Evidence based approach to unani contraceptives: a review

Saba Mohd Athar Khan*, Ismath Shameem

Department of Ilmul Qabalat Wa Amraze Niswan, National Institute of Unani Medicine, Bangalore, India

Received: 12 November 2015
Accepted: 12 December 2015

*Correspondence:
Dr. Saba Mohd Athar Khan,
E-mail: fairyss260888@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Contraception is a process or technique for preventing pregnancy by means of medication, device or method that blocks or alters one or more of the processes of reproduction in such a way that sexual union can occur without impregnation. Promotion of family planning is central to the World Health Organization work on improving maternal health & is core to achieve the Millennium Development Goal. It is estimated that 90% of abortion related and 20% of pregnancy related morbidity and mortality, could be prevented by the use of effective contraception. Population explosion is the leading cause of poverty and pollution in developing countries which has detrimental effect on the life supporting system. Hence it is necessary to control the population by the use of contraceptives. Available contraceptives in conventional medicines have many adverse effects. Therefore, there is a need for research of newer, less expensive, less toxic, self-administered, completely reversible contraceptives. Much of these properties are observed in contraceptives as mentioned in classical Unani text. Unani physician has mentioned the various medicines & techniques of contraceptives. Scientific research has confirmed the efficacy of most of the herbal drugs like Ruta graveolans (Suddab), Juniperus communis (Abbal), Piper longum (Filfil daraz), Mentha arvensis (Padina), Acadirchta indica (Neem), Punica granatum (Anar), Alium cepa (Piyaz) and Daucus carota (wild carrot) etc. Therefore, the aim of this article is to review the ancient concept of contraception in Unani System of Medicine in the light of available scientific research.

Keywords: Unani medicine, Contraceptive, Herbal drugs

INTRODUCTION

Asia is home to 60 percent of global population. China and India account for more than half of Asia's total population. India is the second most populous country in the world, with over 1.27 billion people (2015). Already containing 17.5% of the world’s population, India is projected to be the world’s most populous country by 2030, surpassing China. This increment imposes an extra burden on the community and it is also one of the leading causes of poverty and pollution in developing countries. Fertility Control is an issue of global and national public health concern.

Contraception is a process or technique for preventing pregnancy by means of medication, device or methods that blocks or alters one or more of the processes of reproduction in such a way that sexual union can occur without impregnation. An estimated 222 million women in developing countries would like to delay or stop childbearing but are not using any method of contraception. It is estimated that satisfying the unmet need for family planning alone could cut the number of maternal deaths by almost a third. The UN Secretary-General's Global Strategy for Women's and Children's Health aims to prevent 33 million unwanted pregnancies between 2011 and 2015 and to save the lives of women who are at risk of dying of complications during pregnancy and childbirth, including unsafe abortion to reduce maternal mortality. Contraceptive goals are on higher priorities to achieve Millennium Development Goals, especially for those concerned with child...
mortality, maternal health, HIV/AIDS, and gender equality.4

Modern medicine has provided several preventive and corrective methods of contraceptives none of which is safe, effective and have side effects which include obesity, VTE, cholelithiasis, carcinoma of breast and cervix, asthma, intermenstrual bleeding, headache, mood swings, breast tenderness and loss of libido.5 The World Health Organization suggested that effective, locally available plants to be used as substitutes for these drugs and population control programs are created which includes studies of traditional medical practices.6

Thorough literature survey of Unani reveals that there are many plants origin drugs having scientifically proved contraceptive effect with little or no side effect.

METHODS

For Unani concept of contraceptive, available authentic text of Unani Medicine was searched. Literature was also searched on PubMed/Google scholar with the keywords; Herbs for contraception, phytoestrogens, anti-ovulatory, anti-implantation, spermicidal, anti-spermatogenic.

Historical background

Concept of family planning emerges in early 8th decade of 20th century (1971) when the world’s gross population surpasses 3 Billion with accelerating growth rate, but the use of contraception dated back to almost 4000 years. The Kahun Papyrus, an Egyptian papyrus (1850 BC) is probably the first text book on gynecology and discovered to possess number of prescription for contraception viz, local use of paste containing crocodile dung,7 it is believed that the low pH of the dung may have had spermicidal effect.5 In earliest time people used various plant and animal products to block the cervix and absorbs semen. These were vegetable seed, plugs of grass, crushed roots, empty halves of pomegranates, squeezed half of lemon and rock salts etc. Also in Ebers papyrus (1550 BC) it is mentioned that a mixture of acacia tips, bitter apple and dates bound together with honey and placed in the vulva as spermicidal.8 It probably had some effectiveness, in part as a physical barrier due to the thick, sticky consistency, and also because of the lactic acid (a known spermicide) formed from the acacia.8 Hippocrates (460-377 BC) in his treatise ‘Nature of Women” described ‘coitus interruptus’ and ‘using finger to wipe out vagina’ for contraception. He had also mentioned the use of Wild Carrot (Daucus carota) as an oral contraceptive.9 Pomegranate was the first hormonal contraceptives widely used by Greek women.10 The famous Greek philosopher Aristotle (384-322 B.C.) proposed the idea of family planning and prescribed several remedies like local application of oil of Cedar, ointment of Lead etc, which formed a barrier or had spermicidal effect.12 The next documented reference of contraceptive method mentioned in Bible, The Book of Genesis was coitus interruptus.9 Dioscorides (40-90 AD) recommended suppositories of peppermint or sicklewort mixed with honey and mentioned several other drugs for contraception. His book, De Materia Medica, was a standard resource for contraceptive information until 16th century. The concept of abstinence during fertile period, to avoid conception, was given by Soranus of Ephesus, a famous Roman physician during second century (fertility awareness based methods). Galen (130-200 AD) made his contribution to the subject by mentioning several drugs bearing upon procreation, in his book Kitab ul Advia al Mufradah.12 In middle ages during glorious era of Arabic medicine, contraception was thought to be worthy of discussion thus, an extensive information about the indication, methods, prescriptions, contraindications and even their mechanism of action put in by legendary.

Personalities of the era like Mohammed Ibn Zakariya Razi, Ali Ibn Abbas Majoosi, the great philosopher Abu Ali Sina, and Ibn Baitar. In 12th century, an excellent medical compendium Zakheera khwarzam Shahi was written by sharfuddin Ismail Jurjani (110 AD) where he first described the method of wrapping the penis with a soft cloth before coitus to avoid conception which led to think of modern day condom.17 several natural and barrier methods invented since then.

Intruterine contraceptive devices: The discovery of modern IUD can be traced back to the Arabs who inserted pebbles into the uteri of their camels to protect them against pregnancy during long journeys. In 11th century Islamic scientist Avicenna used intruterine Pessaries for contraception in women.11

Indications

Contraceptives were prescribed by Eminent Unani physician only in the following conditions: If pregnancy will result in higher risk to maternal complication and death, major systemic illnesses, infantile uterus, congenital urogenital malformation and mentally ill women.13-15

Techniques of contraception

Techniques for preventing the entrance of semen in the uterus. Coitus interruptus, Insertion of some tablets and suppositories of drugs into vagina so that opening of uterus is closed thereby prevent entrance of semen in the uterus. Techniques to be adopted if the semen has entered the uterus: The couple should retrieved quickly after the sexual union, and the women should sneeze, shout loudly, jump repeatedly on back side so as to remove ejaculate from the vagina before fertilization. The more effective method was to induce menstruation before fertilization or implantation can take place by many Unani medicines.13-18
Evidence based research on unani contraceptives

The ancient literature of Unani medicine is very rich in contraceptive drugs for permanent as well as temporary sterilization, in the form of oral or local applications. Drugs are used orally either in the form of powder or extract, while the locally applied drugs have been prescribed in various dosage forms, viz. suppository, pessary, liniment, douche, sit z bath, ointment, fumigation and paste to be applied on the male or female genital organs and scientific research has confirmed the efficacy of most of the Unani drugs. Plants that have contraceptive properties may act as anti ovulatory, anti implantation, abortifacient, anti spermatogenic and spermicidal.

PHARMACOLOGICAL STUDIES ON UNANI CONTRACEPTIVES

Neem oil (Azadiracta indica) [Figure 1]

Azam Khan a great Unani physician in his book Akseer Azam mentioned that if women consume 4.5 gm of Neem oil orally it leads to sterility. Neem oil, extracted from the seeds of the neem tree, has been found to possess strong spermicidal activity and anti implantation activity due to presence of chemical constituent namely Nimbidin, Nimbin, Azadirachtin and NIM-76. Intravaginally the oil prevented pregnancy in rats (20 µl), rhesus monkey and women (10 ml). Oral dose of 25 µl neem oil shows anti implantation effect in rats.8

Pudina/ Pepper Mint (Mentha arvensis) [Figure 3]

It has been mentioned in various Unani books that use of pessary made up of Pepper Mint extract before coitus act as a contraceptive.13,15,17 Recent study shows that uterotonic fraction of Mentha arvensis has anti implantation activity by enhancing the estrogenic effect of estradiol as it contains menthol, menthone, camphene.21

Wild carrot/Queen Anne’s lace (Daucus carota) [Figure 4]

The earliest written reference dates back to the late 5th or 4th century B.C. appearing in a work written by Hippocrates. They should be chewed within 8 hours of being exposed to sperm.22 The seed inhibits the implantation of fertilized egg by disrupting the endometrial lining. It possesses weak oestrogenic property at dose of 80&120 mg/mouse orally from day 4 to day 6 post coitum due to presence of flavones, apigenine and quercetine.21,23
Figure 4: Daucus carota.

Anar/Pomagranate (Punica granatum) [Figure 5]
Ali Ibn Abbas Majoozi in his treatise Kamil us Sana mentioned the use of *P. granatum* with Aluminium hydroxide by female in the form of pessary before coitus prevent conception. 50% of ethanol extract of it showed anti-implantation activity in rats. The seeds of the fruit contain oestrone identical to hormone estrogen are the best source of plant oestrogen to date and decreases follicular growth. Rind of pomegranate possesses tannins a type of polyphenols which exhibits spermicidal activity.

Figure 5: Punica granatum.

Onion (Allium cepa) [Figure 6]
Extract of Allium cepa is to be used as ointment on the glans penis in male and in the form of pessary in female. Ethanolic extract of Allium cepa showed significant anti-implantation activity at the dose of 300 mg/kg in mice.

Suddab/Garden rue (Ruta graveolens) [Figure 7]
Majoosi recommends the fresh leaves of rue as pessary to prevent conception. Aqueous extract of Ruta graveolans has immobilizing effect on human sperm at a concentration of 100ng/ml of lyophilized form in 1:1 ratio can immediately immobile sperm cell in semen sample as it possesses acridine, alkaloids, acoumarine, essential flavonoids and furoquinolines.

Figure 6: Allium cepa.

Figure 7: Ruta graveolans.

Abhal/Common Juniper (Juniperus communis) [Figure 8]
Compound made up of Abhal (Juniperus communis), Heeng (Ferula asafetida), Ushq (Dorema ammonicum) each 2 gm in the form of tablet result in miscarriage or local application of paste made by 5 gm powder of Abhal, Suddab and Natroon (Pinus Sylvester) before coitus on penis act as contraceptive. 50% ethanolic extract of juniper fruit has anti-implantation activity in Swiss albino female rats at 300 mg and 500 mg/kg body weight was administered orally from D1-D7 of pregnancy due to its anti-progestational activity because of the presence of monoterpens, tannins (gallocatechins) and flavonoids (quercitin).
Safeda/ White Lead [Figure 9]

Local use of ointment of white lead on penis before coitus act as contraceptive as mentioned in Al Qanoon & Ghana Mana. In vitro effect of white lead on human sperm disturb the sperm metabolism by inhibition of Creatine kinase activity and thereby reducing sperm motility.

Figure 9: White Lead.

Hanzal/ Colocynth Bitter Apple (Citrullus colocynthis): [Figure 11]

Shaham-e-Hanzal (Citrullus Colocynthis), Saqmoonia (Convolvulus scamony), Hazarjashan (Bryonia alba), Khab-al-Hadeed (Iron rust), and Tukhm Karnab (Brassica oleracea) in equal quantity should be powdered, Mixed with Qatran (Pinus sylvestris) and be used as pessary after menstruation as a contraceptive. Oral administration of 70% methanolic extract of C. colocynthis at the dose of 75 and 150 mg/kg body weight/day to male albino rats for 60 days caused a significant decrease in testicular weight and sperm concentration. The antifertility effects of C. colocynthis is mediated by disturbances in structure and testicular function including leydig and Sertoli cells resulting in an alteration in physio-morphological events of spermatogenesis.

Figure 11: Citrullus colocynthis.
<table>
<thead>
<tr>
<th>Sr.no</th>
<th>Name of drugs</th>
<th>Activity</th>
<th>Effect</th>
<th>Active ingredients</th>
<th>Author/Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>Papita <em>Carica papaya</em> (seeds)</td>
<td>Antispermatogenic</td>
<td>Reduced spermatogenesis, inhibition of steroidal hormone</td>
<td>Caricain, carpasemine, oleanolic glycoside</td>
<td>Changamma et al, 2013</td>
</tr>
<tr>
<td>3.</td>
<td>Turanj <em>Citrus medica</em> (seeds)</td>
<td>Anti-implantation</td>
<td>Increased ovarian weight, decrease Graffian follicles, irregular estrous cycle</td>
<td>Citroflavanoids, Glucosides, Terpenoids</td>
<td>Taha et al, 2012</td>
</tr>
<tr>
<td>7.</td>
<td>Fufal <em>Areca catechu</em> (fruit/seed)</td>
<td>Antiovulatory</td>
<td>Ovarian weight decreased due to imbalance in gonadotropin</td>
<td>Arecaidine, Arecoline, Pilocarpine</td>
<td>Jyoti et al, 2010</td>
</tr>
<tr>
<td>8.</td>
<td>Sheetraj hindi <em>Plumbago zeylanica</em> (Leaves)</td>
<td>Antiovulatory</td>
<td>Inhibition of ovulation with irregular estrous cycle</td>
<td>Plumbagin, Sitosterol, glycosides, Tannins, fatty alcohol</td>
<td>Sheeja et al, 2009</td>
</tr>
<tr>
<td>13.</td>
<td>Piyaz <em>Allium cepa</em> (Bulb)</td>
<td>Anti-implantation</td>
<td>Inhibition of number of implant sites</td>
<td>Kampoferol β-sitosterol, ferulic acid, myristic acid</td>
<td>Thakare et al, 2003,2009</td>
</tr>
</tbody>
</table>
CONCLUSIONS

In classical literature of Unani medicine, physicians had described in detail both oral and local (pessary, fumigation, douches, sitz bath ointment, paste) forms of contraceptives. Modern scientific research on animals has confirmed antifertility effect in most of the drugs. However, there are many limitations regarding the safety and efficacy of these preparations to be used in human beings. Hence, there is need for further clinical studies to establish the efficacy & safety of these drugs.

ACKNOWLEDGEMENTS

Authors are thankful to authors, editors and publishers of all those books and journals from where the literature for this article has been reviewed, discussed and cited.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES


**Cite this article as:** Khan SMA, Shameem I. Evidence based approach to unani contraceptives: a review. Int J Reprod Contracept Obstet Gynecol 2016;5:268-75.