



USE OF TRADITIONAL DRUGS IN PREGNANT AND NURSING MOTHERS: A REVIEW OF ASSOCIATED ADVERSE DRUG REACTIONS

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DOI: 10.7897/2277-4572.0514

Received on: 15/12/15 Revised on: 08/01/16 Accepted on: 04/02/16

ABSTRACT

The condition of carrying a developing embryo in the uterus and breast feeding of baby by mothers requires special precautions in term of intake of medicines. Usage of traditional drugs also requires some vigilance in respects of its adverse drugs reactions. The particular dangers of these preparations come rather from the belief that they are natural and therefore necessarily safe in pregnancy.

Since last few decades' tremendous research work has been done of the various aspect of medicinal plants on pharmacognostic and chemical aspect, but aspect of safety and toxicity particularly, in pregnancy and lactation, is the most neglected area. These medicines are considering safer than allopathic drugs, but several plant species are proven to be toxic in these conditions. For example, volatile oil containing drugs can be abortifacient, Irritant to genitourinary tract (can cause uterine contractions). Some constituents also have got action on uterus. Pyrrolizidine alkaloids can cause Hepatotoxicity in a new born. Some are strong diuretic and laxative (can cause water / salt lose), hormonally active, mutagenic, genotoxic, teratogenic, etc. So these drugs are better avoided during pregnancy and lactations. An attempt can be made to identify herbal / traditional ingredients that have potential toxic effect on pregnancy and lactating women and also about their potential interfere with specific categories of conventional drugs based on their phytochemical, pharmacological properties and many documented side effects and also due to adulteration by heavy metals & microbial contaminations in relevance with classical Unani & Ayurvedic / traditional literature. Details of these drugs will be discussed in the present work.

Keywords: - Adverse effect, Unani, Ayurvedic, Traditional drugs, Pregnant, nursing mothers.

INTRODUCTION

The condition of carrying a developing embryo in the uterus and breast feeding of baby by mothers requires special precautions in term of intake of medicines. Usage of traditional drugs (Unani and Ayurvedic) also requires some vigilance in respects of its adverse drugs reactions (ADR) / adverse effect the particular dangers of these preparations comes rather from the belief that they are natural, therefore, necessarily safe in pregnancy. Pregnant and nursing mothers should take extra caution as they are more susceptible to herbal adverse reactions or toxicities. Some compounds in herbs and traditional drug can cross the placenta and are clearly linked to birth defects or other problems in newborns.¹

The wide spread use of herbal / traditional medicine during pregnancy indicates an increased need for documentation about the safety of these drugs in pregnancy to meet the needs of pregnant women. Using poorly studied drug product in these groups may cause problem, some drugs can be harmful when used at any time during pregnancy, others however are particularly damaging at specific stages of pregnancy. In the stage of organ formation most of the body organs and systems of the baby are to be formed within the first ten weeks of pregnancy. Some drugs can cause malformations of such parts of the developing fetus to the heart, limbs, and the facial features during this stage. In this period of organogenesis malformations can arise from brief exposure. In the stage of prenatal growth,

after about the tenth week, the fetus ought to grow rapidly in weight and size. During this stage certain drugs may damage organs that are still developing, such as the eyes and nervous system. Continuing the use of drug at this stage also increases the risk of miscarriage and premature delivery. The biggest danger drugs pose is their potential to interfere with normal growth. Intrauterine growth retardation (IUGR) is likely to result in a low birth weight baby. Thus, they require special care and have a much higher risk of severe health problems, even death can occur. In the stage of birth some drugs can be especially harmful at the end of pregnancy making delivery more complicated, dangerous, or can create health problems for the newborn baby.²

In case of ADR from mother to developing fetus and newborn several drug can transfer from maternal milk and cause ADR in new born. In case of exposure to organo- mercury compounds, it can cause sluggish growth of unborn baby and can disrupt the nervous system. It can be transferred from blood to milk causing risk to newborn baby³. Pregnancy and lactation period look similar with regard to ADR, but there are basic differences. During pregnancy, the fetus can have more exposure with medications in higher quantity than through lactation but the mother's liver and kidneys aid in detoxification and excretion. On the other hand, in breast feeding less medication reaches the child but the infant generally relies on its own detoxification and excretion abilities. Each condition presents a distinctive set of problems.^{4,5,6}

It is well-established that all drugs are excreted into breast milk and are bioavailable to the infant. In general, the majority of drugs do not pose a significant problem to the nursing infant. The physician should be aware of which drugs are contraindicated during lactation and which drugs should be used with caution by lactating women. For example, due to the dopaminergic activity of the ergot alkaloids they may have the ability to suppress prolactin and hence lactation. It is not a preferred choice while nursing because of the risk of ergotism in the infant. Signs of its toxicity in the infant include vomiting, weight loss and weak pulse. Infants should be closely monitored if breast-fed during maternal gold therapy as the exact effect on infants is not known at this time. Reported milk levels vary widely and aurothiomalite has been measured in both urine and plasma of infants.⁷

Since last few decades' tremendous research work has been done on the various aspect of medicinal plants on pharmacognostical and chemical aspect, but aspect of safety and toxicity particularly in pregnancy and lactation is the most neglected area. These medicines are considering safe then allopathic drugs, but several plant species are proven to be toxic in these conditions.

Traditional drugs whether of unani or ayurvedic origin can have various adverse effects on pregnancy and lactation it can be attributed to several factors. 1) Phytochemical and pharmacological properties and many documented ADR of drugs which also include acute and chronic toxicity, teratogenicity, mutagenicity etc; 2) Adulteration of drugs: adulteration of declared ingredients intentionally or by accident by toxic drugs and undeclared medicines; 3) Microbial contaminations : (staph aureus, e coli, salmonella, shigella etc); 4) Contamination's by toxic metals (lead, cadmium, mercury, arsenic), radioactive materials and pesticides ; and 5) Adulteration by synthetic drug:-for example with steroids, anti inflammatory drugs etc⁸

In this review, documented ADR \ Adverse effect of Unani and Ayurvedic drugs is been focus particularly in pregnant and nursing mothers in respect of its phytochemical and pharmacological properties along with therapeutic dose to obtain the limit for caution in pregnancy.

METHODOLOGY

The ADR for Unani / Ayurvedic drugs were surveyed for the available literature from authentic indexed journals, websites, source books for traditional medicine and conventional medicine for noting the ADRs for Unani/Traditional drugs used in pregnancy and lactation.

Adverse effect and safety of traditional drugs in pregnant and nursing mothers

Abutilon indicum, Kanghi /Atibalaa: Abortifacient (plant) so contra indicated in Pregnancy.⁹

Achillea millefolium linn, Biranjasif: To be avoided during pregnancy as the herb is uterine stimulant/ abortifacient. In rare cases cause allergic skin rashes.^{10,11}

Achyranthes aspera Linn, Chirchita / Apaamaarga, Latjeeraa: Abortifacient and contraceptive properties, significant Abortifacient activity in mice and rabbit s. An-butanol extract has been found to posses' contraceptive efficiency in rat which might be assigned to its potent estrogenicity Benzene extract showed 100 percent abortifacient effect in the rabbit at a single dose of 50 mg / kg.. Dosage decoction:-28-56ml.^{12,13,14}

Aconitum ferox / A. napellus, Beesh / Bachnaag: whole plant is highly toxic, toxic compounds higher in roots and flowers, containing highly toxic alkaloid, The symptoms of toxicity affect mainly the central nervous system and the heart, with associated gastrointestinal signs. Development of ventricular tachyarrhythmia and heart arrest will result in death. No specific therapy exists for *Aconitum* poisoning, so it should not be used in pregnancy^{10,15}

Acorus calamus L., Bach: In view of toxic property of beta - asaron associated with Calamus, it should be avoided in pregnancy and lactation. It has emmenagogue and genotoxic activity^{11,16}

Adhatoda zeylanica, Adusa / Vasaka: Abortifacient and hence should not be used during pregnancy, Uterotonic activity, Root bark powder decoction 50-100 ml.^{17,13}

Aloe barbadensis, Elwa / Ghrita-kumari: Large doses may Leads to accumulation of blood in pelvic region and reflux stimulation of uterine muscles and may bring about abortion or premature birth in late pregnancy active principal (Anthraquinones) generally appears in milk, contra indicated in pregnancy and lactation, Dosage:-50-200 mg,^{12,13,11,10}

Anemone pulsatilla, Shaqaaq-un-nomam: contraindicated in pregnancy. Irritant, toxic, allergic, avoided in lactation, dose powder 1-3 gm, uterine stimulant.^{13,11,16}

Anthemis nobilis linn, Baboonaj roomi / Roman chamomile: Avoid oil completely in pregnancy as it is uterine stimulant. Internal, Consumption of whole plant should also be avoided during early pregnancy. It is contra indicated in early pregnancy due to its Emmenagogue effect. Flower 400-500 mg cap.¹³

Apium graveolans, Karafs: The volatile oil of seed can act as uterine stimulant/ abortifacient. Do not use in pregnancy. Seeds 3-5 gm.^{13,11}

Aristolochia spp (A Indica, A Bracteata), A B, Kitamaari / A Indica: It is emmenagogue abortifacient. Ant fertility effect, passage of A A (Aristolochic acid) into human breast milk has been reported recent studies in Rodents suggest that A.A as one of the most effective Carcinogens yet known also it has genotoxic effects and mutagenic effect, root powder 1-3 gm.^{13,18}

Artemisia absinthium L., Afsanteen / Worm wood: contraindicated during pregnancy due to the terpenoid thujone content, administration of large doses can lead vomiting, stomach & intestinal cramp headache & dizziness. When ingested in large amounts can cause epileptiform seizures and even abortion. Antifertility activity (Ethanol extract) in rats^{13,19,20}

Asarum europaeum Linn., Asaroon / Hazelwort: Emmenagogue (menstrual stimulant) not to be used during pregnancy.¹⁰

Berberis aristata, Daarhild / Daaruharidraa: Berberine containing plants are contraindicated during pregnancy. Higher doses may interfere with Vit-B metabolism. Decoction 50-100 ml, Berberine causes a strong contraction of the isolated pregnant mouse uterus, it is a mitochondrial mutagen in yeast^{13,18}

Borage officinalis, Gaozabaan / Borage: Because of the hepatotoxic & hepatocarcinogenic pyrrolizidine alkaloid (PA.), Content though in small quantity, it is contraindicated in pregnancy. A variety of PA has been demonstrated to be mutagenic^{13,18}

Butea monosperma, Palas / Dhak: The alcoholic extract of the seeds on oral administration has antifertility activity in female mice dosage:-powder on 600mg - 1.8gm.¹²

Callendula officinalis, Genda: Contraindicated in pregnancy, and lactating mother. Spermicide, antiblastocyst and aborting agent.¹¹

Calotropis procera (Ait) R. Br., Madar/ Arka: Highly toxic, Higher dose causes Vomiting, diarrhea, bradycardia and convulsions to be avoided in pregnancy.¹³

Cannabis sativa L., Bhang: Contraindicated in pregnancy. Leaves are poisonous.¹³

Carica papaya, Papitaa: Contraindicated during pregnancy. An increase in haemorrhagic tendency is not being ruled out in coagulation disorders. Dose: Seed powder 500mg-1gm. Emmenagogue and abortifacient effects.^{13,16}

Carthamus tinctorius, Qurtum / kusumbha: The flowers and seeds are contraindicated during pregnancy. Powder 1-3 gm, Emmenagogue and abortifacient effects^{13,16}

Cassia angustifolia, Sannaa / Svanna – pattri: contraindicated during pregnancy and while nursing not to be used in children under 12 years of age prolong use cause loss of electrolyte, potassium resulting in Albuminurea and haematuria. Not for use while nursing *Senna alexandrina* is part of the formulation to be used for constipation, this stimulant laxative is the most commonly used anthranoid laxative. In the case of pregnant women. The use of laxatives containing anthraquinones is potentially dangerous, because the ingredients can induce uterine contractions, increase blood flow to the uterus and its attachments; increasing the risk of fetal loss, and may pass into breast milk and cause unwanted effects such as spasms in the infant to be avoided especially in the first trimester.^{13,10,20}

Cinnamomum camphora Nees & Eberm. Kafoor/ Camphor not be used during pregnancy, camphor given to pregnant rats experienced varied degrees of bleeding and significant structural changes in their uterus, shown to cross the placenta, nursing mother also should avoid using camphor.^{10,21}

Commiphora mukul (Hk.ex Stocks) Engl., Muqil /Guggal, Oleo gum resin is reported to enhance the menstrual discharge and hence should not be taken in pregnancy can cause gastrointestinal discomfort, contraindicated in pregnancy. Dose:2-4 gm guggulipid 500mg^{17,10}

Commiphorrha Myrrha Murmakki / Bola, Gandhrasa: Contra indicated in pregnancy interferes in ant diabetic therapy. Gum-resin 625-1.25 gm, Emmenagogue and abortifacient effects.^{13,16}

Crataeva narvala, Tapia, Barna / Varuna, barun, possesses anti fertility activity dosage 20-30gm for100ml of decoction dose is 60 ml twice a day²²

Crocus sativus, Zafran / Kum kuma, Taken in high dose is toxic it may cause vomiting, uterine bleeding, bloody diarrhoea, beside stimulating the uterus, to be used with caution in pregnancy dosage:-0.25 to 1.5 gm/day, contraindicated during pregnancy^{13,10}

Croton tiglium Linn, Jamaalgotaa Agus/ Jayaopaala: drastic purgative contraindicated in pregnancy. TPA is carcinogenic Seed 25-50 mg¹³

Datura Stramonium, Dhatura: Vigilant consideration is needed due to toxicity of plant, adverse effect in pregnancy can stimulate Uterine contraction and can cause miscarriage, 50-100mg dried leaf^{12,23,13}

Dorema ammoniacum, Ammoniac Gum / Ushq: The drug is contraindicated during pregnancy due to the existence of indications of a menstruation-inducing effect¹⁰

Drimia maritime (Urginia scilla), Isqueel / Jungli pyaaz: Contraindicate in pregnancy cause gastric irritation, cardioactive¹⁰

Embelia Basaal, Baubadang / Vidang : The aqueous extract of the drug acts as an long acting contraceptive by inhibiting endometrial alkaline phosphatase and hence preventing implantations of the fertilized ovum Dosage 3.75- 15 gm(infusion).¹²

Eucalyptus Globulus Labill, Nilgiri / Tailaparna: Not to be used internally in pregnancy internally undiluted fatal at 3.5 ml, study in rat shows eucalyptol is able to penetrate thweplacental tissue

and reaches in concentration in fetal blood adequate for stimulating hepatic enzyme activity at dose 500 mg/kg S.C.^{11,18}

Euphorbia hirta.L., Doodhi: Reported to cause contraction and relaxation of smooth muscles, use in pregnancy should be avoided, 120-300mg¹¹

Ferula assafoetida, Hildeet / Hingu: Exhibited 31% anti implantation and 46% abortifacient activity, Gum-resin was represented as an emmenagogue, mixture containing asafetida prevents conception^{13,18}

Gaultheria procumbens, Wintergreen (oil of wintergreen) / Gandapuro: Salicylates Content (Teratogenic and embryocidal in various species of animals). Since salicylates are distributed into Brest milk oil of wintergreen should be avoided by pregnant and nursing women.¹⁸

Gossypium herbaceum, Pambadana / Kaarpaasa.: Contraindicated in pregnancy antifertility activity of root in mice, rats, root bark stimulates uterine contractions & hastens a difficult labor It also promotes abortion or the onset of the period & reduces menstrual flow. Root barks powerful emmenagogue.¹³

Hedoea Pulegioides and mentha pulegium, Pennyroyal oil: Oil is abortifacient due to irritation of the uterus with subsequent uterine contractions.¹⁸

Helleborus Niger, Kharbaq Siyah / Black Hellebore, It is used as an abortifacient.¹⁰

Hyosyamus niger, Ajwain Khurasani/ Paarsika-Yavaani: Over dosing is toxic, dose : powder 500mg-1gm.¹³

Hypericum perforatum, Balsaam, emmenagogue, abortifacient effects as an antidepressant avoid in pregnancy, powder 3-6gm.^{13,16}

Juniperus communis Abhal. Contraindication in pregnancy, extract shows anti-implantation activity, uterine stimulating activity cause heavy menstrual bleeding/ abortifacient dried berries 6-12gm^{13,19,11}

Lavendula stoechas, Ustokhuddus excessive internal use in pregnancy should be avoided in early pregnancy may cause griping and colic lavender oil in large dose is a narcotic poison, dose 3-6 gm¹³

Linum usitatissimum, Alsi, kataan / Nila pushpin: Avoid internal use of seed in early pregnancy. Dietary flaxseed oil appears to have no effect on breast milk and as likely safe for use while breast feeding. Dose 3-6 gm¹³

Moringa oleifera Linn., Drumstick Plant/ Sahajana: Behen root preparations are contraindicated during pregnancy because of their possible abortive effect.¹⁰

Ocimum basilicum Linn., Faranjmushk / Sweet Basil: Contains about 0.5% essential oil with up to 85% estragole. Because of the high estragole content in the essential oil, the herb should not be taken during pregnancy, because a mutagenic effect *in vitro* and a carcinogenic effect in animal experiments have been demonstrated for estragole, oil of basil should also not be administered while nursing.¹⁰

Ocimum tenuiflorum, Rehan / Tulsi: The herb and the essential oil should not be used during pregnancy and lactation at for prolong period Dosage: 4-12 ml infusion,28-56 ML decoction, as per animal studies large amounts of holy basil might negatively affect fertility, Safety during pregnancy and lactation is needed to be investigated^{12,24}

Origanum vulgare Linn. Marzanjosh/ Marjoram: Emmenagogue and abortifacient effects.¹⁶

Peoria emodi Wall. ex Royle, Ood saleeb. Toxic in higher dose, Contraindicated during pregnancy, dose 1-3gm.¹³

Phyllanthus amarus, Bhuimla / Bhoomyia malakee: Since the drug is known to possess contraceptive properties in mice it may be avoided during pregnancy dosage:-3-6 gm¹²

Piper longum, Pipli/krishnapippli: Fruits as well as roots are emmenagogue. Abortifacient. dosage: fruits products 300-600 mg, extract 45-90 mg¹²

Plumbago indica (P. zeylanica), Sheetraj / Chitraka: Contraindicated during pregnancy root powder produced antifertility activity in albino rat (oestrogenic anti gonadotrophic and antiovarulatory activities) its should be avoided at all stages of pregnancy, dose 1-3 gm¹³

Podophyllum hexandrum Royle, Papra / Bakrachimaka papra: Podophyllin is a mitotic poison and its misuse can lead to significant toxicity it should not be administered to children its used in pregnancy has been associated with congenital abnormalities and fetal death. Dosage podophyllin 10-40 % for external application 2-6 hour weekly¹²

Punica granatum, Anaar / Pomegranate: Root bark contraindicated in pregnancy abortifacient, root bark contains toxins more than 80 gm is fatal, Emmenagogue and uterine stimulant effects.^{13,16}

Rauwolfia serpentina Linn, Asrol /Sarpagandha: Contra indications in pregnancy (Sedative and tranquilizing properties). Dosage:-100-150 mg twice daily¹²

Rheum emodi, Rewandchini: Non standardized anthraquinone connecting laxative preparation should not be taken during pregnancy and lactation since this pharmacological action is unpredictable also contraindication in arthritis intestinal obstruction and renal disorders Dosage: - dried drug 1-4 gm (30- 100 mg of hydroxyanthracene derivatives).¹²

Ricinus communis, arand /eranda, vatari: Castor oil should not be taken during pregnancy as it can cause uterine contraction; seeds contain poisonous principle ricin and enzyme lipase long term use of oil causes a reduction of absorption of nutrients etc. Dosage Casts oil: - 4-16 ml, Meconium passage was significantly more common in patients who had recently taken either castor oil, Caesarean section was significantly more frequent in pregnancies complicated by fetal meconium passage.^{12, 16}

Ruta graveolens, Sudaab / Garden rue: Contra indicate in pregnancy, in Unani medicine it is used as a stimulant to the uterus it posses emmenagogue property, Death of pregnant women have been represented upon usage of rue, dose: 1-3 gm. Several text mention this as an abortifacient, according to Ritter et al., *R. graveolens* plant contains toxic substances and photosensitizers, which stimulate the motility of the uterus, culminating in abortion, cause lesions and burns on the skin and mucous membranes when exposed to the sun, and this damage is attributed to the presence of furocoumarins. Teratogenicity studies confirm its toxicity, where it induces abortion due to the presence of quinoline alkaloids. Several study shows that in mice high doses causes changes in the blastocyst formation, reducing the number and delaying the development of embryos during pre-implantation and in another study no significant difference in loss of embryos before implantation between the treated and control groups was noted, but the deaths of fetuses of treated females suggested an embryotoxic effect of *R. graveolens*.^{13, 20}

Solanum nigrum, Mako/ Kaakamaachi: Solanine present in it is toxic. Dosage: Infusion 15-25 ml, toxic dose of Solanine is 200- 400 mg, over dosage causes nausea purging.^{13, 12}

Zingiber officinale, Zanjabeel / adrak: Ginger that greatly exceed the amount of food should not be taken during pregnancy or lactation, interfere in existing cardiac, antidiabetic anticoagulant therapy Dose 1-2 gm as anti emetic¹²

Metallic drugs and metallic contaminants affecting the pregnant and lactating mothers

All forms of mercury are teratogenic in animal tests cases of human foetal poisonings have mostly been traced to mercury

vapor and organic mercurials, especially methyl mercury. Arsenic cross the placental barriers and acute maternal arsenic poisoning has been incriminated in neonatal death inorganic arsenic compound are established carcinogens in men. Lead as a contaminant can also cause toxicity lead is clearly teratogenic in laboratory animals in man reproductive system appears to be very sensitive to chronic lead exposure cognitive developmental deficits have been observed in infants born with cord blood lead levels $\geq 0.5 \mu\text{mol/l}$ it can affect the fetus at all stages. Exposure to low levels of lead, before the birth of baby, is thought to affect the developing child. It can enter breast milk. Exposure limits for lead are set lower for women of child bearing age in order to protect the fetus from injury in the weeks before a pregnancy is confirmed, exposure of breastfeeding mothers to lead should be sight with concern. Antimony arsenic lead and mercury can cause spontaneous abortion, Arsenic cadmium mercury can cause birth defect, Arsenic cadmium lead mercury can cause growth retardation, Cadmium, lead can cause functional defect. Antimony Arsenic, cadmium, lead, manganese, and mercury cause breast milk contaminations. (Animal and human evidence are available regarding these metals)^{03,25,26,27,28}

Infants should be closely monitored if breast-fed is done during maternal gold therapy as the precise effect on infants is unknown at this time. Reported milk levels vary widely and aurothiomalite has been measured in both urine and plasma of infants.⁷

DISCUSSION

Drugs reviewed have got abortifacient, emmenagogue, antifertility, teratogenic, mutagenic, genotoxic, carcinogenic properties, due to some drugs such as *Ruta graveolens* even death of pregnant women have been reported. Some interfere in metabolism, some cause allergy and other ADR which further lead to intake of other conventional drugs which can be further harmful. Adulteration and substitution can be also one of the causes of ADR during pregnancy and lactation by traditional drug because of unknown pharmacological action and toxicity exerted. For example, substitution of *Cinnamomum zeylanicum* with *Cinnamomum cassia* Blume can have ADR as *Cinnamomum zeylanicum* only contains low levels of Coumarin which are safe. On the other hand, *Cinnamomum cassia* Blume contains high levels of coumarin and large amounts of this should not be consumed because low doses of Coumarin cause liver damage in a small group of particularly sensitive individuals if consumed over a few months. In severe cases it causes inflammation of the liver which is manifested as jaundice.²⁹

Beside this, some drugs also interfere in existing therapy (herb-drug interactions) and cause ADRs. Majority of women used these herbs during the first trimester which is a most critical period in pregnancy. Interaction with prescribed medications can have unidentified effects in pregnancy or can cause serious complications in the fetus. Professionals involve in health care should keep informed regarding their possible herb-drug interactions and possible risk. The use of herbal/traditional medications does not have strict regulations like contemporary medicines and rising trend in the use of traditional drugs can be a matter of concern if unaware regarding its ADR. Pregnant women should also be educated to increase their awareness regarding the effects of herbal/traditional medications and the importance of taking guidance from their healthcare provider/expert.³⁰

Volatile oil containing drugs can be abortifacient, irritant to genitourinary tract (can cause uterine contractions) example, *Artimisia absinthium* (thujone), *Apium graveolans*, *Anemone pulsatilla* *Eucalyptus globulus* (cineol) *Juniperous communis* (alpha & beta Pinene). Some other constituents also got uteroactivity, pyrrolizidine alkaloids can cause hepatotoxicity in a new born it is present in borage officinalis and other species, some are toxic drugs podophyllin is a mitotic poison in *podophyllum hexandrum*. ricin in *Ricinus communis*, some others toxic constituent are linataine in *linum usitatissimum*, T.P.A in *croton tiglium*, iso-pelletirine in *Punica granatum*, furanocumarine in *Ruta graveolens* (mutagenic action), aristolochic acid in *Aristolochia* spp (carcinogenic) and some are hormonally active (estrogenic, steroidal), etc.

Some drugs exert adverse effect due to their strong pharmacological action. Some are strong diuretic and laxative (can cause water / salt loss) anthraquinone in *Rheum emodi*. Some time drugs are devoid of acute sub acute or chronic toxicity but can be toxic to pregnancy due to its action on female reproductive system for example Guggal, Bhui Amla, etc. Very less scientific information is available regarding safety of traditional drugs in nursing mothers. Some references show contraindications, but the reason is not mention. It is a fact that several traditional text cautions regarding use of several drug during pregnancy indicating awareness of ancient people regarding this.^{31, 32}

CONCLUSION

Many traditional drugs mentioned above can have adverse effect (some time severe) on pregnant /nursing mothers so these drugs and their preparations are better avoided during pregnancy and some in lactation. Like conventional drug, traditional drug also should be taken only under supervision of expert. It should not be taken unless benefit is more important than the potential risk. Good reproductive and child health requires usage of well documented traditional drugs. The review may help health care providers / traditional practitioners in patient education and counseling patients about the use of herbal and traditional medicine.

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How to cite this article:

Hamiduddin, Aslam M, Sofi G, Wadud A. Use of traditional drugs in pregnant and nursing mothers: A review of associated adverse drug reactions. J Pharm Sci Innov. 2016;5(1): <http://dx.doi.org/10.7897/2277-4572.0514>

Source of support: Nil, Conflict of interest: None Declared

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