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Prevention andManagement Jaundice (*Yarqan*) in the light of Unani system of Medicine- A Review article

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Abstract: *Jaundice is a disease, which is characterized by yellow staining ofthe skin and sclera by abnormally high blood levels of the bile pigment bilirubin. The yellowing extend stoother tissuesand body fluids. Bilirubin, a tetrapyrrole pigment, is a broken-down product of heme (ferroprotoporphyrin IX). About 70 to 80% of the 250 to 300 mg ofbilirubin produced each day is derived from the breakdown of hemoglobinin senescent red blood cells. The remainder comes from prematurely destroyed erythroid cells in bone marrow and from the turnover of hemoproteins such as myoglobin and cryptochromes found in tissues throughoutthebody.The philosophy of Unani system of medicine is based on thehumoral theory. The theory was central theme to the teachings of Hippocrates and Galenandi tbe came the dominant theoryin Europe form any centuries. Asperthe Unani system of medicine, the causeof jaundice is the accumulation of yellow or black humours in thecutaneous tissue and its nearby tissues. Based upon the nature of discoloration jaundice is classified into two types: Yellow Jaundice and Black Jaundice.In the allopathic system there lack of effective drugs for jaundice. Some hepatoprotective drugs are available but many side effects are associated with the mduet otheir chemical composition. InUnanisystem of medicine, this disease can be cured with completely natural and non- invasivemethods.*

Keywords:*Unani;Jaundice;Humours,Hepatoprotective, Herbal drugs and prophylaxis managements*

I. INTRODUCTION HISTORY AND |BACKGROUND OF JAUNDICE (YARQAN)

The term jaundice is derived from the French word “jaune” which means yellow [1]. It is characterized by yellowish discoloration of the skin, sclera, and mucous membranes due to elevated levels of the chemical bilirubin in the blood (hyperbilirubinemia). It is usually detectable clinically when the plasma bilirubin exceeds 50 μmol/L (3 mg/dl). According to allopathic medicine, jaundice is not a disease but rather a symptom of a number of potential underlying ailments, rather than being regarded as a disease in Unani medicine [2,3]. Since ancient times Greek-o-Arab physicians have introduced jaundice as Yarqān with its variety, etiopathology, clinical aspects, and effective treatment [4]. Buqrat [Hippocrates (460 BC)] describes in his book “OanoonchaBuqratiya” that Yarqān (jaundice) is defined as discoloration of the conjunctiva and skin with or without accompanying fever and is caused by continuous use of an impure diet. [4] Additionally, he also describes in his book “Jawamey-ul-ilajwal-A’araz”, as quoted by Razi in his book “Kitab-al-Havi Fi-al-Tib”, that Yarqān can occasionally be developed by altered hot temperament (Su-e-Mizaj Har) of blood vessels, causing conversion of blood into yellow bile (KhilṭṢafrā’) [5,6]. As quoted by Razi in “Kitab-al-Havi Fi-al-Tib”, Jalinoos [Galenus (130–200 AD)] mentions that Yarqān occurs during crisis of disease known as Buḥrān. Yarqān is frequently

caused by toxicity in the blood from insect bites and consumption of certain poisonous

food articles, an imbalance of yellow bile (KhilṭṢafrā'), obstruction in the liver (Sudda-i-Kabid), acute inflammation of the liver (Waram-i-KabidHār), and an inability of the gall bladder (Mirārah) to absorb yellow bile (KhilṭṢafrā') [5,6]. According to Ibn-e-Maswiyah, Yarqān is caused by contaminated food, poisons, crisis of disease (Buḥrān), and illness of the gall bladder, liver, bile ducts and blood vessels. The functions of the liver may be altered or failed by severe inflammation and obstruction. [5] According to Abu Sahal Masihi, the overheating of the liver and gall (Harārat-i-MirārahwaKabid) leads to Yarqān, which manifests as a number of signs and symptoms, including yellowish coloration of the skin, white coating of the tongue, constipation, weight loss, and epigastric and intestinal discomfort [5,6]. In his renowned book "Firdaus-al Hikmat," Ali bin Rabban Tabari (810-895 A.D.) stated that Yarqān is evolved due to four factors: the gall bladder's weakness; the toxicity of insect bites; the obstruction in the gall bladder (Sudda-i-Mirrah) that prevents the normal flow of bile from the liver to the gall bladder; and the diversion of excessive bile towards the skin by the body's constitutional force (Tabiyat-i-Mudabbirah-i-Badan) [5,6]. Abu Bakar Mohammad bin Zakariaya-aI-Razi [Rhazes (850–925 AD)] described that normal excretion of yellow bile (KhilṭṢafrā') is performed by physis of the body (Tabiy'at-i-Badan), but if it fails due to inflammation and obstruction of the liver, then yellow bile putrefies, resulting in fever and jaundice [5,6]. lbn-i-Sina (Avicenna) (980–1037 AD) in his famous book of medical encyclopedias "AI Qanoon Fit-Tib", mentioned that Yarqān is visible yellowish or blackish discoloration of the body due to diffusion of yellow or black bile from blood to skin with or without putrification. In cases of putrification, tertian or bilous fever (Ḥummā-i-Ghibb) and quartan fever (Ḥummā-i-Rubu) develop in Yarqān-i-Asfar (jaundice) and Yarqān-i-Aswad (black jaundice), respectively. The lesion of Yarqān-i-Asfar typically affects the liver or gall bladder, but Yarqān-i-Aswad also affects the spleen and occasionally the liver. Yarqān-i-Asfar and Yarqān-i-Aswad rarely appear together [5,6].

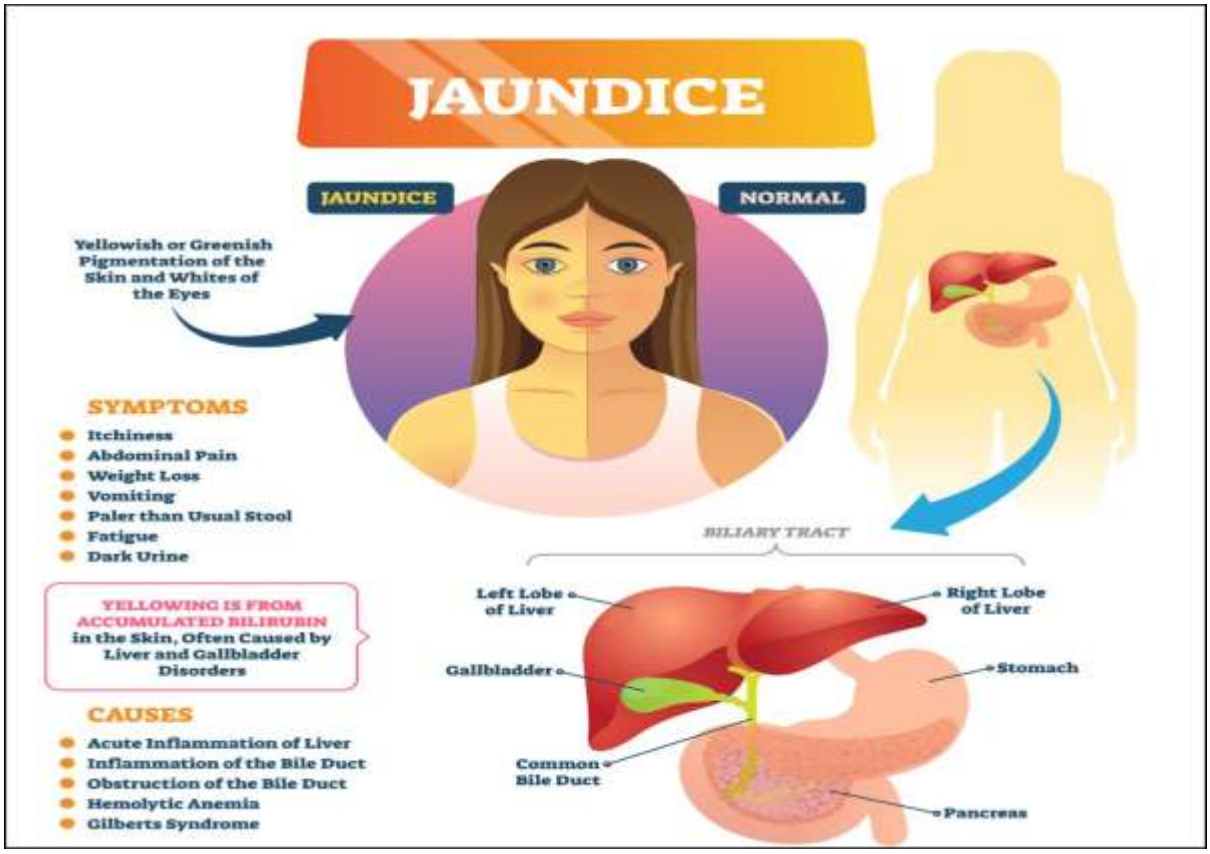
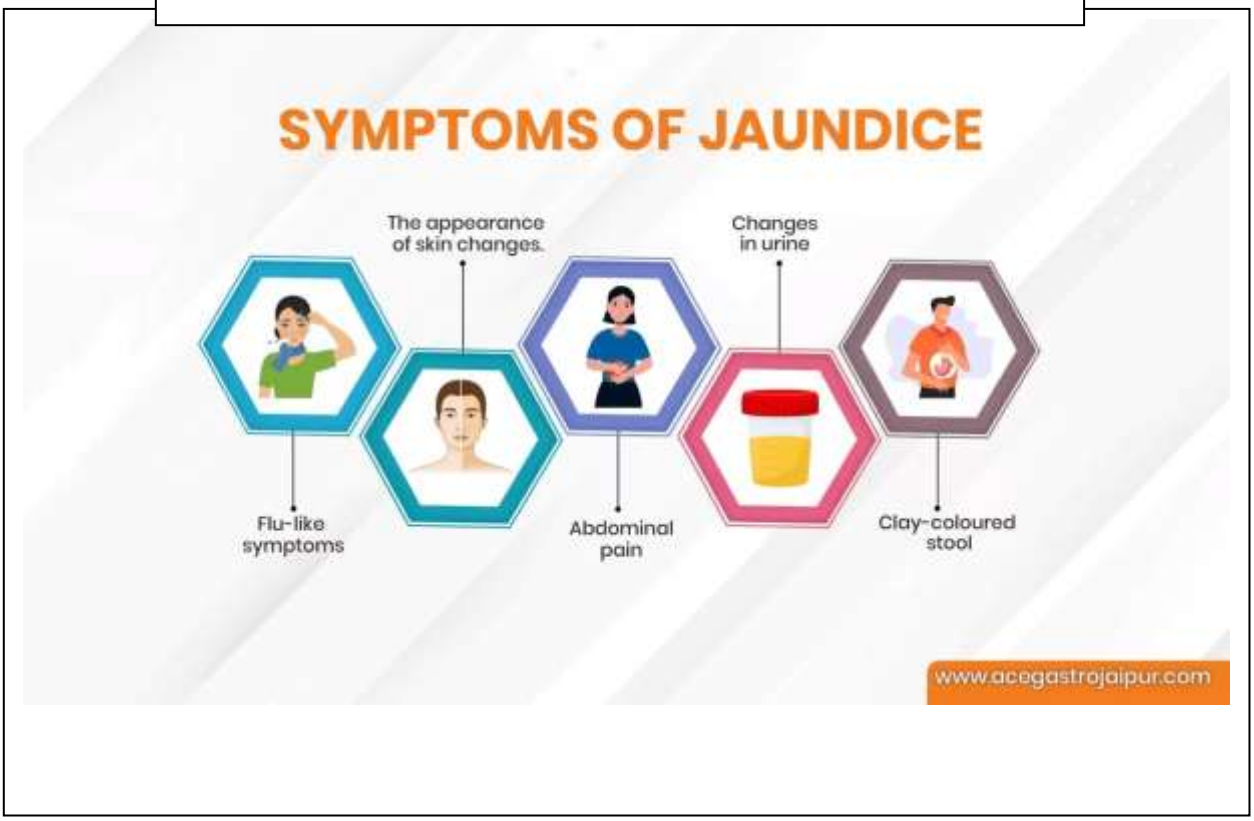


Fig. 01 Jaundice (Yarqan) A common disease in male and female

In Unani

System of medicine, Yarqan (jaundice) is not considered as a symptom but a disease in which the sclera of the patient and other body tissues shows yellowish tints [1, 4, 5]. It is of two types; Yarqan-e- safaravi and Yarqan saudavi [1, 2]. In the Yarqan-e-safaravi, eyes have lemon yellow tint while in Yarqan-e-saudavi, it has slight dark greenish or slight black tint [6]. Occurrence of Yarqan-e-saudavi is very rare. In Unani literature many causes are mentioned for occurrence of this disease, change in liver temperament (mizaj), excessive bile production, inability of gall bladder to absorb bile (nonfunctioning GB), obstruction to the hepatobiliary passage (sudda), food causing excessive bile production etc [1, 2, 3, 4]. According to the description of the same in the literature of the modern system of medicine; it is of prehepatic (hemolytic/non-obstructive), intrahepatic and post-hepatic type of jaundice (non-haemolytic/ obstructive) [4, 5]. The yellow tint sclera of eyes indicates the manifestation of the hepatobiliary system. Along with this, there may be constitutional symptoms like mustered color of urine, decreased appetite, malaise, mild grade fever, pruritis (obstructive jaundices), heaviness or dull pain in right hypochondrium; stool may be clay colored along with off and on nausea and vomiting [1, 2, 3, 5].

Fig. 02 Sign & Symptoms of Jaundice (Yarqan)



II. Aetiologyof Jaundice (Yarqan)

Jaundice in adults is caused by various medical conditions that affectthenormalmetabolismorexcretionofbilirubin.Bilirubinismostly formed from the daily breakdown and destruction of red blood cells inthe bloodstream, which release hemoglobin upon rupturing. The heme portionofhemoglobinmoleculeisthenconvertedintobilirubin,whichis transported in the bloodstream to the liver for further metabolism and excretion. In the liver, the bilirubin is conjugated (made more water soluble), and is excreted into the gallbladder (where it is stored) and into theintestines.Intheintestines,aportionofthebilirubinisexcretedinthe feces, while some is metabolized by the intestinal bacteria and excretedin the urine.

Jaundice occurs if there is a dysfunction of the normal metabolism orexcretionofbilirubin.Thisdisruptioninthemetabolismorexcretionof bilirubin can occur at various stages, and it is therefore useful to classify different causes of jaundice based on the where the dysfunction occurs. Thecausesofjaundicearegenerallyclassifiedaspre-hepatic(theproblem arises before secretion to the liver), hepatic (the problem arises withinthe liver), and post-hepatic (the problem arises after bilirubin is excreted from the liver).

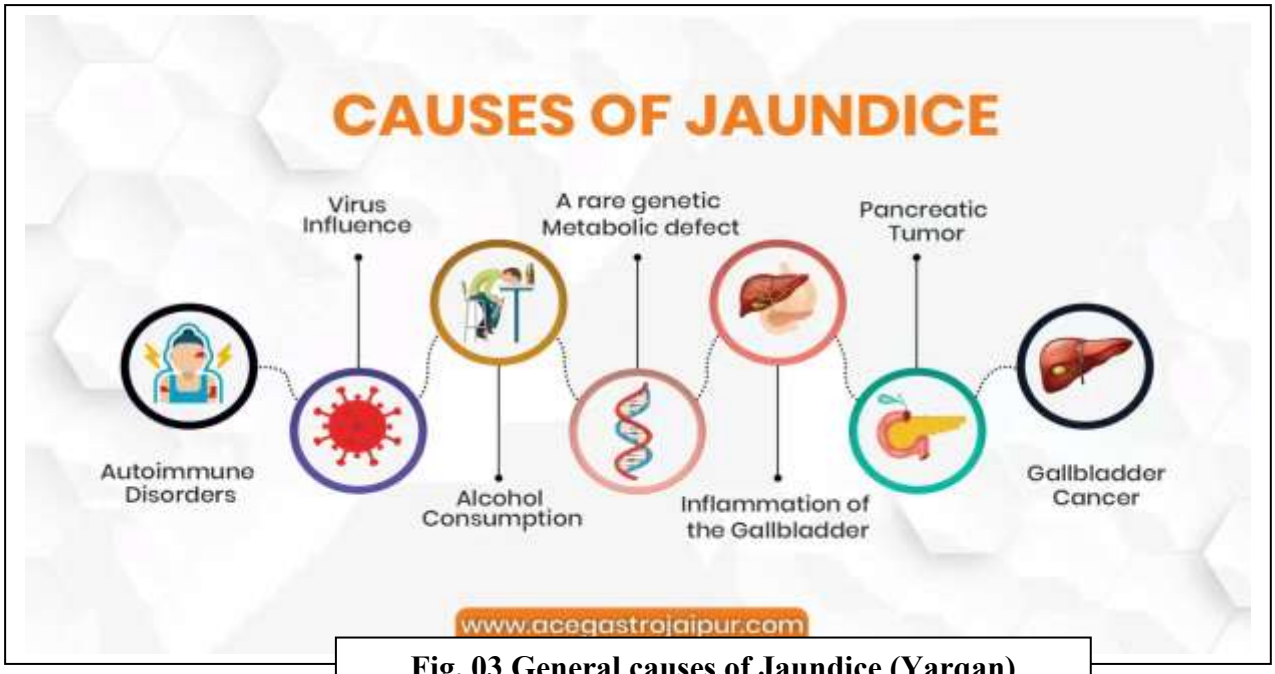


Fig. 03 General causes of Jaundice (Yarqan)

III. Epidemiologyof Jaundice (Yarqan)

The prevalence of jaundice differs among patient populations; newborns and elderly more commonly present with the disease.The causes of jaundice also vary with age, as mentioned above. Around 20 percent of term babies are found with jaundice in the first week of life, primarily due to immature hepatic conjugation process. Congenital disorders, overproduction from hemolysis, defective bilirubin uptake, and defects in conjugation are also responsible for jaundice in infancy or childhood. Hepatitis A was found to be the most afflicting cause of jaundice among children. Bile duct stones, drug-induced liver disease, and malignant biliary obstruction occur in the elderly population.Men have an increased prevalence of alcoholic and non-alcoholic cirrhosis, chronic hepatitis B, malignancy of pancreas, or sclerosing cholangitis. In contrast, women demonstrate higher rates of gallbladder stones, primary biliary cirrhosis, and gallbladder cancer. Kernicterus or Bilirubin-induced neurologic dysfunction (BIND), a complication of severe jaundice is a very rare cause of death in neonates with a death rate of 0.28 deaths per one million live births.

IV. ClinicalFeaturesof Jaundice (Yarqan)

Basically,jaundiceisnotadisease,butratheravisiblesignof an underlying disease process. Individuals with jaundice will have a yellow discoloration of the skin to varying degrees, and may also exhibit yellowingofthemucousmembranesandofthewhiteoftheeyes.However, depending on the underlying cause of the jaundice, individuals may experience different symptoms. Some individuals may have very few, if any, symptoms at all, while others may experience more severe and pronounced symptoms. Individuals with jaundice may experience any of these signs and symptoms: pale-colored stools, dark-coloredurine, skin itching, nausea and vomiting, rectal bleeding, diarrhea, fever and chills, weakness, weight loss, loss of appetite, confusion, abdominal pain, headache, swelling of the legs, and swelling and distension of

the abdomen.

V. UnaniConceptProductionof*Akhlat*(Humours)inTheBody

The term *khilt*is referred to as something, which is mixed. The fluids,whicharepresentinourbody,are*Dam*(Blood),*Balgham*(Phlegm), *Safra* (Yellow Bile) and *Sauda* (Black Bile) are basically in the state of mixture.Hence,theyarecalledas*Akhlat*[1].*Akhlaat*(Humours) are those body fluids, which are produced after metabolism(*TaghayyurwaIstehala*)offoodproducts[1].Humoursare in fact; the fluids, which the human body obtains form the food, and include various hormones and enzymes also. They are present in blood vessels i.e., both arteries and veins and intervening blood capillaries. Lymphaticsandlymphnodes,intercellularspacesaswellasothercavities in the body between various organs are also filled with humours[1]. These fourfluidsareresponsibleformaintainingmoistureofdifferentorgansof thebodyandalsoprovidenutritiontothebody.Unaniphysicianmaintains that when any disturbance occurs in the equilibrium of the humour it causes disease, therefore the Unani system of treatment aims at restoring its equilibrium[1].

VI. Classification of Humoursaccordingtoproperties

- *Khilt-e-Mehmood*: It is capable of assimilating into the organ to which it has to nourish either singly or by combining with other *Khilt*i.e., it should provide the replacement of the contents which has been dissolved, and expelled or excreted from that particular organ.
- *Khilt-e-Ghair Mehmood* or *Khilt-e-Raddi*: It is produced normally in the body as a result of various metabolic activities but, do not possess any advantage to the body as like *Khilt-e-Mehmood* does. Theyarealsocalledas*Khilt-e-Fuzlah*[1].

Other classification:

Based upon the production of humour and nature of discoloration, jaundice is classified into two types:

- *YarqaneAsfar*(YellowJaundice)
- *Yarqane Aswad* (Black Jaundice): (This type of jaundice rarely occursduetoexcessofbile;henceitisnotdiscussedhere)

YarqaneAsfar(YellowJaundice), Inthistypethereisanabnormalexcessflowof*Safra*(bile)towards thecirculatorysystemi.e.,insidethebloodcausingdiscolorationof the entire skin, conjunctiva, and other secretions of the body and organs of the body, The causes of jaundice can be divided into twocategories[2,5,27].

A. Non- Obstructive

a) No obstruction in the normal path of biliary tract, instead there are some changes, which occur in the various organs of the body to convert the blood into the yellow humour.

b) Adisturbedeliminationofbilefromtheblood[2-3,5,27].

In this category there are many types of jaundice, which are mentioned here briefly:

i) ***Bohran*(During crisis):** At the time of disease crisis, like in high fever,bodysystemexpelsbiletowardsskinandotherexternalparts ofthebody[2,5,29].

ii) ***Su-e-Mizaj Kabid*(Derangement of temperament of liver):** Sometimes, jaundice occurs due to *Su-e-Mizaj Kabid*(disturbed temperament of liver) or excessively hot temperament. In this situation food materials are abnormally metabolized and converted into bile, and due to it's over production it is transmitted into blood circulation[2-3,5,27].

iii) ***Su-e-Mizaj Badan* (Disturbed body temperament):** Jaundicemay occur due to heat of entire body or blood vessels, whichcausesaccumulationofmorebileinthebloodvessels.Thiscondition ismostlyseeninpyrexiaandpyaemia[2-3,5,27].

iv) ***Amraz-e-Kabid*(Hepatic disorders):** Due to inflammation of liver the biliary canaliculi gets obstructed which leads to more heat in liver causing more production of bile in it resulting in transmission of bilirubin to general circulation through blood vessels in the liver. Jaundice is also caused due to weakness of liver, cirrhosis of liver, cancerofliverandfattyliver[2-3,5].

v) ***Sammiyat-e-Haiwan*(Toxic jaundice):** Sometimes jaundice occur due to bite of poisonous animal e.g. snake bite, wasp bite, ants bite andlocustbiteetc.[2-3,5,27].

vi) ***Hawa-e-Haar*(Hotair):**Sometimesjaundiceoccursduetosunlight of very hot weather which causes more production of bile (usually womenandchildrenareaffected)[2,5].

vii) **Miscellaneouscauses:**Defectivecirculationofbloodorchange in composition of blood, weakness of nerves, diseases of heart, lungs, and physiological states e.g., fear, sadness and disturbed digestion etc.[5].

B. Obstructive: An obstruction in the bile duct, which leads to absorption of bile into the blood[2-3,5,27]. There are several causes of obstruction in the normal path of bile flow:

i) **Lesion**: There are obstructive lesions, abscess, tumours or cyst in the liver which hinder the flow of bile towards gall bladder and intestine. This includes all the diseases of liver which can cause obstructione.g.cirrhosisandcarcinomaofliver[2-3,5,27].

ii) **Cholecystitis:** Sometime icterus occurs due to inflammation of gallbladderoritsducts(cholangitis)[2-3,5,27].

iii) **Obstruction of bile ducts:** There are two conditions in the obstructions:

a) Theobstructionmaybeinthehepaticduct

b) The obstruction may be in common bile duct. The causes of obstruction in the ducts are bile stones, highly viscous bile, intestinalwormsetc.[2-3,5,27].

VII. Managementof *Yarqan*inUnaniMedicine

Thesearedescribedasfollows:

A. *Bohran*(Crisis): In this type of jaundice measures can be adopted to help the body mechanisms to expel the *Maddah* (material). Patients should be given *Sikanjabeen*and hot water[5]. Medicated Tub Bath/Sitz bath also lead to promising effects.

B. *Su-e-Mizajkabidhaar*(Hottemperamentofliver):*Aab-e- Anar Tursh*(Sour pomegranate juice/water), *Maa-ul-Sha'eer*(barleywater).*Aab-e-Tarbooz*(juiceof*Citrulluslanatus*),and *Aab wa*Maghz *Kaddu-e-Daraz*(pulp and water of *Lagenaria siceraria*) can be given. Medicines like *Afsanteen*(*Artemisia absinthium* Linn.), *Aab-e-Mako* (water of *Solanum nigram*Linn.), *Aab-e-Kasni* (*Cichoriumintybus* Linn.)(Juice obtained by straining freshleaves)and*AaluBukhara*(*Prunusdomestica*Linn.)canbegivenascoolantandalsoforpurificationofblood.*Qurs-e-Afsanteen, Qurs-e-Ward, Qurs-e-Tabasheer*[2,4-5,7-8]. As purgatives, *Tukhm-e- Kasni* (seeds of *Cichorium intybus* Linn.) 10.5 gm, *Ijjaskibaar*(*Prunus domestica* Linn.) 10 numbers of *Tamar-e-Hindi* (*Tamarindus indica* Linn.), *Turanjabeen*(*Alhagi maurorum*Baker Dexv) and granular sugar. As a diet, *Aab-e-Jau* (*Hordeum vulgare* Linn./barley water) is highly recommended[2].

C. *Su-e-Mizaj Badan* (Disturbed body temperament): Drugscausing purgation of bile should be used e.g. decanted liquid of soaked *Haleela-Zard* (*Terminalia citrina), Aalu-Bukhara* (*Prunus domestica* Linn.), *Banafshah* (*Viola odorata* Linn.), *Tamar-e-Hindi* (*Tamarindus indica* Linn.), *Khayar-e-Shambar*(*Cassiafistula* Linn.) and *Turanjabeen*(*Alhagi maurorum*Baker Dexv)etc. Cold syrups and diet should be advised e.g. *Aab-e-Kasni sabz*(*Cichorium intybus* Linn.), *Aab-e-Mako sabz*(*Solanum nigram*Linn.),*Aash-e-Jau*(Semiliquidpreparationofbarley),*Aab-e-Kaddu* (*Lagenaria siceraria*), *palak* (*Spinacia oleracea* Linn.), *Bathua*(*Chenopodium album* Linn.), *Khubbazi*(*Malva sylvestris* Linn.), *Kheera*(*Cucumissativus*Linn.),*Kakri*(*Cucumismelo* Linn)., *Aab-e-Tarbooz*(*Citrullus lanatus*) also cold and moist vegetables respectively. *Qurs-e- Kafoor*and *Aab-e-Anaar-Dana-Tursh*arealsofoundeffective[2,5-7].

D. *Amraz-e-Kabid*(Hepatic disorders): In this regard, underlying causes should be removed and cholagogue medicines should be avoided[5,7].

Fig. 04 Neonatal Jaundice (Yarqan) and its management

E. ***Sammiyat-e-Haiwan*****(Toxic jaundice):** *Aab-e-Anaar* (*Punica granatum*Linn.),*Luaab-e-Isapghol*(*Plantagoovata*Forsk.),*Aab-e-Kasni* (*Cichorium intybus* Linn.), *Qurs-e-Kafoor, Aab-e-Jau* (*Hordeum vulgare* Linn./barley water), and *Raughan-e-Badam* can be used. Apart from this some Unani medicines with antidote properties can also be used. Like *Tiryaaq-e-Kabeer,*[5]*Qurs-e- Tabasheer* 4.5 gm along with *Aab-e-Anarain*(juice of *Punica granatum* Linn.) or *Qurs-e-Kafoor*(preparation of *Cinnamomum camphora*Linn.)4.5gm.

F. ***Hawa-e-Haar*****(Hotweatherorair):**Ifjaundiceisoccurreddue tohotair,thesurroundingsofthepatientshouldbecooledby using ice and other things, cold fruits juice/water and cool diet should also be given, e.g. *Aab-e-Anaar* (*Punica granatum* Linn.), *Aab-e-Seb* (*Malus-sylvestris* Mill.), *Aab-e-Tarbooz*(Water of *Citrullus lanatus*), *Aab-e-Kaddu* (water of *Lagenaria siceraria*),and *Aab-e-Khayar*water of *Cucumis sativus* Linn. and other cool foods should be administered[5].

G. Hepaticductobstruction: Differentmeasuresshouldbeadoptedfor expulsion of extra bile from the body e.g. *Hijamah*(Cupping), *Fasd*(Venesection), *Idraar-e-Baul* (Diuresis), *Ishaal* (Purgation), *Tareeq* (Diaphoresis), *Irsaal-e-Alaq*(Leeching). Thereafter, some *Mufatteh-e-Sudad* (deobstruent drugs) should be given e.g., *Ghariqoon*(*Agaricus alba*), *Kasni* (*Cichorium intybus* Linn.), *Aspand*(*Peganum harmala* Linn.), *Karafs*(*Apium graveolens* Linn.), *Bekh-e-Badyan*(*Foeniculum vulgare* Mill.), *Kababah*(*Zanthoxylum armatum*DC), *Anisoon*(*Pimpinella anisum*Linn.) and*Biranjasaf* (*Achilleamillefolium*Linn.),etc.Ifthetemperament is hot, *Aab-e-Kasni Sabz* (*Cichorium intybus* Linn.), *Aab-e-Mako Sabze*(*Solanum nigram*Linn.) and *Shikanjabeen*can be given. Apart from this, *Ghiza-e-Lateefah* (Easily digestible diets) are recommended[4-5,9].

VIII. Compound Drugs (Advia-e-Murakkabah)

Alterative Unani pharmacopeial formulations used for the management of jaundice (Yarqān) include distillate (Arq); ArqAfsanteen, ArqBrinjasif, Arq Kasni, Arq Mako, electuary (Dawā' / Jawārish / Ma'jūn); Dawa-ul-Kurkum, Dawa ul-Luk, Jawarish Tamar Hindi, Jawarish-e-OodTursh, Majoon-e-Dabeed-ul-Ward, pill; Habb-e-KabidNaushadari, tablet; Qurs-e-Ghafis, Qurs-e-Tabasheer Molaiyin, Qurs-e-Ward, Qurs-e-Zarishk, syrup; Sharbat Buzoori Motadil, Sharbat-e-Deenar, oxymel (Sikanjabīn); Sikanjabeen Buzoori Motadil, SikanjabeenLemuni, SikanjabeenNanaee, Sikanjabeen Sada [17-19]. Their pharmacological actions, ingredients, dosage, and method of administration are described below in detail;

A. ArqAfsanteen.

It has anti-inflammatory (Muhallil-i-Aurām) and deobstruent (Mufattiḥ-i-Sudad) properties. Therapeutically, it is used for the treatment of hepatitis (Waram-i-Kabid), and hepatic obstruction (Tasaddud-i-Kabid). It contains mainly aqueous distillate from Afsanteen (Artemisia absinthium). The recommended dosage is 50 to 100 ml, which should be taken orally twice a day, in the morning and evening, on an empty stomach, with 60 ml of ArqBadiyan or 20 ml of Sharbat Kasoos .

B. Arq Mako.

It has anti-inflammatory (Muhallil-i-Aurām) and hepatotonic (Muqawwī-i-Kabid) potentials. It is used to treat inflammation of visceral organs (Waram-i-Ah'sha') and weakness of the liver (Zo'af-i-Kabid). Its chief component is the aqueous distillate from Mako (Solalum nigrum seeds). The dosage is 60 to 120 ml twice daily, to be administered orally on an empty stomach in the morning and evening with fresh water.

C. Dawa-ul-Kurkum.

It possesses diuretic (Mudirr-i-Bawl) and hepatotonic (Muqawwī-i-Kabid) activities. It is useful for weakness of the liver (Zo'af-i-Kabid), indigestion (Zo'af-i-Hazm), ascites (Is'tisqa'), nephralgia (Waj-ul-Kulya), and retention of urine (Iḥtibās al-Bawl) . Its main component is Za'frān (Crocus sativus stigma), and other ingredients are Sumbul-ut-Teeb (Nardostachysjatamansi rhizome), Mur (Commiphora myrrha), Saleekhah (Cinnamomum aromaticum bark), Qust (Saussurealappa root), Izkhar (Andropogonschoeranthus bud), Darchini (Cinnamomum zeylanicum inner stem bark), and Shahad (Apis mellifera honey) . The recommended dosage is 5 to 10 g, to be taken orally twice a day, on an empty stomach in the morning and evening, with fresh water.

D. Dawa-ul-Luk

It has anti-inflammatory (Muhallil-i-Aurām) and deobstruent (Mufattiḥ-i-Sudad) properties. It resolves hepatitis (Waram-i-Kabid), ascites (Is'tisqa'), and hardness of the spleen (Salabat-i-Tihāl). Its chief ingredient is Luk Maghsool (Lac), and other constituents are QustTalkh (Saussurea hypoleuca root), Shagufa-e-Izkhar (Andropogonschoeranthus bud), Tunrmus (Lipinus album), Habb-ul-Ghaar (Prunus laurocerasus seed), Tukhm-e-Hulba (Trigonella foenum-graecum seed), Filfil Siyah (Piper nigrum fruit), Rewand Chini (Rheum officinale root), and Shahad (Apis mellifera honey) . The dosage is 5 g to 10 g, to be ingested twice daily, on an empty stomach in the morning and evening, with fresh water.

E. Habb-e-KabidNaushadari

It possesses digestive (Hāḍim), stomachic (Muqawwī-i-Mi'da), and hepatotonic (Muqawwī-i-Kabid) activities. It eradicates indigestion (Zo'af-i-Hazm) and hepatitis (Waram-i-Kabid) [17,18]. Its constituents are Naushadar (ammonium chloride), Namak-e-To'am (sodium chloride), Namak Siyah (black salt), Namak-e-Sang (rock salt), TankarBiryan (borax), Narkachoor (Zingiber zerumbet rhizome), Halela Siyah (Terminalia chebula fruit), Post-e HalelaKabli (Terminalia chebula unripe fruit), Baobarang (Embeliaribes seed), Filfil Siyah (Piper nigrum fruit), Zanjabeel (Zingiber officinale rhizome), and Arq-e-Gulab (Rosa damascene flower distillate). The dosage is 500 mg to 1 g or 2 pills to be administered orally twice a day, after a meal with fresh water .

F. Jawarish Tamar Hindi

It has digestive (Hāḍim), antiemetic (Daf-i-Qai), and antibilious (Dafey-i-Safra) properties. It eliminates weakness of the stomach (Zo'af-i-Meda), vomiting (Qai), and nausea (Ghisyan) . It contains mainly Aab-e Tamar Hindi (Tamarindus indica kernel water) and other ingredients such as Gul-e-Surkh (Rosa damascene flower), Kishneez (Coriandrum sativum fruit), Mastagi (Pistacia lentiscus resin), Dana Heel Khurd (Elettaria cardamomum fruit), Zarishk (Berberis aristata fruit), Tabasheer (Bambusa bambos crystal), Sazaj Hindi (Cinnamomum tamala leaf), Post-e-Turanj (Terminalia chebula fruit rind), Pudina (Mentha arvensis aerial), Sandal Safaid (Santalum album heart wood), Aab-e-Anar (Punica granatum fruit water), Murabba-e-Amla (Emblica officinalis), and Qand Safaid (Saccharum officinarum crystal). The dosage is 5 g to 10 g, to be ingested twice daily, after a meal with fresh water.

G. Jawarish-e-OodTursh

It possesses digestive (Hāḍim), antiemetic (Daf-i-Qai), and antibilious (Dafey-i-Safra) activities. It is quite beneficial for weakness of the stomach (Zo'af-i-Meda), vomiting (Qai), and nausea (Ghisyan). It comprises Ood Hindi (Aqullariaagallocha wood), Sumbul-ut-Teeb (Nardostachysjatamansi rhizome), Heel Khurd (Elettaria cardamomum fruit), Zafran (Crocus sativus stigma), Post-e-Turanj (Terminalia chebula fruit

rind), Qaranful (Syzygium aromaticum flower bud), Darchini (Cinnamomum zeylanicum inner stem bark), Badranjboya (Melissa parviflora leaf),, Mastagi (Pistacia lentiscus resin), Tabasheer (Bambusa bambos crystal), Aab-e-Seb Tursh (Malus Sylvestris fruit water), Arq-e-Gulab (Rosa damascene flower distillate), Aab-e-Lemu Kaghzi (Citrus aurantifolia fruit water), and Asal (Apis mellifera honey). The dosage is 5 g to 10 g, to be ingested twice daily, after a meal with fresh water.

H. Majoon-e-Dabeed-ul-Ward

It has anti-inflammatory (Muhallil-i-Aurām), diuretic (Mudirr-i-Bawl) potentials. It is indicated in ascites, hepatitis, gastritis, swelling of the uterus, and weakness of the liver [17,18]. Its chief constituents are Gul-e-Surkh (Rosa damascene flower) and Zafran (Crocus sativus stigma) and other constituents includes Izkhar Makki (Cymbopogon jwarancusa leaf), Agar Hindi (Aquliariaagallccha wood), Balchhar, (Nardosachysjatamansi rhizome), Banslochan, (Bambusa arundinacea crystal), Tukhm-e-Kansi (Cichorium intybus seed), Tukhm-e-Kasoos (Cuscuta reflexa seed), Tukhm-e-Karafs (Apium graveolens seed), Taj Qalmi (Cinnamomum cassia), Darchini (Cinnamomum zeylanicum inner stem bark), ZarawandMudharaj (Aristolochina rotunda root), Qust Shirin (Saussurea hypoleuca root), Gul-e-Ghafis (Gentiana dahurice flower), Luk Maghsool (Lac), Foh (Rubia Cordifolia root), Qiwam Shakar (Saccharum officinarum crystal), Gawzaban (Borago offiinalis leaf), and Mastagi (Pistacia lentiscus resin). The recommended dosage is 5 to 10 g. It is to be taken with 60 ml of Arq-e-Badiyan or ArqBrinjasif or 40 ml of Sharbat-e-Deenar on an empty stomach twice a day orally with fresh water.

IX. Essential Foods to Eat During Jaundice Recovery

Here's best foods for jaundice patients to eat or avoid for fast recovery are as

A. Fresh Fruits and Vegetables

Fresh vegetables and fruits are loaded with fiber and antioxidants that aid the digestion process and lessen the chances of liver damage. Fruit and vegetable that primarily benefits the liver are:

- Citrus fruits (grapes, limes, and lemons)
- Apples
- Bananas
- Oranges
- Pears
- Watermelon
- Cruciferous vegetables (Brussels sprouts, cauliflower, and broccoli)
- Tomatoes
- Avocados
- Olives
- Papayas and Melons
- Potatoes, turnips, and beets
- Blueberries
- Spinach
- Carrots
- Ginger with garlic.

B. Coffee and Herbal Tea

Along with caffeine, both herbal teas and coffee contain high levels of antioxidants, which boost digestion and clear toxins from the system. Moderate coffee consumption is known to reduce inflammation, harmful liver enzymes, and the risk of liver cirrhosis.If you're wondering is liver cirrhosis curable, diet plays a crucial role in managing the condition.

C. Whole Grains

From healthy fats, fiber, and minerals to antioxidants, whole grain foods possess several liver-friendly nutrients. For instance, oats, brown rice, and quinoa offer B vitamins & rich in beta-glucan improve liver function and metabolism within 12 weeks of regular consumption.

D. Nuts and Legumes

Plant-based proteins like nuts and legumes (which include peas, lentils, horse gram, kidney, and other beans) are liver-friendly food. They are rich in vitamin E, phenolic acid, fiber, and healthy fats; therefore,

these foods for jaundice treatment are highly beneficial as they enhance recovery.

E. Lean Proteins

Tofu, fish, and legumes are a few examples of lean proteins that do not stress the liver. Oily fish varieties (like salmon and mackerel) are among the best diets to eat as they contain zinc and omega-3, which helps in better metabolism.

F. Water

Water eases the digestion process and helps the kidneys - along with the liver - in flushing out toxins. Therefore, drinking enough water is the best way to combat jaundice.

Fig. 05 Food Include and avoid inJaundice (Yarqan)

X. Foods to Avoid in Jaundice Diet Chart

A. Alcohol & Caffeine

Alcohol is toxic and harmful to the liver. It also causes damage to several internal bodily tissues. Excessive alcohol consumption can lead to liver fibrosis, chronic inflammation, and reduced liver function. If you are diagnosed with jaundice, you must avoid alcohol altogether.

B. Refined Carbohydrates

Foods like white bread, pasta, soda, and baked goods have enormous amounts of refined sugar. Unwarranted refined sugar and carb can impair liver function, lead to obesity, and type 2 diabetes.

C. Packaged, Smoked, and Canned Foods

Packed with high levels of preservatives, canned and smoked foods to avoid. For example, canned vegetables and deli meats contain excessive salt, which can dehydrate the body, put more stress on the liver, and make digestion difficult. Therefore, you must avoid packaged food that has 1.5 grams of salt per 100 g or 0.6 grams of sodium level as they are considered high in salt.

D. Saturated and Trans Fats

A jaundice diet rules out saturated and trans fat as they increase insulin resistance. Insulin regulates blood sugar and helps in the digestion of sugar. An unchecked consumption of saturated and trans fat is linked to both obesity and malnutrition, which causes risks to the liver. It is recommended that diabetic patients should limit the use of oily, fast and fried foods. Some dairy products too contain excessive

saturated fat, including whole milk, cheese, full-fat yogurts, and cheese, and should be avoided.

E. Shellfish, Raw or Undercooked Fish

Shellfish, undercooked or raw fish, may contain bacteria, viruses, parasites, and other toxins that can infect and damage the digestive organs, including the liver.

F. Beef and Pork

Beef and pork contain fats and animal amino acids that cannot be easily digested by a damaged liver. Moreover, these foods exert a lot of strain on the liver and thus fall under the foods that must be avoided.

Jaundice Diet Chart: Essential Foods to Include and Avoid

Category	Foods to Include	Foods to Avoid
Fruits	Papaya, Apple, Pomegranate, Banana, Orange, Watermelon	Unripe fruits, Excessive citrus (if causing acidity)
Vegetables	Carrots, Beets, Spinach, Bottle Gourd, Tomato, Pumpkin	Gas-forming veggies (Cauliflower, Cabbage, Radish)
Whole Grains	Oats, Brown Rice, Whole Wheat, Barley, Quinoa	Refined flour products (White Bread, Pastries)
Proteins	Moong Dal, Tofu, Paneer (moderate), Boiled Egg White	Red Meat, Fried Lentils, Spicy & Heavy Proteins
Dairy	Low-fat Milk, Buttermilk, Yogurt	Full-fat Dairy, Cheese, Cream
Fats & Oils	Olive Oil, Coconut Oil (in moderation)	Deep-fried foods, Excessive Butter, Ghee
Beverages	Coconut Water, Herbal Teas, Lemon Water	Alcohol, Sugary Drinks, Caffeinated Beverages
Spices & Condiments	Turmeric, Cumin, Coriander	Excess Salt, Spicy & Oily Gravies
Sweets	Jaggery-based sweets (in moderation), Honey	Refined Sugar, Sweets, Chocolates

XI. Sample Jaundice Diet Plan

Planning your meals thoughtfully can aid in dealing jaundice effectively. Here's a sample diet plan for jaundice recovery-

A. Breakfast

Kickstart your day with a refreshing smoothie made from bananas, apples, and a handful of spinach, all blended together for a nutritious start. Alternatively, savour a warm bowl of oatmeal topped with slices of pear, which is gentle on the stomach and great for your Hepatitis diet. You might also consider a traditional Indian breakfast of idli with coconut chutney, as idli is steamed and light, making it easy on the liver, while coconut is beneficial for its antimicrobial properties.

B. Lunch

You can go for a grilled chicken salad tossed with carrots and leafy greens, lightly dressed with olive oil and lemon juice, which aids in digestion and supports liver health. Another great option is a hearty bowl of lentil soup paired with a side of nutritious brown rice. Lentils are a fantastic source of protein that's easy to digest. Alternatively, khichdi made from green moong dal is highly recommended for its ease of digestion and liver benefits.

C. Dinner

You can eat grilled fish accompanied by a side of steamed broccoli, providing essential proteins and fibre without stressing the liver. For vegetarians, a quinoa and vegetable stir fry offers a satisfying meal rich in nutrients that support liver health. You can also opt for grilled paneer with sautéed vegetables, which provides a good mix of protein and essential vitamins without being too heavy.

D. Healthy Snacks

Fresh fruits such as apples or pears are ideal as they're easy on the liver and help in detoxification. A small portion of mixed nuts not only gives an energy boost but also supplies healthy fats that support liver function. Makhana (fox nuts) roasted with a sprinkle of turmeric and salt can also be a tasty, liver-friendly

food option due to its antioxidant properties and high fibre content.

Recommended Foods for a Jaundice Diet

Meal	Food Options
Breakfast	Smoothie (banana, apple, spinach), Oatmeal with pear, Idli with coconut chutney
Lunch	Grilled chicken salad, Lentil soup with brown rice, Khichdi (green moong dal)
Dinner	Grilled fish with steamed broccoli, Quinoa and vegetable stir fry, Grilled paneer with sautéed vegetables
Healthy Snacks	Fresh fruits (apple, pear), Mixed nuts, Roasted makhana with turmeric and salt

XII. Hydration and Its Role in Jaundice

Hydration is a very important part of the nutritional guidelines for liver diseases. Drinking plenty of water helps flush out toxins. Consuming ample water daily helps dilute the bile and facilitates the elimination of bilirubin, which can accumulate and cause jaundice when not excreted properly. It's recommended that individuals with jaundice increase their water intake to at least 8-10 glasses per day, depending on their body weight and environmental conditions.Herbal teas are another excellent hydration option that can support liver function. Teas made from dandelion or milk thistle are particularly effective. Dandelion tea acts as a diuretic, increasing urine production and helping to eliminate toxins more efficiently. Milk thistle tea contains silymarin, a compound known for its liver-protective qualities and ability to promote liver regeneration. These herbal teas not only provide hydration but also offer therapeutic benefits that may enhance the recovery process.

CONCLUSION:

Jaundice has recently emerged as one of the major health hazards. Despite the fact that there are numerous treatment options, Unani medicine plays a significant therapeutic and prophylactic role in jaundice by reducing elevated hepatic markers and restoring the normal functions of the liver and gall bladder. In the evidence-based era, Unani Medicine is proving its effectiveness in the treatment of jaundice and other liver and gallbladder illnesses, and in the future, it may be regarded as a potent mode of treatment for jaundice and other complex diseases. Unani medicine can be quite efficient at preventing the high cost and unfavourable consequences of the drugs and surgeries used to treat jaundice in the allopathic system of medicine.

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