



Anemia (*Faqr al Dam*) and Use of Unani Medicine: A Review

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

The incidence of anemia is advanced in developing countries due to its health and socioeconomic difficulties. It is pigeonholed by reduced amounts of RBCs or hemoglobin level below 11 gram/dl. In conventional literature mentioned that *Su Mizaj Barid wa Ratab* (abnormal temperament of cold and wet) leads to the change of feature of Iron deficiency anemia, which they have defined as *Su al qinya* (Anemia). Unani Medicine has a rich of single drugs and compound formulations for the treatment of anemia. All the single drugs and compound formulations, those mentioned in Unani classical books for treatment of anemia have various pharmacological actions like *Muwallid-i-dam* (hemopoietic), *Muqaww-i-mi'da* (stomachic) and *Muqaww-i-kabid* (heptatonic). It has been traditionally used for the treatment of anemia (*Faqr al dam*) since ages. Many compound formulations have been reported for its hematinic effect in recent years. The therapeutic options in *faqr al dam* in conventional medicine have got their own side effects and complications. Looking at the side effects of conventional therapy and complications of conventional medicine, it is need of the time to shift to an alternative system of medicine that is harmless, cost effective, non-surgical and can easily be affordable by everyone and has long lasting effects. Various classical Unani texts were reviewed. Further certain searching words "anemia", "Red Blood Cells", "*Faqr al dam*" etc. were explored in different search engines on website. The literature search in classical text for anemia were evaluated to implement in modern on and are having treasured information regarding anemia which can be instigated in present time is needed still more and it would be more validated the Unani Medicine.

Keywords: *Faqr al dam; anemia; muwallid-i-dam; muqaww-i-mi'da; muqaww-i-kabid; red blood cells.*

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1. INTRODUCTION

Anemia is a common ailment and its emerging public health problem mainly affects both developing and undeveloped countries. In Asia, prevalence of anemia in non-pregnant and pre-school age children are 33% and 47% respectively and in Europe, non-pregnant women and pre-school children are 15.2% and 16.7% respectively [1]. In Asia the prevalence of Anemia is drastically common in pregnant and infants and causing high rate of maternal mortality depending on severity and characteristics of affected population [2]. The term anemia is characterized by a low amount of red blood cells and a reduction in the blood concentration in hemoglobin in the deficiency of one or more essential nutrients or due to heavy blood loss, worm infestation and chronic disease like sickle cell diseases [3-5]. Globally, 1.6 billion people were affected by anemia [6]. In Sri Lanka anemia is a moderate social health issue among 33% in preschool children, 39% in non-pregnant women and 34% in pregnant populations [7]. World Health Organization (WHO) report shows that, anemia has been observed in non-pregnant women under the age ranges of 15-45.99 years. Young ages about 39% are fallen in anemia in this category in Sri Lanka [7]. WHO endorsed anemia classified its hemoglobin as; non-pregnant women moderate (8-10.9g/dL), severe (< 8 g/dL), pregnant women moderate (7-9.9 g/dL), severe (7g/dL) and in men mild (8-10.9g/dL) and severe (<8g/dL) [8].

Young children and pregnant women are most vulnerable to anemia [9]. Further, according to red cell defects it can be classified viz; aplastic anemia (production defects), hemoglobin synthesis defect (iron deficiency anemia), megaloblastic anemia (maturation defects), Thalassemia (genetic hemoglobin maturation) and hemolytic anemia (physical depletion of red cells) [10]. Low educational status of mothers causes poor knowledge about anemia [11], unhealthy dietary eats, taking low iron bioavailability food and worm infestations are related with lower hemoglobin concentration in children [12]. Further, impaired erythropoietin is associated with big family size, gastro-intestinal blood loss due to Hook worm infestation, and low socio-economic status is associated with anemia in children. The person who suffered from anemia appears as pale and weak, and sometimes has difficult to breath and faint and palpitation. And also, they are suffered from insomnia, loss/decreased appetite, and malaise

[13]. The consequence of anemia includes; decreased mental concentration, poor cognitive development, low tolerance to infection and death due to cardiac failure [14].

The Unani system of medicine is an age-old, time-tested system of medicine seeing back 5000 years to Greece [15]. Comparable any other form of medical science, Unani medicine efforts to find the best possible ways by which a person can lead a well life with the least or zero illness. *Faqr al dam* is quite similar term to anemia in Unani medicine, for anemia, there are many symptoms mentioned in Unani classical books. They are; *Su al qinya* (abnormal blood), *Qilla- i- dam* (decreased blood), and *kami khun* (less blood). due to *su e mizaj* (abnormal temperament). Some Unani scholars explained that *faqr al dam* is due to *duf -al jigar* (weakness of liver). Various Unani scholars mentioned about *su al qinya* in their own classical wrote. Rabban Tabri mentioned that; *su mizaj barid wa ratb* (abnormal temperament of cold and wet) causes features of anemia [16]. Jurjani mentioned in his classics named as Zakeera Kharzam Shahi, anemia is due to imbalance of dietary eats [17]. Avicenna mentioned in his treatise; *Al Qanoon*, that excess *sawda* (black bile) and *Al Majoosi* cited his book (*Kamil us Sana*), that due to weakness of *su mizaj*, the liver unable to do the function of hemopoiesis causes anemia [18] Azam Khan coined that, the alteration of blood of the liver cause *su al qinya*. Further they explained the causes of anemia due to *amrad-i-kabid* (liver diseases), *amrad- i -mi'da wa am'a* (gastrointestinal diseases), *amrad -i- kulya* (renal diseases), *haad/ufunati amradi* (acute and infectious diseases) and *amrad-i-a'da-i-tanasuliyya* (genital disorders) [19].

Other Unani classical literature many causes of anemia have been mentioned that. i.e. *amrad-i-kabidi* (liver disorders) resulting slow or impure blood formation, *amrad mida wa ama* (gastrointestinal disorders) causes *duf -al- mida* (weakness of stomach), *mida ka amal-i- jarrahi* (stomach surgery), *qay-al-dam* (hematemesis), *amrad-i-aaza-e- tanasuliyya* (genital disorders); *kathrat-i-hayd* (menorrhagia), *haml* (pregnancy), *duf-al- qalb* (cardiac weakness) and *jarayan al-dam* (hemorrhage) [20].

The general population is moving to complementary and alternative medicine as the first line of protection to fight the ailments. In Unani medicine, herbs and other modalities of treatments are in use since olden days for

treating the *faqr al dam*. Therefore, purpose of the study is to provide the comprehensive study of long-established knowledge mentioned in classical Unani manuscripts for the management of *faqr al dam*.

2. METHODOLOGY

The appraisal of literature was explored in different ways. From Unani classical documents such as Avicenna's Canon of Medicine by Ibn Sina, Zakeera Kharzam Shahi by Ismail Jurjani, Kamilus Sana by Al Majoosi, etc. were revised. Moreover, to bring up-to-date current methods about anemia, we directed an exploration of the English-language literature on numerous websites such as PubMed, Medline google scholar for the terms, "Su al qinya," "Anemia," and "Unani Medicine" etc. Articles available in only English language were included in the review. Moreover, unique researches were only enlisted for the purpose of review which precludes review articles and theoretical research. The studies which did not fall in these categories were excepted from the review.

3. RESULTS

In conventional medicine, there are lots of medicine could be prescribed for treatment of anemia. However, those medicine causes enormous cost, and producing unwanted effects. Hence, it is the need of an hour to switch on by alternative malmanagement to treat anemia which are less cost effective. Unani medicine is one of the alternative strategies to co-up the

anemia. According to Unani medicine, the treatment modalities are based on *Ilaj bil tadbir* (Regimental therapy), *Ilaj bil ghida* (dietotherapy) and *Ilaj bil yad* (surgery). But, considering the *Ilaj bil dawa* and *Ilaj bil ghida* are widely used successful treatment for the management of anemia. Some Unani classical books mentioned about special *ghida* to correct the anemia. *Hareesa* it is sort of diet prepared by boiling meat and wheat, it is pounded into paste and spices are added for flavor. It is used in chronic fever, tuberculosis and anaemia [21]. *Ma-al-fawakeh* (fruit juices) is beneficial in vitamin and mineral deficiencies, constipation, anemia, general body weakness, and cardiovascular diseases [22]. *Ma-ul-leham* (chicken distillate) prepared by method of distillation. Few drugs viz. *Tezpat* (*Cinnamomum tamala*), *Foeniculum vulgare*, *dhaniya* (*Coriandrum sativum*), *Podina* (*Mentha arvensis*), *darchini* (*Cinnamomum zylenicum*), *Ustkhudoos* (*Lavandula stoechas*), *Mastagi* (*Pistacia lentiscus*), *Alpinia galanga* (*Khulanjan*), *Nar kachur* (*Curcuma zedori*), *Jatamansi* (*Valeriana jatamansi*) etc. are mixed in *ma-ul-leham* to increase its potency and for other purposes. It is used in protein energy malnourishment, tuberculosis, cachexia, anemia, cerebral and cardiac diseases [19]. Explaining the *ilaj bil dawa* with single and compound drugs are used and those have cost effective and minimal side effects. Single drugs (*adwia mufrada*) which are mentioned in the Unani classical books are listed in Table 1 and compound preparations drugs (*adwia murakkaba*) which are mentioned in the Unani classical books are listed below in Table 2.

Table 1. Single drugs (*Adwia mufrada*) used in *Faqr aldam*

Common name	Botanical name
Anar	<i>Punica granatum</i>
Angoor	<i>Vitis vinifera</i>
Ämla	<i>Emblica officinalis</i>
Asärün	<i>Asarum europaeum</i>
Anjir	<i>Ficus carica</i>
Bälchhar	<i>Nardostachys jatamansi</i>
Badam	<i>Prunus amygdalus</i>
Balila	<i>Terminalia bellerica</i>
Belgiri	<i>Aegle marmelos</i>
Baranjasif	<i>Artemisia vulgaris</i>
Choqandur	<i>Beta vulgaris</i>
Chilghoza	<i>Pinus gerardiana</i>
Därchéne	<i>Cinnamomum zeylanicum</i>
Gajar	<i>Daucus carota</i>
Halila	<i>Terminalia chebula</i>
Kundur	<i>Boswellia serrata</i> Roxb
Kunjad	<i>Sesamum indicum</i>

Common name	Botanical name
Mako	<i>Solanum indicum</i>
Mastagi	<i>Pistacia lentiscus</i> Linn
Qaranful	<i>Eugenia caryophyllat</i>
Sa'd küfé	<i>Cyperus rotundus</i>
Sudab	<i>Ruta graveolens</i> Linn
Toodri	<i>Lepidium iperis</i>
Zarawand	<i>Aristolochia</i>
Zanjabeel	<i>Zingiber officinalis</i>
Za'fran	<i>Crocus sativus</i> Linn.

Table 2. Compound preparations drugs (*Advia murakkaba*) used in *Faqr al-dam*

Name	Dose	Pharmacological action	Recent trend
<i>Khamira</i> <i>Gauzuban</i> <i>Ambari</i>	3-5gr [23]	<i>Muqaww- i- aza -i- rayeesa</i> (strengthen of vital organ), <i>duf -al- umumi, khafaqan</i> (palpitation) [18,24]	Research study articles related to anemia not available.
<i>Damavi</i>	250mg/day[16,21]	<i>Su al qinya</i> [18,24]	Verma RS et al. made a study as multicentric, open level clinical study on 102 anemia cases at Regional Research Institute of Unani Medicine, Aligarh, during 2015-2018 to assess the effectiveness and safety of Unani compound drug <i>damavi</i> in cases of anemia (<i>Su al-qinya</i>). The information presented in this work was a part of a directed in symptomatic studies a important reduction in pallor, weakness, fatigue and dyspneal respectively has been observed, when compared with the values of 1 st day and different follow-up of treatments. In hematological studies a important increase in the level of hemoglobin, red blood corpuscles (RBC), packed cell volume (PCV) were observed. [25]
<i>Khamira</i> <i>marwareed</i>	3-5gr [23]	<i>Muqaww -i- qalb</i> (cardiac tonic), <i>muqaww -i -asabi</i> (nervine tonic), <i>khafaqan</i> (palpitation), <i>utash mufrit</i> (polydipsia) [20,25].	Research study articles related to anemia not available.
<i>Jawarish Amla</i>	5-7gr [26]	<i>Musakkin-i-asab</i> (nervine tonic), <i>kasir-i-riyah</i> (carminative), <i>musaffi-i-dam</i> (blood purifier), <i>muqaww i - mida</i> (stomachic), <i>muqaww i-dimagh</i> (brain tonic) [26]	Nagesh CS et al, conducted randomized, single blind, standard controlled study compared efficacy of <i>qurs kushtae Faulad</i> and <i>jawarische Amla</i> against cap

Name	Dose	Pharmacological action	Recent trend
			Fefol on diagnosed subjects of iron deficiency anemia which was carried out from Nov 2015 to March 2016 in Dept. of OBG, NIUM Hospital, Bengaluru, India. Iron deficiency anemia is significantly improved (P <0.001) after intervention in two groups. there was significant improvement in Hb% with the mean ± SD before and after treatment [27].
<i>Sharbat Faulad</i>	10-20ml [28]	<i>Faqr al dam</i> (anemia), <i>Muwallid-i-dam</i> (hemopoietic), <i>Muqaww-i-Mi'da</i> (stomachic) <i>Muqaww-i-Kabid</i> (heptatonic), <i>Mushtahi</i> (appetizer), <i>Muqaww-i-Asab</i> (nervine tonic) [26,28]	Verma et al. reported that <i>Sharbat Faulad</i> possesses significant hematinic effect. It can also be inferred that the drug is safe as it did not induce any toxic effect, particularly on liver and kidney functions [29].
<i>Sharbat ikseer Khas</i>	10-20ml [28]	<i>Muqaww-i-mi'da</i> (stomachic) <i>Muqaww-i-kabid</i> (heptatonic), <i>Mushtahi</i> (appetizer) [28]	Research study articles related to anemia not available
<i>Jawarish Anarain</i>	5-10gm [23]	<i>Muqaww-i-mda</i> (stomachic- <i>i- kabidi</i> (liver tonic), <i>ghasiyan</i> (syncope) [23]	Research study articles related to anemia not available
<i>Dawa ul-Misk</i>	5gr [30]	<i>Muqaww -i- aza e rayeesa</i> (strengthen the vital organs), <i>khafaqan</i> (palpitation) [18,24,30]	Research study articles related to anemia not available
<i>Majoon Kamuni</i>			Research study articles related to anemia not available
<i>Safoofe khabsul hadeed</i>	3gr /day [19]	<i>Muqaw-i-jigar wa meda wa tehal</i> (strengthens the stomach and spleen) [30]	Jeelani C. et al conducted A standard controlled randomized single blind study was conducted to evaluate the effectiveness of <i>Safoof khabsul hadeed</i> in the treatment of iron deficiency anemia during pregnancy in the Dept of Obstetrics & Gynecology, National Institute of Unani Medicine, Hospital, Bangalore, India. In test and control groups, highly significant (P<0.001) improvement was observed in mean hemoglobin % and Packed Cell Volume, better improvement in peripheral smear was observed in

Name	Dose	Pharmacological action	Recent trend
			control group than test group. Subjective parameters were observed in both group and no significant improvement was seen [31].
<i>Qurs kushta khabsulhadeed</i>	2BD [23]	<i>Faqr al dam</i> [23]	Research study articles related to anemia not available
<i>Qurs Kushta faulad</i>	2BD [32]	<i>Muallid-i-dam</i> (hemopoiesis), <i>muqaaw-i-meida</i> (strengthen the stomach), <i>muqaww-i-kabidi</i> (strengthen the liver), <i>muqaww-i- bah</i> (aphrodisiac) [32]	Nagesh CS et al. conducted randomized, single blind, standard controlled study compared efficacy of <i>qurs kushtae Faulad</i> and <i>jawarish Amla</i> against cap Fefol on diagnosed subjects of iron deficiency anemia which was carried out from Nov 2015 to March 2016 in Dept. of OBG, NIUM hospital, Bengaluru, India. Iron deficiency anemia is significantly improved (P <0.001) after intervention in two groups. there was significant improvement in Hb% with the mean ± SD before and after treatment. [28]
<i>Sharbat-e-anarain</i>	25-30ml [23]	<i>Ghasiyan</i> (syncope), <i>utash mufrit</i> (polydipsia) [23]	Shaikh et al directed an open label randomized clinical study was conducted at outdoor and indoor sections of <i>Moalejat</i> at Z.V.M Unani medical college, Pune, from 2010-2013 to evaluate the efficacy of <i>Qurs Kushta Faulad</i> and <i>Sharbate-e-Anar shirin</i> in the management of Iron Deficiency Anemia (<i>Soo-ul-Qiniya</i>). Finally, it was concluded that, both drugs have provided significant improvement in iron deficiency anemia with p value [33].
<i>Majoon dabeedul ward</i>	5gr [30]	<i>Mudirr-i-bawl</i> (diuretic), <i>mohallil-i-waram</i> (antiinflammatory) [30].	Research study articles related to anemia not available
<i>Jawarish Jaleenoos</i>	5-15gr [30]	<i>Muqaww-i-kabid</i> (liver tonic), <i>muqaww-i-aam</i> (general tonic), <i>Kasir-i-riyah</i> (carminative), <i>hadima</i> (digestive) [34-38]	Research study articles related to anemia not available.

Name	Dose	Pharmacological action	Recent trend
<i>Qurs e gulnar</i>	2BD (5-10gm) [22]	<i>Naf us dam</i> (epistaxis) [39]	Research study articles related to anemia not available
<i>Majoon e khabsul hadeed</i> [37]	3-7gm [38]	<i>Qabiz</i> (astringent), <i>habis</i> (styptic), <i>Muwallid-i- dam</i> (hematinic), <i>mushil</i> (purgative) [40]	In bleeding haemorrhoids but also in all GI Bleedings, as this remedy not only checks most of the causes of GI bleeding but also cures the patient by improving the state of anemia by its haemopoietic effect. [40]
<i>Kusthe faulad</i> [37]	125-250mg [41]	<i>Muqaww-i-kabid</i> (liver tonic), <i>muqaaw-i-meida</i> (strengthen the stomach), <i>su-al-qinya</i> (anemia), <i>muqaww-i- badan</i> (general tonic) [41]	Research study articles related to anemia not available.
<i>Kusth e heerakasheesh</i> [37]			Research study articles related to anemia not available
<i>Majoon e fanjnosh</i> 37	5-7gm [41]	<i>Muqaww-i-kabid</i> (liver tonic), <i>muqaaw-i-meida</i> (strengthen the stomach), <i>su-al-qinya</i> (anemia) [41]	Research study articles related to anemia not available.
<i>Dawa ul kurkum</i>	5-10gr [23]	<i>Muqawwe hadima</i> (indigestion), <i>muqaww i kabidi</i> (liver tonic), <i>istisqa</i> (ascites) [23]	Research study articles related to anemia not available.

4. DISCUSSION

Anemia has been sustained health problem which unfavorably disturbs psychological, physical and community development of the peoples mainly in children. This burden also affected middle- and low-income countries. Unani physicians more aware about *faqr al dam* and they gave very rich concept of its management.

Angoor (Vitis vinifera): Nora M Al-aboud directed study on 7 healthy female (age range 22-24years) and they employed oral dried raisins (*Vitis vinifera*) 8 gm morning daily for 20 days and their blood samples were examined for hemoglobin (Hb), Total iron binding capacity (TIBC), Ferritin, Transferrin, Serum iron and Mean Corpuscular Volume (MCV) before and after taking the raisins. The HB values were ranging between 2% to 6.2% from before and after taking the raisins [41]. This observation accordance with Hkm. Mohd. Kabiruddin [42] as the properties suggested as *muwallid-i-dam* (hematinic) and *muqaww-i- badan* (general tonic) [43].

Choqandur (Beta vulgaris): Nora M. Al-aboud showed study on seven apparently healthy female volunteers (age range, 22 to 24years) received oral dried beetroot 20 days; 8 g of dried beetroot was given to each in the morning. The iron status of the subjects was evaluated at onset of the study (sample A) by assaying a venous blood sample for hemoglobin, total iron binding capacity, serum ferritin, serum transferrin, mean cell volume and serum iron. Alike tests were also performed after the termination of supplementation (sample B). In this study, it was recorded obvious increase in serum iron level, mild surge in hemoglobin and ferritin after taking 8 g of beetroot for 20 days and thus it can be stated that beetroot might have some therapeutic properties for iron deficiency [44]. This statement was further supported with study conducted by Maryam Lotfi et al. [45].

Amla (Embilica officinalis): Tahmina Akter et al. researched on 43 pregnant women between the 13th to the 20th weeks of gestation with IDA were selected aged 18 - 36 years in this study. Anemic pregnant women supplemented with oral iron and *Amla* were considered as study group

(A) and control group (B) were with only iron supplementation for 45 days at Outpatient Department of Obstetrics and Gynecology, Dhaka Medical College Hospital, Bangladesh. Total count of RBC, WBC and platelet were done. There was significant increase ($p < 0.05$) of blood RBC count was observed after intervention of iron in both groups. There was also significant increase in RBC count in iron + amla supplemented group than that of only iron supplemented group [43]. This finding is consistent with Hkm. Mohd. Kabiruddin as the properties suggested as *muwallid-i-meda* (stomachic), *muwallid-i-dam* (haematinics) and *muqaww-i-badan* (general tonic), *muqaww-i-qalb* (cardiac tonic) and useful in *khafaqan* (palpitation) [43].

5. CONCLUSION

Unani scripts are very much amplified with evidence associated to *Faqr al Dam* and its management with *Ilaj bil ghida* and *Ilaj bil dawa*, and medicinal herbs and formulations with *muwallid-i-dam*, *Muqaww-i-mi'da*, *Muqawwe wa aza-i-kabid* and *muqawi aza-i-rayeesa* properties. These herbs in up-to-date times are pharmacologically confirmed for their hemopoietic, liver correction activities, cardiac tonic, general tonic etc. Since this review, it is evidently apparent that most of the Unani formulations studied for their efficacy against *faqr al dam* proved its effective. All these studies showed statistically noteworthy results in both subjective and hematological parameters. Another benefit of these Unani management is safe and effective against *faqr al dam*. Thus, traditional information authentication and protection is obligatory and prerequisite for prospective research and valuable for use in the modern-day era.

CONSENT AND ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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