya* during Antenatal period is described under the heading of *Masanumasikaparicharya* & what should be avoided is mentioned under the heading of *Garbhopaghatakarabhava's*. All these regimens were sincerely followed at Pregnancy. These are efficient in preventing PIH in the cases having mild degree of abnormal placentation & are result of improper lifestyle. So only the cases having severe degree of abnormal placentation or in which women indulges herself in faulty life style manifests at that time and that could be the reason that cardinal symptoms of PIH are described under headings like *Arishtalakshanas*, *Upadravas*, *Vyapat*, *Asadhyaalakshanas* of *Mudhagarbha*.

CONCLUSION

If the *Garbhini* follows *Garbhini Paricharya* and neglects *Garbhopaghatakar Bhavas*, most of the diseases in pregnancy may be prevented. Special description of various regimes for Preconception, Antenatal and Post delivery Period in Samhita is for

the purpose of prevention of pregnancy-induced hypertension (PIH) Pre-eclampsia and eclampsia which helpful for health of mother and fetus. On looking to the symptoms present in these disorders with an Ayurvedic approach, we find most of the symptoms are because of *Vata Pitta* vitiation i.e., *Vyana Vayu* and *Raktadushti*, *Manasikadosha Rajas* and *Tamas*. So, drug having properties of *Vatapitta Shamana*, *Hridya*, *Raktashodhaka*, *Anulomana*, *Rechaka* (in case of *Aavrana Janya Prakupit Vata*), *Medhya*, *Nidrajanana* and *Vatashamaka* properties. *Shothahara*, *Agnidipaka*, *Garbhasthapana*, *Balya* and *Brimhana* are also helpful in PIH. Identification of condition in an initial stage can prevent the complications and for better management.

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