Highlights on the diagnostics test of different diseases: Updated mini review

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ABSTRACT
A various disease which occurs due to microorganisms, change in daily lifestyle and other activity like environmental changes results in abnormalities in body function. Together these causes the world has been affected. The person suffers from disease when there is a change in the normal functioning of the body. The diagnosis is very important for the treatment of disease. for every disease, there can be an early cure and prevention of disease as soon as the diagnosis has occurred in the right ways. Diagnosis of diseases depends upon the various parameters like sign and symptom change in various metabolites occur in the body and also depend on the concentration of various pigment, which is secreted by the body. However, for the identification of disease or illness in the body, the diagnostic test identifies these parameters. The diagnostic test, its name, sample collection from body parts, sample type (blood, plasma, urine with their range), disease, diagnosis, and abnormalities in its ranges, and application of the diagnostic test is focused in this review.
Keyword: Disease; diagnosis; diagnostic test; application

I. INTRODUCTION

Diseases mean person whose their body not able to function normally and some disturbance occurs in the normal functioning of the body. Diagnosis is very important for the identification of the diseases for early treatment and cure. A various diagnostic tests, which are enlisted in table 1,2, 3 and 4.

Table 1: Following diagnostic test sample taken from blood [2,4,5,6,12,13,14,15,16]

Sr. No.	Name of the diagnostic test	Sample taken from body part	Sample type E.g. Blood plasma urine etc	Normal Range	Disease diagnose	Abnormalities occur when below the normal range	Abnormalities occur when above the normal range	Application
1.	Hemoglobin	Vein of arm	Blood	12-17 gm/dL	Anemia	Anemia	Clots, heart attack, strokes	To check the amount of oxygen in blood
2.	White blood cells	Vein of arm	Blood	4500-10000 cells/mcL	Autoimmune disease, immune deficiencies	Leucopenia	Emotional stress, CVS disorder	To check immunity
3.	Red blood cells	Vein of arm	Blood	12-17 gm/dL	Anemia	Anemia	Pulmonary fibrosis, kidney disease	To check the amount of oxygen receive by tissue
4.	Hematocrit	Finger prick or vein of arm	Blood	31-40%	Anemia	Leukemia, Lymphoma	Dehydration, polycythemia vera	To monitor response to the treatment
5.	Mean corpuscular volume	Vein of arm	Blood	80-95	Microcytic anemia, macrocytic anemia and normocytic anemia	Microcytic anemia	Vitamin B12, folic acid deficiencies	To measure the average size of RBCs
6.	Platelets	Vein of arm	Blood	140000-450000 cells/mcL	Bleeding disorder, bone marrow disease.	Thrombocytopenia	Blood clotting	To check the formation of clots.
7.	Erythrocyte Sedimentation Rate	Vein of arm	Blood	1-15 mm	Detect inflammation and autoimmune disease	CHF, Hypofibrinogenemia	Tumor, Autoimmune disease	To check arthritis, vasculitis, IBD
8.	Bilirubin total	Vein of arm	Blood sample	0-1 mg/dl	Investigate jaundice	Dementia and heart disease	Jaundice	To check the blockage in bile ducts
9.	Conjugated bilirubin	Vein of arm	Blood sample	0-0.35 mg/dl	Anemia	Hemolytic anemia	Jaundice	To evaluate liver function and metabolism
10.	Unconjugated bilirubin	Vein of arm	Blood sample	0.2-0.65 mg/dl	Liver disease	Hemolytic anemia	Jaundice	To find the cause of jaundice, anaemia and liver disease
11.	SGOT	Vein of arm	Blood sample	10-40 iu/l	Liver damage	It is common	Kidney, Liver, Heart damage	To diagnose liver damage
12.	SGPT	Vein of arm	Blood sample	10-40 iu/l	Liver damage	It is common	Cirrhosis, Hepatitis	To keep liver in healthy state
13.	Alkaline phosphatase	Vein of arm	Blood sample	40-112 u/l	Liver and bone disorder	Hypophosphatasia	Liver damage	To detect liver and bone disorders
14.	Total protein	Vein of arm	Blood sample	6-8.5 g/l	Liver and kidney disorder	Liver, kidney or digestive disorder	Chronic infection like viral hepatitis	For routine health examination when you experience unexpected weight loss
15.	Albumin	Vein of arm	Blood sample	3.5-5 g/l	Liver and kidney disorder	Malnutrition, liver disease	Dehydration, severe diarrhea	To diagnose and evaluate

								kidney and liver conditions
16.	Globulin	Vein of arm	Blood sample	2-3.5 g/l	Liver, kidney disorder, Malnutrition, Malabsorption	Liver or kidney disease	Inflammatory disease, immune disorders	To diagnose liver disease, kidney disease, malnutrition and immune system disorder
17	Total cholesterol	By inserting needle in vein	Blood sample	Less than 200 mg per dl	To estimate risk of heart attack	Primary intracerebral hemorrhage	Heart attack or stroke	To measure the amount of cholesterol and triglycerides in the blood.
18	Triglycerides	By inserting needle in vein	Blood sample	10 to 150 mg per dl	Hypothyroidism, kidney disease, heart disease	Stroke and heart failure	High blood pressure, high sugar level	To determine the risk of developing heart disease
19	LDL (low density lipoprotein)	By inserting needle in vein	Blood sample	70 to 130 mg per dl	Heart disease	Risk of cancer and hemorrhagic stroke	Atherosclerosis	Likelihood of developing heart disease
20	HDL (high density lipoprotein)	By inserting needle in vein	Blood sample	40 to 60 mg per dl	To determine cholesterol level	Greater risk of developing heart disease	Heart attack	Determine the risk of developing heart disease
21	VLDL (very low density lipoprotein)	By inserting needle in vein	Blood sample	2 to 30 mg per dl	Coronary heart disease	Cancer and hemorrhagic stroke	Deposition of plague in artery walls	Important part of cardiac risk assessment
22	Random blood sugar	From vein of arm	Blood sample	79 to160 mg per dl	Diabetes	Irregular or fast heartbeat	Diabetes	Used to diagnose diabetes
23	Fasting blood sugar	From vein of arm	Blood sample	90 to 110 mg per dl	Detect diabetes or prediabetes	Hypoglycemia	Insulin resistance or inadequate insulin production	To check how well the body is able to manage blood sugar in absence of food
24	2 hour postprandial	From vein of arm	Blood sample	Below 140 mg per dl	To check how body response to sugar	Reactive hypoglycemia	Diabetes	To check whether a patient is taking right amount of insulin
25	Glucose tolerance test (fasting)	From vein of arm	Blood sample	62 to 100 mg per dl	Prediabetes and diabetes	Hypothyroidism and liver disease	Gestational diabetes	To identify abnormalities in the way the body handles glucose after a meal
26	Glucose tolerance test (1 hour)	From vein of arm	Blood sample	Less than 200 mg per dl	Prediabetes and diabetes	Hypothyroidism and liver disease	Gestational diabetes	To identify abnormalities in the way the body handles glucose after a meal
27	Glucose tolerance test (2 hours)	From vein of arm	Blood sample	Less than 140 mg per dl	Prediabetes and diabetes	Hypothyroidism and liver disease	Gestational diabetes	To identify abnormalities in the way the body handles glucose after

								a meal
28	HbA1c	From vein of arm	Blood sample	4.5-8 %	Diabetes and prediabetes	Increased risk of all-cause mortality	Diabetes complications like in eyes and feet	To determine average blood sugar levels of previous 3 months
29	Creatinine phosphokinase – MB	By inserting needle into a vein	Blood sample	5-25 IU/L	Muscle tissue injury and heart injury	Connective tissue disease	Stress to muscle tissue, heart or brain	Used to assist diagnosis of acute myocardial infarction
30	Troponin	By inserting needle into a vein	Blood sample	Less than 0.01 ng/ml	Damage to heart muscle	Minor heart damage	Heart attack	To determine if an individual has suffered from heart attack
31	C-reactive protein	By inserting needle into a vein	Blood sample	1-10 mg/dl	Detect inflammation	Low risk of cardiovascular disease	Inflammation in arteries of heart	To predict the chance of having cardiovascular disease as well as cholesterol level
32	Tri-iodothyronine	By vein or finger prick	Blood sample	75-200 ng/dl	Hypothyroidism	Hypothyroidism or starvation	Hyperthyroidism	To monitor treatment for thyroid disease
33	Thyroxine	By vein or finger prick	Blood sample	4.5-11.5 ug/dl	Functioning of thyroid gland	Hypothyroidism	Hyperthyroidism	To diagnose disorders of thyroid
34	Thyroid stimulating hormone	By vein or finger prick	Blood sample	0.3-5 U/ml	Detect thyroid disorder	Hyperthyroidism	Hypothyroidism	To determine working of thyroid gland
35	Follicle stimulating hormone	From vein of arm	Blood sample	5-20 IU/L (third day of menstrual period)	To measure the level of FSH in blood	Ovaries are not making enough eggs	Premature ovarian failure, polycystic ovary syndrome	To help evaluate menopause and diagnose polycystic ovary syndrome
36	Luteinizing hormone	From vein of arm	Blood sample	5-25 IU/L (before menopause)	To measure the level of LH in blood	Secondary ovarian failure	Menopause or polycystic ovary syndrome	To determine whether you are ovulating
37	Prolactin	Vein of arm	Blood sample	2 to 29 ng per ml	Prolactinoma	Insufficient milk production after delivery	Production of milk in non pregnant woman, menstrual problems, infertility	To find the cause of women's menstrual irregularities for infertility
38	Ovarian reserve test anti mullerian hormone	Vein of arm	Blood sample	1.5-4 ng per ml	To check the number of potential cells a woman has left	Indication of decreased egg reserve	Have more eggs available and will respond better to treatment	To check a woman's ability to produce eggs that can be fertilized for pregnancy
39	Vitamin B12	Vein of arm	Blood sample	300 to 900 pg per ml	Check the level of vitamin B12	Anaemia, affect memory and thinking	Outbreak of acne and rosacea	Check for vitamin B12 deficiency in anaemia
40	Vitamin D	Inserting needle in vein of arm	Blood sample	20-50 ng per ml	To monitor bone disorders	Loss of bone density	Hypercalcemia and formation of calcium stones	To check vitamin d levels in people with

							chronic illness such as asthma and autoimmune disease
41	Serum calcium	Inserting needle in vein of arm	Blood sample	8.5-10.2 mg/dL	To measure the amount of calcium in blood	Tingling, muscle ache, stiffening of muscles	Weaken bones, create kidney stones, interfere with heart and brain work	Monitor calcium regulation disorders
42	HIV	Drawing blood a vein	Blood sample		To detect antibody, antigen and RNA	---------	---------	To diagnose the presence of HIV virus that causes AIDS
43	CD4 count	Drawing blood a vein	Blood sample	500-1000 cells/mm3	To measure the extent of HIV	AIDS	Strong immune system	To check the health of immune system in people infected with HIV
43	Hepatitis A	Draw blood from vein	Blood sample	---------	To check the severity of infection	---------	---------	To check on liver infection.
44	Hepatitis B	Draw blood from vein	Blood sample	---------	To check the severity of infection	---------	---------	To check on liver infection.
45	Hepatitis C	Draw blood from vein	Blood sample	---------	To check the severity of infection	---------	---------	To check on liver infection.
46	Serological tests	Draw blood from vein	Blood sample	---------	Chikungunya	---------	---------	To identify Chikungunya
47	Dengue serology	Draw blood from vein	Blood sample	---------	Dengue	---------	---------	NS1 glycoprotein is checked to diagnose dengue.
48	Thick and thin blood smears	Draw blood from vein	Blood sample	---------	Malaria	---------	---------	To check the number of parasites in blood.
49	Rapid diagnostic test	Prick of a finger	Blood sample	---------	Malaria	---------	---------	Antigen testing done by color change criteria.
50	Molecular test (PCR)	Draw blood from vein	Blood sample	---------	Malaria	---------	---------	To identify the type of parasite
51	Antibody test	Draw blood from vein	Blood sample	---------	Malaria	---------	---------	To find out if you've had malaria in the past.
52	Blood test	Draw blood from vein	Blood sample	---------	Malaria	---------	---------	To check the severity of infection.
53	Widal test	Draw blood from vein	Blood sample	---------	Typhoid	---------	---------	To measure the capacities of antibodies against LPS

								and flagella in serum.
54	Antistreptolysin O titer	Draw blood from vein	Blood sample	Less than 200 IU/L	Streptococcus infection	No recent infection.	Recent streptococcus infection.	To detects and measures the level of ASO in blood to determine infection.
55	Rheumatoid factor	Draw blood from vein	Blood sample	Less than 15 IU/mL	Rheumatoid Arthritis	Seronegative rheumatoid arthritis	Seropositive rheumatoid arthritis	To check auto immune disease
56	Antinuclear antibody	Draw blood from vein	Blood sample	Positive or negative	To detect antinuclear antibody	---------	---------	To help diagnose auto immune disorders
57	Anti cyclic citrullinated peptide	Draw blood from vein	Blood sample	Less than 20U/mL	To help diagnose rheumatoid arthritis	Normal condition	Rheumatoid arthritis	To assess the severity and probable course of disease.
58	C-reactive protein	Draw blood from vein	Blood sample	Below 3 mg/dl	Inflammation	Less inflammation	More inflammation	To check the level of inflammation in cells.
59	Alpha fetoprotein	Draw blood from vein	Blood sample	Positive or negative	Tumor	---------	---------	Hepatocellular carcinoma, germ cell tumor
60	CA15-3 & CA27-29	Draw blood from vein	Blood sample	Positive & negative	Tumor	---------	---------	Breast cancer
61	CA19-9	Draw blood from vein	Blood sample	Positive & negative	Tumor	---------	---------	Pancreatic and Colorectal cancer
62	HLA-B27	Draw blood from vein	Blood sample	Positive or negative	Autoimmune disease	Lower risk of autoimmune disease	Greater risk of autoimmune disease	To confirm the suspected diagnosis of ankylosing spondylitis, juvenile rheumatoid arthritis.
63	CA-125	Draw blood from vein	Blood sample	Positive & negative	Tumor	---------	---------	Ovarian, breast, lung and GIT cancer
64	Calcitonin	Draw blood from vein	Blood sample	Less than 10 pg/ml	Tumor	---------	---------	Medullary thyroid carcinoma
65	Neuron specific enolase	Draw blood from vein	Blood sample	7.3 ng/ml	Tumor	---------	---------	Neuroendocrine tumors
66	Carcinoembryonic antigen	Draw blood from vein	Blood sample	0-2.5 microgram/litre	Tumor	---------	---------	Colorectal cancer
67	Prostate specific antigen test	Draw blood from vein	Blood sample	4 ng/ml	Tumor	---------	---------	Prostate cancer

Table 2: Following diagnostic test sample taken from Urine [4,5,6,7,8]

Sr. No.	Name of the diagnostic test	Sample taken from body part	Sample type E.g. Blood plasma urine etc	Range	Disease diagnose	Abnormalities occur when below the normal range	Abnormalities occur when above the normal range	Application
1	Blood urea	---------	Urine sample	10 to 50 mg/dl	Kidney disease	Severe liver disease or malnutrition	Low blood flow to kidneys.	To determine how well kidneys are working
2	Serum creatinine	---------	Urine sample	0. 6 to1.3 mg /dl	Kidney disease	Chronic kidney disease	Malfunction or failure of kidneys	To determine the amount of muscle mass and level of kidney function
3	Uric acid	---------	Urine sample	2.4 to 7 mg/dl	Kidney disease	Oxidative stress and endothelial dysfunction	Gout	To determine how will body produces and removes uric acid
4	Sodium	---------	Urine sample	135 to 145 milli mole/ litre	Kidney disease	Dehydration, diarrhea, fluid loss	Hyper natremia	Check the water and electr

								olyte balance in the body
5	Potassium	---------	Urine sample	3.4 to 5.1 milli mole per litre	Kidney disease	Clamp, twitch, paralysis and abnormal heart rhythm	Acute tubular necrosis, bulimia and anorexia	To determine the cause of kidney disease and to help guide treatment
6	Chloride	---------	Urine sample	98 to 106 milli mole per litre	Kidney disease	Heart failure, lung disease, Addison disease	Dehydration, starvation	To determine the cause of alkalosis
7	Urine color	---------	Urine sample	Pale yellow	Dehydration	---------	---------	To detect urinary tract infection
8	Urine appearance	---------	Urine sample	Clear	To look for red blood cells, proteins and minerals	---------	---------	To check for urinary tract infections
9	Specific gravity	---------	Urine sample	1.005 to 1.030 gram per ml	Kidneys ability to concentrate urine	Urine is too diluted	Urine is too concentrated	To compare the density of urine to the density of water
10	pH	---------	Urine sample	5 to 8	To diagnose	Diabetic ketoacidosis	Kidney	To measu

					kidney stones		stones, urinary tract infections	re the level of acid in urine
11	Proteins	--------	Urine sample	50 to 80 mg	Diagnose kidney condition	Kidney disease	Proteinuria	To detect excess protein in urine
12	Glucose	--------	Urine sample	0 to 0.8 milimole per litre	Glycosuria	Hypoglycemia	Diabetes	To keep an eye on diabetes level
13	Ketones	--------	Urine sample	Less than 0.6 milimole per litre	Diabetes	Its normal	Diabetic ketoacidosis	To check on diabetes
14	Bilirubin	--------	Urine sample	0.3 to 1.2 milligram per deciliter	Liver disease	Its normal	Cirrhosis, hepatitis, liver disease & gallstone	To determine liver damage or blockage
15	Blood	--------	Urine sample	4 RBCs per high power field	Infection, Cancer and kidney disease	Gross hematuria	Viral infection	To look for sign of infection, kidney disease and cancer
16	Nitrite	--------	Urine sample	0.5-1 mg per dl	Urinary tract infection	Its normal	Bacterial infection in urinar	To determine kidney

							y tract	infection
17	Urobilinogen	---------	Urine sample	0.1 to 1.8 mg per dl	Jaundice	Liver is not working properly	Cirrhosis or hepatitis	To monitor an existing liver condition
18	Leukocyte esterase	---------	Urine sample	4500 to 11000 WBCs per microlitre	Urinary tract infection	Its normal	Urinary tract infection	To detect white blood cells in urine
19	WBCs per high power field	---------	Urine sample	0-5 WBCs per high power field	Urinary tract infection	Its normal	Urinary tract infection	To detect amount of white blood cells in urine
20	Squamous epithelium	---------	Urine sample	Five Squamous epithelium cells per high power field	Urinary tract infection	Its normal	Yeast or urinary tract infection	To keep an eye on kidney infection

Table 3: Following diagnostic test sample taken from Semen[4,5,6,11]

Sr. No.	Name of the diagnostic test	Sample taken from body part	Sample type E.g. Blood plasma urine etc	Range	Disease diagnose	Abnormalities occur when below the normal range	Abnormalities occur when above the normal range	Application
1	Volume of Semen	To masturbate and ejaculate in a sterile cup	Semen sample	1.5-5 ml	To measure that how many million sperm cells there are in each	Low Testosterone	Hyperspermia	To measure the amount and quality of sperms and

				millimeter of semen.			semen.
2	Concentration of semen	To masturbate and ejaculate in a sterile cup	Semen sample	50-150 million	Male infertility	Oligospermia	Hyperspermia	To check male fertility.
3	Motility of sperms	To masturbate and ejaculate in a sterile cup	Semen sample	50-60%	Male infertility	Asthenospermia	Easy to get pregnant	To determine low sperm count or sperm dysfunction.
4	Morphology of sperms	To masturbate and ejaculate in a sterile cup	Semen sample	More than 50%	To evaluate male infertility	Decrease in overall sperm quality and increase in sperm damage.	Good for fertility.	To check what percentage of sperms are having normal size and shape.
5	Liquefaction of semen	To masturbate and ejaculate in a sterile cup	Semen sample	15-30 min before semen liquefies	To evaluate male infertility	Male infertility.	Indicates an infection.	To evaluate women's cervical mucus after sexual intercourse.
6	pH level of semen	To masturbate and ejaculate in a sterile cup	Semen sample	7.2-7.8	To diagnose sperm health.	Acidic semen	Basic semen	To check health of a sperm and motility.

Table 4: Miscellaneous diagnostic tests [1,3,4,5,6,9,10]

Sr. No.	Name of the diagnostic test	Sample taken from body part	Sample type E.g. Blood plasma urine etc	Range	Disease diagnose	Abnormalities occur when below the normal range	Abnormalities occur when above the normal range	Application
1	Bone density test	Complete body	X ray scan	AT score of 1.0 or above	Osteoporosis	Osteoporosis	Increased fracture risk or artefacts	To estimate bone density and chances of breaking a bone
2	NAAT test (nucleic acid amplification tests)	Nasal pharyngeal swab or a throat swab	Swab	-------	Covid-19	-------	--------	look for the genetic material of the virus itself if present then person infect from Covid-19
3	Nasal aspirate test	saline solution will be injected into your nose and, then a sample is taken with a light suction	saline solution will be injected into your nose and, then a sample is taken with a light suction	-----	Covid-19	-------	---------	if positive then patient infected by Covid-19
4	Tracheal aspirate test-	a thin tube with a torch, also known as a bronchoscope, is put into your mouth to reach	a thin tube with a torch, also known as a bronchoscope, is put into your mouth to reach your lungs from where a sample is collected	----------	Covid-19	-------	---------	if positive then patient infected by Covid-19

		your lungs from where a sample is collected						
5	Sputum Test	During this test, you're required to cough up sputum in a special cup or a swab is used to take a sample from your nose.	During this test, you're required to cough up sputum in a special cup or a swab is used to take a sample from your nose.	----------	Covid-19	-------	---------	if positive then patient infected by Covid-19
6	Rapid diagnostic test (RDT) based on antigen detection	samples from the nose swab, throat swab, and lungs.	Samples from the nose, throat, and lungs.	----------	Covid-19	-------	---------	Rapid diagnostic test (RDT) of a sample of the respiratory tract of a person helps to detect the viral proteins (antigens) related to COVID-19 virus.
7	Rapid diagnostic tests based on host antibody detection	Vein of arm	Blood sample	--------	Covid-19	-------	---------	This test detects the presence of antibodies in the blood of COVID-19 infected people.
8	Polymerase chain	samples from the	Samples from the	----------	Covid-19	-------	---------	helps to detect the

	reaction (PCR) test	nose swab, throat swab	nose, throat					RNA of the virus itself if present then person infect from Covid-19
9	Venereal disease research laboratory (VDRL) test	Vein of arm	Blood sample	-------	Syphilis	-------	---------	Syphilis is caused by the bacterium Treponema pallidum, nstead, it checks for the antibodies your body makes in response to antigens produced by cells damaged by the bacteria.
10	Mantoux skin test	the forearm just under the skin.	A small amount of fluid (called tuberculin)	-------	Tuberculosis(TB)	-------	---------	A health professional should read the test 48 to 72 hours after it is administered to check for a reaction.
11	Chest Radiograph	Chest x-ray	X ray scan	-------	Tuberculosis(TB)	-------	---------	To estimate HIV associated with TB infection
12	AFB smear test	During this test, you're required to cough up sputum,	During this test, you're required to cough up sputum, gastric aspirate	-------	Tuberculosis(TB)	-------	---------	if positive then patient infected with TB

		gastric aspirate							

II. CONCLUSION

For better health, early diagnosis is very important in the treatment of disease. This mini-review gave very informative knowledge about the diagnostic test for the early diagnosis of various diseases. This review concludes about the various conditions different test if test positive or negative, either in the normal range or not and also give the knowledge about the updated diagnostic test and their applications.

REFERENCE

[1]. Sharma D, Sarkar D; Pathophysiology of Tuberculosis: An Update Review; PharmaTutor; 2018; 6(2); 15-21; http://dx.doi.org/10.29161/PT.v6.i2.2018.15

[2]. Colchero, M. Arantxa; Caro-Vega, Yanink N.; Sánchez-González, Gilberto; Bautista-Arredondo, Sergio A literature review of reporting standards of HIV progression models, AIDS: July 17, 2012 - Volume 26 - Issue 11 - p 1335-1344 doi: 10.1097/QAD.0b013e3283533ae2.

[3]. Singh, A. E., & Romanowski, B. (1999). Syphilis: review with emphasis on clinical, epidemiologic, and some biologic features. Clinical microbiology reviews, 12(2), 187–209. https://doi.org/10.1128/CMR.12.2.187

[4]. https://www.britannica.com/topic/list-of-medical-tests-and-diagnostic-procedures-2074273.

[5]. https://www.niddk.nih.gov/health-information/diagnostic-tests#digestive-diseases.

[6]. https://www.google.com/search?q=list+of+medical+test+pdf&oq=list+of+medical+test+pdf&aqs=chrome..69i57j0i22i30l2.10809j0j7&sourceid=chrome&ie=UTF-8

[7]. Rafieian-Kopaei, M., Setorki, M., Doudi, M., Baradaran, A., & Nasri, H. (2014). Atherosclerosis: process, indicators, risk factors and new hopes. International journal of preventive medicine, 5(8), 927–946.

[8]. Chen TK, Knicely DH, Grams ME. Chronic Kidney Disease Diagnosis and Management: A Review. JAMA. 2019;322(13):1294–1304. doi:10.1001/jama.2019.14745.

[9]. Maharshi Malakar. Corona virus -A Review Article. Acta Scientific Dental Sciences 4.5 (2020): 10-12.

[10]. Dharmendra Kumar, Rishabha Malviya, Pramod Kumar Sharma. Corona Virus: A Review of COVID-19. EJMO 2020;4(1):8–25.

[11]. Kumar, N., & Singh, A. K. (2015). Trends of male factor infertility, an important cause of infertility: A review of literature. Journal of human reproductive sciences, 8(4), 191–196. https://doi.org/10.4103/0974-1208.170370.

[12]. De Andrade Cairo RC, Rodrigues Silva L, Carneiro Bustani N, Ferreira Marques CD. Iron deficiency anemia in adolescents; a literature review. Nutr Hosp. 2014 Jun 1;29(6):1240-9. doi: 10.3305/nh.2014.29.6.7245. PMID: 24972460.

[13]. Ara S. A literature review of cardiovascular disease management programs in managed care populations. J Manag Care Pharm. 2004 Jul-Aug;10(4):326-44. doi: 10.18553/jmcp.2004.10.4.326. PMID: 15298531.

[14]. Dong R, Wan B, Lin S, et al. Procalcitonin and Liver Disease: A Literature Review. Journal of Clinical and Translational Hepatology. 2019 Mar;7(1):51-55. DOI: 10.14218/jcth.2018.00012.

[15]. De Cicco, P., Catani, M. V., Gasperi, V., Sibilano, M., Quaglietta, M., & Savini, I. (2019). Nutrition and Breast Cancer: A Literature Review on Prevention, Treatment and Recurrence. Nutrients, 11(7), 1514. https://doi.org/10.3390/nu11071514.

[16]. Harrop, J. P., Dean, J. A., & Paskett, E. D. (2011). Cancer survivorship research: a review of the literature and summary of current NCI-designated cancer center projects. Cancer epidemiology, biomarkers & prevention : a publication of the American Association for Cancer Research, cosponsored by the American Society of Preventive Oncology, 20(10), 2042–2047. https://doi.org/10.1158/1055-9965.EPI-11-0673