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RESEARCH ARTICLE

"A STUDY ON AHARAJA AND VIHARAJA HETUS IN THE ETIOPATHOGENESIS OF VISWACHI W.S.R TO CERVICAL RADICULOPATHY"

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Abstract

Ayurveda is the most supreme science of medicine as it deals with all aspects of life, particularly of human beings. It talks about both health and diseased condition and its preventive aspects. *Viswachi* is one among *Vatavyadhi* and has a close resemblance with the signs and symptoms of Cervical Radiculopathy. The lakshanas of Viswachi is all alone mentioned in classics where in the *nidana*, *purvarupa*, *samprapti* must be considered from the light of *samanya vatavyadhi*. As a result of urbanization, we most commonly witness people often going for long drives, doing late night jobs, working in computers excessively. On the counterpart daily wage labourers, some occupational postures like in teachers, coolies, drivers, tailors are victims of Cervical radiculopathy, are the commonest causes of neck pain. It is commonly seen in old age, but also seen in young and middle aged people. In males the prevalence is 100% by age 70yrs, 96% in women older than 70 yrs. 60-70% women and 85% of men show changes related with cervical spondylosis by the age of 45yrs. *Ayurveda* gives first importance to prevention of disease through *nidana parivarjana* (avoiding etiological factors). Hence here this is an attempt to explain the *Nidana panchakas* of the disease *Viswachi* and its possible *Aharaja nidanas* and *Viharaja nidanas*.

Introduction:-

Viswachi is a Bahu karmakshaya pradhana vyadhi and one among vatavyadhi. In which the vitiated vata affects the kandara extending from talapratyanguli to bahu with the cardinal symptom of bahu karma kshaya as explained by Acharya Sushrutha. Dalhana opines that viswachi resembles Gridhrasi; hence associated symptoms like stambha, toda etc should be considered. According to Madhukosha, the kandara extending from bahuprishta to hastatala is affected in viswachi. Both margavarana and dhatukshaya nidanas are responsible for this condition. Etiological factors like abhighata, plavana, atyadhva, ativyayama, ativichesta,vishamaupachara,asriksrava, ama, vegavarodha etc does vataprakopa and affects the chala(kriya sheelatva) property of vata undergoes avarana.Further it also vitiates snayu and kandara and produce the disease viswachi.

Aristotle contended that hand as "The organ of organs, the active agent of the passive powers of the entire system."
It has been estimated by research group that the hand performs approximately thousand different functions in an ordinary day's activity.

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Cervical Radiculopathy(radix=root) or Cervical spondylotic radiculopathy shows compression of a nerveroot which occurs when a disc prolapses laterally which is due to osteophytic encroachment of the intervertebral foramina presenting the features of neck pain that may radiate in the distribution of the affected nerve root can be paralleled with viswachi.

It is universally accepted that radicular symptoms in the arm usually indicate nerve root entrapment secondary to a paracervical disc protusion or in the older population to the foraminal bony hypertrophy. Nerve root pain may be very distressing and is often compatible with manual or office work for a variable period of time, depending upon the pathology. The present study of Viswachi is limited to the cervical spine lesions. The degenerative diseases of the cervical spine, Cervical radiculopathy is clinically correlated with Viswachi of vatavyadhi.

It is commonly seen in old age, but in present scenario also seen in young and middle aged people. The annual incidence of cervical radicular symptoms to be 83.2per 100000 populations and its prevalence is most significant between 50-54 yr age group.

It is most prevalent among the farmers and labor class who lift heavy objects, push or pull heavy objects, operate vibrating equipments, some occupational odd postures, such as tailors, drivers, daily wage workers etc who involve in strenuous activities. And today as a result of modernization the most common trend we witness in this busy world is : people often going for long drives in vehicles, working for long hours in front of computers, night outs in call centersetc, ultimately resulting with early or late victims of Viswachi(Cervical radiculopathy), one of the commonest cause of neck pain.

Materials and Methods:-

The present study entitled "A STUDY ON THE AHARAJA AND VIHARAJA HETUS IN THE ETIOPATHOGENESIS OF VISWACHI W.S.R TO CERVICAL RADICULOPATHY" was carried out with the following methodology.

Aims and objectives of the study:-

1. To study the role of ahara and vihara in viswachi.
2. To study the etiopathogenesis of viswachi in detail.
3. To study the etiopathogenesis of cervical radiculopathy in detail.
4. Clinical understanding of viswachi w.s.r to cervical radiculopathy.

Source of the data:

Patients complaining of relevant symptoms attending both OPD and IPD will be screened for study irrespective of sex, religion, education, occupation and socio-economic status.

Method of collection of data:-

1. A minimum of 50 patients who fulfilled the criteria for diagnosis and inclusion were selected for the study randomly irrespective of sex, religion, education, profession and economic status.
2. A special case pro-forma was prepared with details of history taking, physical signs and symptoms as mentioned in our classics and allied sciences.
3. The study was done using a structured questionnaire. The variation in the hetu and samprapti responsible for manifestation of the disease was studied and conclusion was drawn based on the results obtained.

Diagnostic criteria:

The diagnosis of the disease is mainly based on the signs and symptoms and clinical maneuvers as follows.

1. Bahuprushta arabhyamangulinam (Radiating pain from cervical region to shoulder down to the arm).
2. Ruja (Pain).
3. Bahavo prasarana akunchanadi karma kshyakari(Difficulty in Movements of the arm)
4. Numbness
5. Weakness
6. Tenderness over cervical region.
7. Spurling's test
8. Shoulder abduction test

9. Lhermitte sign

Inclusion criteria:
1. Patients in the age group of 25-65 years were selected irrespective of sex, occupation, race and socio economic status will be taken.
2. Patients presenting with signs and symptoms and clinical maneuvers of viswachi (Cervical radiculopathy) as explained under diagnostic criteria.

Exclusion criteria
1. Patients with cervical myelopathy.
2. Patients suffering from neoplastic and infective disorders.
3. Patients with other systemic diseases.

Study design:
It will be an observational diagnostic study of patients on the basis of the following subjective and objective parameters -

Subjective parameters
1. Bahu prushta arabhyamangulinam (Radiating pain from cervical region to shoulder down to the arm)
2. Ruja(Pain) –assessed through Visual analogue scale (VAS)
3. Bahavo prasarana akunchanadi karma kshyakari (Difficulty in Movements of the arm)
4. Numbness
5. Weakness – assessed through Medical Research council(MRC) muscle scale

Objective parameters
1. Tenderness over cervical region
2. Spurling's test
3. Shoulder abduction test
4. Lhermitte sign

Duration of the study:
Since this is an observational study, patients were kept under observation till the clinical and radiological evaluation is done.

Follow up:
Study did not require follow up as this is an observational study.

Investigations:
X-Ray, Cervical spine AP and Lateral view.

Results:-

Total observed data and the results:

Sl.No	Incidence of distribution of 50 patients	Percentage (%) distribution of 50 patients
1	Age	36-50yrs – 40%
2	Sex	Males - 70%
3	Religion	Hindu – 50%
4	Education	Primary school – 20%
5	Occupation	Labour – 40%
6	Soci-economic status	Middle class - 48%
7	Marital status	Married – 70%
8	Ruja(Pain)	100%
9	Bahuprushta arabhyamangulinam(Radiating pain from cervical region to shoulder down to the arm)	100%
10	Bahavo prasana akunchanadi karma kshayakari(Reduced movements of the arm)	96%

11	Duration of complaint	>5yrs – 40%
12	Nature of pain	Deep aching pain – 20%
13	Course of pain	Continuous – 60%
14	Aggravating factors	Weight lifting – 40%, bathing - 20%.
15	Relieving factors	Sleep – 30%, rest – 20%
16	Past history	No previous history – 90%
17	Treatment history	Allopathic – 40%
18	Family history	Absent – 96%
19	Ahara	Mixed diet – 88%
20	Dominant rasa	Shadrasa abhyasa – 30%
21	Dominant guna	Mixed guna (rooksha, laghu, sheeta,snigdha,guru,ushna) – 40%
22	Dietetic habit	Pramita ashana – 26%
23	Body built	Moderate – 60%
24	Agni	Vishamagni – 60%
25	Koshta	Krura koshta – 50%
26	Jihwa	Alpa lipta – 50%
27	Habits	No habits – 46%
28	Nature of work	Manual – 40%
29	Diwaswapna	Present- 34%
30	Ratrijagarana	Present – 30%
31	Deha prakriti	Vata kapha -46% Vata pitta – 40%
32	Sara	Madhyama sara – 90%
33	Samhanana	Madhayama – 92%
34	Satva	Madhayama – 70%
35	Satmya	Madhyama – 60%
36	Abhyavaharana shakti	Madhyama – 50%
37	Jarana shakti	Madhyama – 56%
38	Vyayama shakti	Madhyama – 52%
39	Vaya	Madhyama – 70%
40	Desha	Sadharana – 40%
41	Palpation of cervical spine	Tenderness – 60%
42	Range of movements	Affected – 100%
43	Spurling's test	Positive – 100%
44	Bakody's sign	Positive – 100%
45	Shoulder distraction test	Positive – 100%
46	Lhermitte's sign	Positive – 100%
47	Brachial plexus compression test	Positive – 0%
48	Muscle bulk	Normal – 92%
49	Muscle tone	Affected – 20%
50	Contracture	Absent – 100%
51	Arm drooping	Absent – 100%
52	Sensory system	Affected – 40%
53	Tendon reflexes	Diminished – 40%
54	Radiaition of pain	G-1 – 80%
55	Stiffness	G-1 – 36%
56	Weakness	Present - 90%
57	Parasthesia	Present – 70%
58	Clumsy finger movements	G-0 – 100%
59	Cervical spine x-ray	Reduced disc space – 72% Osteophytes – 60%
60	Aharaja nidana	Abhojana – 30%

		Alpasana- 50% Vishamashana – 80% Adhyasana – 40% Pramitasana – 40% Vishtambhi Ahara – 40% Shushka shaka – 20% Viroodhaka – 60% Tumba – 50%
61	Shimbhi dhanya	Adhaki – 100% Chanaka – 100% Harenu – 100% Kalaya – 80% Masura – 100%
62	Truna dhanya	Ragi– 70% , jowar – 30%
63	Ruksha ahara	Chapatti,jowar roti,ragi ball – 90%
64	Laghu ahara	Pongal, white rice etc – 100%
65	Kashaya dravya	Unripe banana, okra, chick peas – 100%
66	Katu dravya	Chilli, onion, garlic, ginger, black pepper – 100%
67	Tikta dravya	Bitter gourd, kakamachi,fenugreek leaves – 70%
68	Sheeta ahara	Cold drinks, fruits(apple,grapes,melon,tender coconut) etc – 70%
69	Viharaja nidana	Dukha asana (improper postures) – 90%
		Dukha shayya (improper sleeping postures)– 90%
		Bhara vahana (weight lifting) – 10%
		Vega Dharana(suppression of natural urges) – 100%
		Vega udeerana (initiating urges forcibly) - 30%
		Ati Gamana(excessive walking) -50%
		Ratri Jagarana(excessive vigilance) – 40%
		Ati Plavana(excessive swimming) -2%
		Ati Shrama(excessive physical exertion) – 70%
		Ati Vyayama (excessive exercises) -30%
		Ati Vyavaya(excessive coitus) - 10%
		Ratha aticharya(excessive vehicle riding)- 80%

Discussion:-

Demographic Data

1. **Age:** In the present study, maximum no. of patients above the age group of 36 were recorded and among them most of the patients i.e. 40% of the age group between 36-50yrs had Viswachi. This is because of prolonged strenuous work during their 2nd and 3rd decade might be the reason.
2. **Sex:** In the present study there were 35 male patients i.e. 70% and 15 female patient's i.e.30%. This is because of involvement of men in more strenuous physical activities and due to some occupational postures.
3. **Religion:** 50% of the patients were Hindu's, 30% were Muslim's, and 20% were Christian's. Predominance of Hindu religion in and around is reflected in this sample. The high incidence of illness in Hindus reflects the prevalence of causation of the disease. As this may be the representation of the community distribution in and around Bengaluru city.
4. **Education:** In the present study it was observed that most of the people had education up to primary school and graduates. However education has minimum role on the pattern of disease.
5. **Socio economic status:** In the present study 48% were from middle class family, 46% were from lower class family, and 6% were from upper class. This data suggests that, lifestyle of middle class people either in the form of heavy work or influence of their profession in causing the particular disease.
6. **Occupation and nature of work:** While considering the nature of occupation, it was observed that maximum i.e. 40% were labourers, 20% were house wives, and 30% were professionals. Heavy manual works and improper postures may lead to sthanika vataprakopa pain greeva and amsapradesha resulting in viswachi. Cervical radiculopathy is considered as an occupational hazard as most of the professionals become its victim due to their improper working pattern which has its effect on cervical spine.
7. **Marital status:** In present study 70% were married and 30% were unmarried. This is because the incidence occurs as an occupational hazard in middle and old age.
8. **Duration of complaints:** Maximum number of patients i.e. 40% had complaints more than >5yrs, 30% were <1yr and 30% were>5yrs. It indicates the chronicity of the disease.
9. **Aggravating factor**: In the present study 40% had weight lifting as an aggravating factor and 20% had bathing. Heavy manual works and improper postures may lead to sthanika vataprakopa pain greeva and amsapradesha resulting in viswachi.
10. **Family history:** 96% of patients didn't have any family history. Thus we can conclude that the role of family history is very minimal in manifestation of viswachi.
11. **Desha:** Majority of the patients i.e. 40% of them belonged to sadharanadesha and the maximum no. of patients visiting the hospital are from surrounding locality. Hence it is difficult to draw any conclusion out of it.

Vyakatika Vrittanta

1. **Ahara (Dietary habit):** Majority of the patients i.e. 88% had mixed diet. This data only reveals the food habit of this area.
2. **Agni:** In this study 60% of the patients had vishamaagni which may be due to vatadosha dominant constitution.
3. **Koshta:** In this study 50% of patients had krurakoshta. Vatavriddhi in an individual leads to krurakoshta. Age and constitution also favours the same. Hence the cause for easy manifestation of viswachi.
4. **Pattern of sleep:** In the present study 32% of patients had disturbed sleep and 30% of them had delayed and disturbed sleep. This might be due to the increase in vatadosha in such patients and due to increase in pain during night hours may be the cause of disturbed sleep.
5. **Mala pravritti:** In the present study, 50% of patients had constipated stools and 40% of them had regular bowel habit. Vataprakopa in pakwashaya may be the cause for constipation resulting in vilomagati of vatadosha causing sthanasammshraya in greeva and amsapradesha leading to viswachi.

Dashavidha Pariksha

1. **Prakriti:** It was assessed based on the major physical, psychological and behavioural features of the patient. In the present study it was observed that majority of the patients had vata-kaphaja prakriti i.e.46% and also vata-pittaja prakriti i.e.40%. As the prakupita vata effect will be more seen in these patients who have dominance of vata in them.
2. **Sara:** Vishudhhatara dhatu is called sara (Ca.Vi.8/102-115). The obtained data supports the view mentioned in classics that madhyama and avara sara people are prone to diseases. In this study, 90% of the patients belonged to madhyama sara and 10% had avara sara.

3. **Samhanana:** Data pertaining to samhanana reveals that patients of viswachi were associated with medium physical constitution. In this study, 92% of them had madhyama samhanana which is due to continuous dhatukshaya causing vatavriddhi.
4. **Satva:** The psychological factors play a chief role in causing progression of discomfort as we know that chinta, shoka, bhaya etc manasikakarana leads to vataprakopa. Acharya Charaka has stated the people with madhayama and avara satva are prone more to diseases. The analysis of satva revealed that 70% patient's had madhyama satva.
5. **Vyayama Shakti:** In this present study, 52% patients had avara vyayama shakti and 36% had madhyama vyayama shakti. This clearly mentions that the pain and discomfort due to viswachi invariably decreases vyayama shakti in an individual.

Discussion on Examination:-

1. **Cervical spine examination:** In this study 60% of all patients had tenderness, 22% had crepitus and 18% had localize rise in temperature.
2. **Movements of neck:** In this study, 70% had painful extension, 30% had painful right lateral flexion, 80% painful left lateral flexion, 80% had painful right lateral rotation, 80% had painful left lateral rotation.
3. **Spurling's test:** In this study, 100% of all patients had positive spurling's test.
4. **Bakody's sign (Shoulder abduction test):** In this study, 100% of all patients had positive Bakody's sign(Shoulder abduction test).
5. **Distraction test:** In this study, 100% of all patients had positive Distraction test.
6. **Lhermitte's sign:** In this study, 100% of all patients had positive Lhermitte's sign.
7. **Brachial plexus compression test:** In this study, 0% of patients had positive brachial plexus compression test.
8. **Muscle bulk:** In this study 8% of patients had muscle atrophy.
9. **Muscle tone:** In this study, 20% of all patients had hypotonic shoulder, 16% of all patients had hypotonic elbow, 4% of patients had hypotonic wrist.
10. **Sensory system examination:** In this study, among all factors temperature was affected in 40% of patients.
11. **Tendon reflexes:** In this study, 40% of patients had diminished biceps reflex, 20% of patients had diminished triceps reflex and 10% of patients had diminished supinator reflex.
12. **X-Ray findings (Cervical spine AP and Lateral):** In this study, 60% patients had osteophytes, 72% patients had reduced disc space, and 8% of them had no significant changes. Osteophyte or bone spur formation, disc space reduction, and sclerotic changes occurs from degeneration of the intervertebral disc.This degenerated disc may herniate into the surrounding tissues and if the herniated disc presses on the spinal cord or spinal nerves, pain or neurological deficit may result leading to the signs and symptoms of Cervical Radiculopathy.

Nidanatmaka pareekshha
aharaja nidana
Abhojana
Among all the 50 patients, 30% of them did abhojana. Abhojana (Fasting) causes vata prakopa which is cause for manifestation of viswachi.

Alpasana
Among all the 50 patients, 50% of them did alpasana. Alpasanai.e consuming less amount of food causes vataprakopa resulting in various manifestations like shoola, angamarda, siraakunchana, stambha etc.

Vishamashana
Among all the 50 patients, 80% of them did vishamashana. "Aprapta atitakalam tu bhuktam vishamashanam iti" refers to untimely and delayed consumption, should be considered which leads to vitiation of agni resulting into formation of ama. And it is explained that ama is one of the major factors in pathogenesis of many diseases and viswachi is one among them.

Adhyasana
Among all the 50 patients, 40% of them did adhyasana. "Bhuktasyoparibhuktam adhyasana " Taking food before the digestion of previous food decreases the secretion of digestive enzymes and disturbs digestion of food and produces ama, which in turn is a major causative factor in pathogenesis of many diseases and viswachi is one among them.

Vishtambhi ahara
Among all, 40% of patients consumed vishtambhi ahara like chapati, ragi ball, masura, mudga, adhaki and other varieties belonging to this group. These dravya possess kashaya and madhura rasa, katu vipaka, shita and laghu guna. Hence these vishtambhi foods lead to vibandha which is a cause for vata prakopa and in turn is a cause for manifestation of viswachi.

Shimbi dhanya
In this study 100% patients consumed Adhaki, 100% patients consumed chanaka, 100% patients consumed harenu, 80% of patients consumed kalaya, 100% patients consumed masura.
Adhaki and masura possess kashaya and madhura rasa, katu vipaka, sheeta and laghu guna. These are pittakaphagna and vatala hence cause for manifestation of viswachi.
Chanaka, harenu, and kalaya possess madhura-kashaya rasa, rukshala guna, sheeta virya, mitigates pitta-kapha but is vatala hence is a cause for manifestation of viswachi.

Truna dhanya
In this study among 50 patients, trunadhanya such as ragi was consumed by 70% patients and jowar by 30% patients. Ragi is kashaya and tikta rasa predominant, is laghu and shita virya where all its properties cause vata prakopa and similarly jowar is kashaya rasa predominant and shita virya aiding for vata prakopa which in turn is cause for manifestation of disease viswachi.

Ruksha ahara
In this study among 50 patients, ruksha ahara such as chapatti, jowar roti, ragi ball was consumed by 90% of patients. These foods are ruksha guna predominant. Ruksha guna is responsible for shoshana, katinatva, and rukshana actions. Ruksha guna is mainly related to vatadosha. It subsides kapha and aggravates vata in turn is a cause for manifestation of diseases like viswachi and other vatavikara.

Laghu guna ahara
In this study among 50 patients, laghu ahara such as pongal, white rice, salad (cabbage, onion, tomato) was consumed by 100% of patients. These food items are laghu in guna and it does kaphashamana and vata vardhana and hence cause vataprakopa in turn causing manifestation of viswachi.

Kashaya dravya
In this among 50 patients, kashayadravyas such as unripe banana, okra/bhindi, chick peas were consumed by 100% patients. Kashayarasa is kaphapittahara and vatakara. It is having properties like ruksha, sheeta, and laghu which are also shared by vata. Excessive consumption of sheetaguna leads to obstruction of srotas, hinders the movement of vataetc. The gunas like khara, vishada and ruksha produces diseases like viswachi and other vata vikara.

Katu dravya
In this study among 50 patients, katu dravyas such as chilly, onion, garlic, ginger, black pepper were consumed by 100% patients. Katu rasa dravya has vayu and agni mahabhuta dominance. It has laghu and rukshaguna. It causes toda and bheda in the region of charana (feet), bhuja(shoulders), parshwa(flanks), prushta(back) and causes diseases of vata, among which one is viswachi.

Tikta dravya
In this study among 50 patients, tikta dravyas such as bittergourd, fenugreek leaves, Kakamachi were consumed by 70% patients. Tiktarasa possesses sheeta, ruksha, khara, and vishada guna which is homologus with vataguna. Because of ruksha guna it brings shoshana of rasa, rakta, mamsadi saptadhatus. Kharaguna brings about kharatva in srotas, reduces bala (strength), causes karshyata (emaciation) and results in vata vikara such as now in viswachi.

Sheeta ahara
In this study among 50 patients, sheeta ahara such as ice-cream, cold-drinks, fruits(apple, grapes,melon,tender coconut) was consumed by 70% patients. Excessive consumption of sheeta guna leads to obstruction of srotas, hinders the movement of vata etc.The gunas like khara, vishada and ruksha produces diseases like viswachi and other vata vikara.

Here all the above mentioned ahara dravyas quantity and the no. of times the person is consuming the ahara dravyais taken into account as it was consumed for maximum no. of times when compared to other foods on a daily basis and in large quantity per serving.
Hence the person who does not follow ashta aharavidhi, dwadasha ashana pravicharas are more prone for the vitiation of vatadosha. Therefore the type of diet, its quality, and method of preparation, taste and potency, post digestive effects of the diet, time, season, and mental state during intake of food should be taken into account.

Viharaja Nidana
In this study among 50 patients, 90% had dukha asana, 90% did dukhashayya, 10% did bharavahana, 100% did vegadharana, 30% did vegaudeerna,50% did atigamana, 40% did ratri jagarana, 2% did atiplavana, 70% did atishrama, 30% did ativyayama, 10% did ativyavaya and 80% did ratha aticharya.

Dukha asana and dukhashayya i.e due to improper sitting and sleeping posture there will be obstruction in the pathway of vatadosha leading to its vitiation. In the present era this etiological factor has important significance as the professionals are in a habit of working for long hours and taking rest in improper postures.

Due to vegadharana and vegaudeerana there will be vilomagati of vatadosha leading to various dreadful vata vikaras. Nowadays in this busy lifestyle people have habit of suppressing their natural urges which reflects in various pathological conditions. Prime vitiation occurs to the vatadosha.

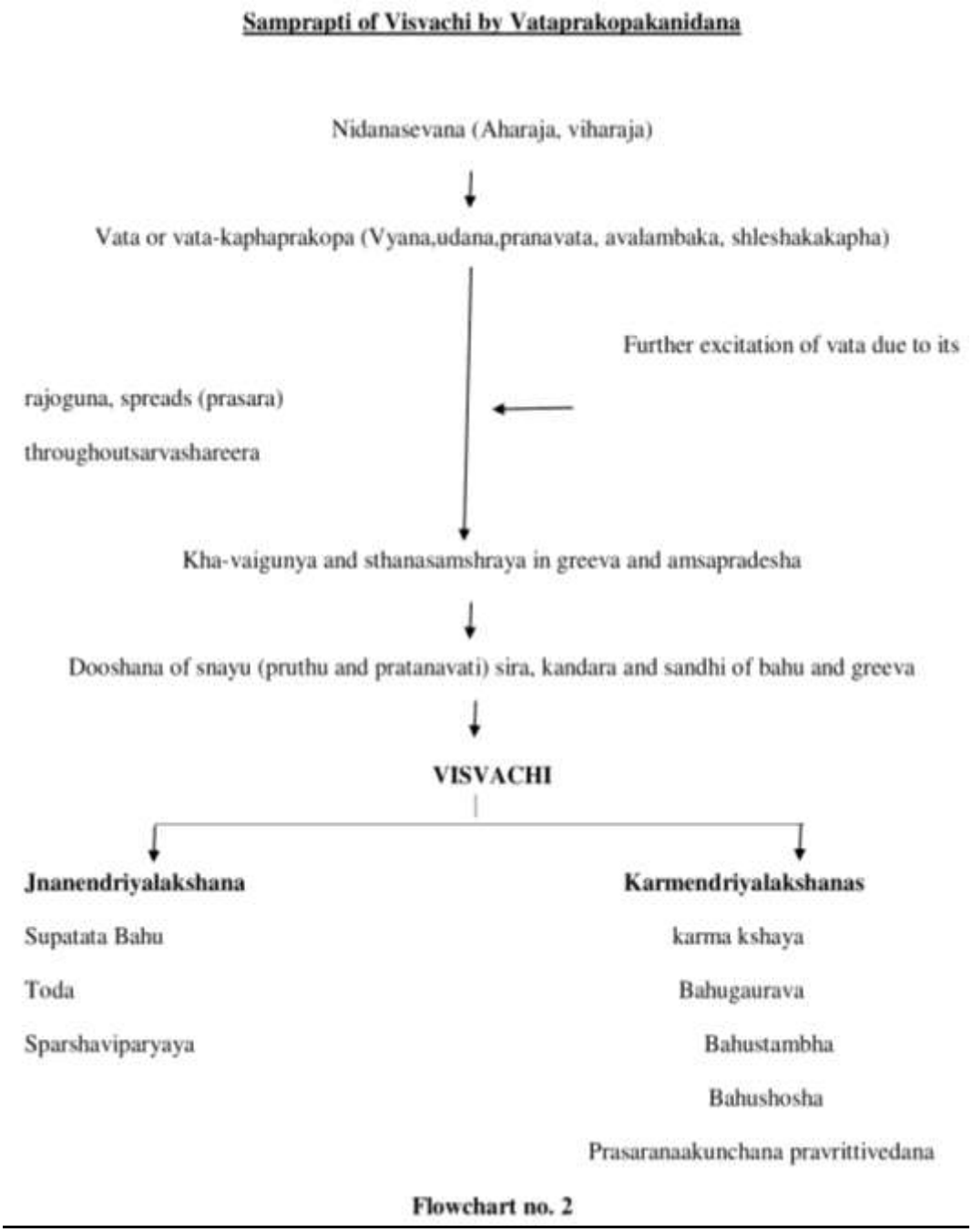
Ratrijagarana contributes rukshaguna of vata and brings about vataprakopa, hence causing manifestation of viswachi or other vatavikara. Nowadays in most of the profession night shifts are common and also people also watch media during late night without considering the right time to sleep. All these factors should be taken into account.

Ativyayama- “shareera aayasajanakam karmam vyayamam uchyate”. Excessive vyayama i.e more than half extent of one’s own capacity leads to shosha and vataprakopa leading to shoola. From today’s point of view, we can consider weight lifters, swimming professionals, potters, daily wage laborers, market vendors, sweepers, cleaners etc; where finally all these individuals end up with the vitiation of vatadosha.

Ativyavaya- due to excessive indulgence in sex without following the rules explained in maithunavidhi leads to dhatukshaya and vataprakopa.

Ratha ati charya – due to excessive vehicle riding, vataprakopa happens in neck & shoulder region further leading to sthanasamshraya of doshas in bahu leading to viswachi vyadhi.

All the above mentioned vihara’s lead to vataprakopa, hence cause manifestation of viswachi.



Flowchart no. 2

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