

Role of *Yastimadhu* in Recurrent Abortion - A Critical Review

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Abstract

Spontaneous pregnancy loss is a surprisingly common occurrence with approximately 15% of all clinically recognized pregnancies resulting in pregnancy failure. Recurrent pregnancy loss (RPL) is defined as three or more consecutive spontaneous losses of pregnancy. Recurrent miscarriage is thought to have multiple etiologies, including parental chromosomal anomalies, maternal thrombophilic disorders, immune dysfunction and endocrine disturbances. This review highlights the current understanding of the various etiologies implicated in RPL, including role of *Yastimadhu* to prevent RPL.

Keywords

Recurrent pregnancy loss, Yastimadhu, Immune dysfunction, Endocrine disturbance



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INTRODUCTION

Recurrent pregnancy loss (RPL) is defined as three or more consecutive spontaneous losses of pregnancy. Known etiology factors include anatomical defects in Mullerian tract, TORCH infection, immunological problems (allo-immunity and auto immunity). Sushrutsamhita has suggested some ayurvedic drugs for this purpose and Yastimadhu is one of them¹. Yastimadhu (*Glycyrrhiza glabra*) is also known as Liquorice and sweet wood belonging to family Fabaceae. Pregnancy is a state of oxidative stress. Uncontrolled iron supplementation and inclement environmental factors may add to oxidative stress leading to many diseases of cellular and tissue component². Immunology plays a significant role in the outcome of the pregnancy. There are many placental mediated mechanisms that prevent the immune response of the mother against the fetus, which is a foreign body. In normal pregnancy, asymmetrical antibodies develop resulting in T helper cell 2 type responses. It is associated with good progesterone secretion from placental tissue resulting in a successful outcome of pregnancy. A response to a fetal antigenic stimulus is

normally dampened by progesterone induced blocking factor (PIBC) secreted by chorionic tissue of placenta, thus prevent this antigenic reaction. In case if fetal antigenicity produces symmetrical antibodies, due to greater sharing of HLA antigen in partners, it results in Th1 cell response leading to deficient PIBC secretion. These changes lead to pro inflammatory cytotoxic reaction associated with high NK cell activity and lead to abortion. Thus development of autoimmunity also plays a role in repeated pregnancy loss. In many cases of RPL, auto antibodies can be detected and this condition is termed as anti-phospholipid syndrome. TORCH is an acronym for a special, group of infections. These may be acquired by a woman during pregnancy. TORCH infection include many microbial infections such as 'T' stands for Toxoplasma infection, 'R' stands for Rubella, 'C' for cytomegalovirus (CMV) and 'H' represents herpes simplex virus.

Several reports identify inherited predisposition to thrombophilia as one of the cause of RPL. From a pathological point of view woman affected by thrombophilia during their pregnancy shows hypercoagulable state that is already



increased during pregnancy, which may impair placental flow and then its function and fetal growth and may predispose to develop venous thrombosis³.

LITERATURE REVIEW

Literary review of Yastimadhu was started from the Vedas up to recent research works to obtain thorough knowledge of drug. On comprehensive review of ayurvedic classics it was found that Yastimadhu was described in Vedas, Charaksamhita, and Sushrutsamhita. In Charaksamhita, Yastimadhu is described in Shonitsthapan Mahakasaya⁴. In Sushrutasamhita it is described in Sarivadi gana and Kakolyadi gana⁵.

Classification

Kingdom – Plantae

Division – Angiospermae

Class – Dicotyledonae

Order – Rosaciae

Family – Fabaceae

Genus – Glycyrrhiza

Species - glabra

Habitat

It is distributed in southern Europe, Syria, Iran, Russia, China and Northern India.

Description of the plant

It is a perineal herb for subtropical and temperate zone. The plant attains a maximum height up to 2m. The underground stem grow horizontally up to 2m length, highly branched consisting of short tap root with large number of rhizome⁶. Externally, it is longitudinally wrinkled with patches of cork⁷. Leaves alternate, pinnate, yellow green. Leaflets 4-7 pairs are covered with soft hair on underside. Flowers are pea like lavender to purple colour.

Flowering and fruiting time

Flowering and fruiting is from August to February.

Properties⁸

Rasa – Madhur

Guna – Guru, Snigdha

Vipaka – Madhur

Veerya – Sheeta

Doshaghnata- Vatapittashamaka

Karma

It is Dahashamaka, Keshya, Vedanasthapana, Shothahar, Medhya, Chardinigrahana, Trishnanigrahana, Vataanulomana, Mraduvirechana, Shonitsthapan, Kanthya, Jwarshamak, Jeevaneeya, Rasayan and Balya.



Phytochemistry

The chief constituent of liquorice is glycyrrhizin which is present in the drug in the form of Potassium and Calcium salts of glycyrrhizin acid⁹.

OTHER MEDICINAL USES OF YASTIMADHU

Licorice roots are used for its demulcent and expectorant property. Licorice is an important ingredient in medicinal oils for epilepsy, paralysis, rheumatism, hemorrhagic disease. It is also used in the treatment of diarrhea, fever, fever with delirium, anorexia¹⁰. Due to glycyrrhizinic acid present in licorice which has the minerlocorticoid activity, it is used in place of corticosteroids for the treatment of rheumatoid arthritis, inflammations and Addison's disease. Glycyrrhizin also proved effective in the treatment of chronic hepatitis and liver cirrhosis¹¹.

DISCUSSION

Sushrutsamhita has suggested some drugs in different group for this purpose, Yastimadhu is one of them¹². Yastimadhu (*Glycyrrhiza glabra*) is from Madhur gana. Its attributes are Madhur Rasa, Madhur Vipak, Sheet Virya with Guru and Snigdha Guna. It is

Pittaghna, Vataghna but Kaphakarak. It is Shonitsthapana and Raktapittaghna, thus given strength to muscle fiber of blood vessels and improves circulation. As it improves liver enzymes facilitates micronutrients absorption. Yastimadhu is Rasayana for prevention of repeated respiratory tract infection in children, as it has immunomodulatory activity¹³. So thus if it is given during pregnancy it will strengthen the respiratory system. It is immunostimulatory, antioxidant, and anticoagulant thus improve maternal circulation and nourishment of fetus which leads to improved birth weight. It is reported that liquorice extract inhibits the growth of viruses, including herpes simplex, varicella zoster and of Japanese encephalitis virus¹⁴.¹⁵ Glycyrrhizin does not allow the virus cell binding. Thus, it is found to have prominent antiviral activity. According to in vivo studies, liquorice root extract was found to prevent the rise in the amount of immune complex which resulted to autoimmune disease like systemic Lupus erythematosus¹⁶. Pregnancy is a hypercoagulable state. Glycyrrhizin is the first plant based inhibitor of thrombin. It is found to prolong the Thrombin and fibrinogen clotting time. Glycyrrhizin causes

inhibition in thrombin induced Platelet Aggregation factor (PAF) and collagen induced agglutination^{17, 18}.

CONCLUSION

Recurrent abortion continues to be a challenging reproductive problem for the patient and the clinician. Spontaneous pregnancy loss can be physically and emotionally taxing for couples, especially when faced with recurrent pregnancy losses. Yastimadhu may be a useful therapy for RPL through reducing oxidative stress, immune stimulatory effect and anti-coagulant effect.

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