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Samprapti of *Medoroga* Vis-A-Vis *Beejswabhav* and Genes

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ABSTRACT:

Obesity is a chronic and increasingly common disease characterized by excess of body fat. It develops gradually and often persists throughout life. Genetics is one of the most important causes for obesity. Genes have been identified that controls appetite, formation of fat tissue, the control of body temperature and regulation of insulin levels. Leptin and ghrelin are amongst the best known hormones which play major role in obesity. The entities viz *jatharagni* and *dhatvagni* could be correlated to this two hormones respectively. Also as explained in *ayurveda*, *beejswabhavahetu* of *medoroga* could be correlated to genetics according to the modern science.

KEYWORDS*Medoroga*, obesity, *beejswabhav*, leptin, ghrelin.

INTRODUCTION:

Medoroga is described since the ancient time in *ayurvedic* classics. *Acharya Charaka* described *medoroga* as '*ashtauninditavyadhi'*. *Acharya Charaka* also described eight *lakshana* of *medoroga*. *Hetu* (causative factors) of *medoroga* are described in *ayurveda*. In which *beejswabhav* is one of the *hetu* responsible for *medoroga*. As described in *samprapti* of *medoroga* it has *jatharagnivruddhi* and *medodhatvagnimandhya*.

According to the modern science, obesity is a metabolic disorder that prevails in most of the developed countries. Obesity is a chronic and increasingly common disease characterized by excess of body fat. It develops gradually and often persists throughout life. Genetic cause is one of the most important causes for obesity. Genes have been identified that controls appetite, formation of fat tissue, the control of body temperature and regulation of insulin levels. Ghrelin and leptin are two hormones which have an important role in obesity.

Excessive deposition of fat than normal is known as *medoroga*. *Acharya Charaka* described *medoroga* under the heading of '*ashtaunindita' vyakti*. According to *ayurvedic* texts *samprapti* of *medoroga* shows *jatharagnivruddhi* and *medodhatvagnimandya*. It can be compared to the ghrelin and leptin hormones respectively.

According to *Vagbhata*, *swas than as thasyakaya gneramshadha tushusa mshrita: Tesham sadatidiptibhyam dhatuvrudhhikshayodbhav*: || (*Vag. Su* 11/34)

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From the above *shlokaVagbhata* said that, *jatharagni* and *dhatvagni* are inversely proportional to each other.

According to modern science, obesity is a metabolic disorder that is prevalent in most of the developed countries. It relates to pathology, that even though, has a great nutritional influence, also contains a genetic component. Genes have been identified that control appetite, formation of fat tissues, the control of body temperature and regulation of insulin levels. The involvement of genetic factor in development of obesity is 40-70%. Ghrelin (lenomorelin) is a hunger hormone, produced by the ghrelinergic cells in GIT (Gastrointestinal tract). Ghrelin is secreted when stomach is empty, and shows regulating action on appetite andis encoded by GHRL gene. Leptin is a polypeptide hormone also known as satiety hormone, produced by the adipose tissue. When adiposity of the body rises, more leptin is produced. Then it is carried via blood and reaches the hypothalamus, where it binds with the leptin receptors in hypothalamus and the ultimate result is decreased food intake. LEP gene is located on chromosome 7.

Leptin is opposed by the action of hormone ghrelin, that is leptin and ghrelin are inversely proportional to each other, like *jatharagni* and *dhatvagni*. From above discussion it may be said that, ghrelin could be compared to *jatharagni* and leptin could be compared to *dhatvagni*. In *medoroga*leptin could be compared to the *medodhatvagni*.

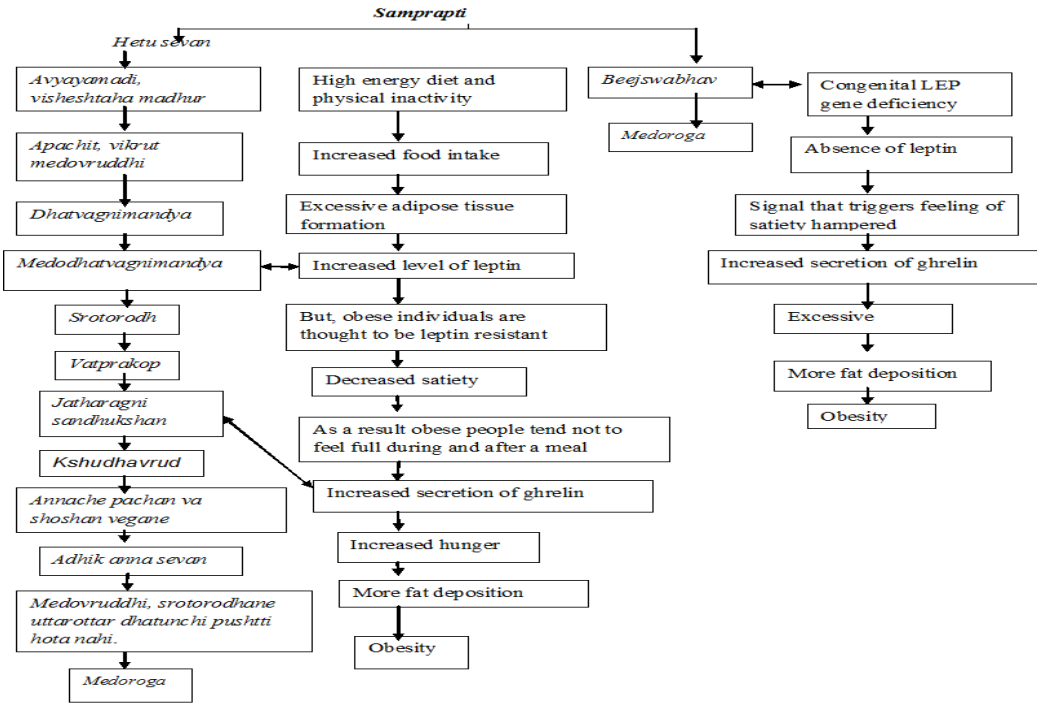
According to the *ayurvedic* texts, *medoroga* is *beejswabhavajanyavyadhi.*

HETU:

Tadatisthaulyam atisampuranad gurumadhurs-hitasnigdhopayogad avyayamad avyavayad divaswapnad adhrshanityatvad achintanad beejswabhavachopjayate || (Cha. Chi 21/4)

Charaka says that *beejaswabhava* is one of the causes for *medoroga*.

SAMPRAPTI:



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According to modern science, LEP gene mutation that causes congenital deficiency leads to an absence of leptin. As a result, the signaling that triggers feeling of satiety does not occur, leading to excessive hunger and weight gain. As stated in physiology, normally the leptin shows negative feedback mechanism, that is when leptin is secreted by adipose tissue it acts on receptors located in hypothalamus and results in satiety. But due to deficiency of leptin hormone or absence of leptinhormone, this negative feedback mechanism gets disturbed and it causes more ghrelin production leading to excessive hunger.

CONCLUSION:

Considering the above physiology of leptin and ghrelin and the concept of *jatharagni* and *dhatvagni* and the inverse action of leptinvis-a-vis*dhatvagni*, it can be said that ghrelin and leptin could be compared to *jatharagni* and *dhatvagni* respectively.

If we compare the *samprapti* of *medoroga* to that of obesity, ghrelin which is comparable to *jatharagni* is increased and action of leptinwhich is comparable to *dhatvagni* is deranged; that is *medodhatavagnimandya*. The *beejswabhav* etiology of *medoroga* can also be explained in terms of LEP gene mutation which causes congenital deficiency of leptin, which is unable to stimulate the satiety centre thereby leading to excessive hunger and weight gain.

This explains the *medorogasamprapti* where in a condition of excessive *jatharagni* and the *vikriti* of *medodhatvagni*, that is *medodhatvagnimandya* is present. This leads to more and more production of *medodhatu* although it being a *vikritmedadhatu* causing a gradual increase in the adipose tissue deposition in the body. The negative feedback mechanism of leptin secreted by adipose tissue hampered at the level of hypothalamus, thus hampering the role of leptin which should ideally decrease the food intake.

Thus the *samprapti* of *medoroga*vis-a-vis*beejswabhav* and the role of genes can be explained.

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