

## **Cardiac changes seen on ECG associated with life-threatening factors for heart failure in older people.**

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### **Abstract**

The product of clinical scientific research was encouraging based on scientific foundations to reduce heart disease, especially heart failure, the most important topic of the research. We dealt with all aspects that affect the patient, the ability to correct diagnosis, treatment protocol, management, and the new technique, and the most widespread geographical patch, in reducing deaths and identifying the most important real causes before Time we randomly collected 910 patients from the majority of people 650 patients from ages 50-59 of both sexes) and ages over 60 years 310 patients (180 men and 80 women) in Iraq are in Samawah in the General Teaching Hospital / and the Specialized Center for Chronic Diseases for the period between 2019-2020 for a period of one year and four months The societal structure, the short life of people, the most heart diseases and their complications, heart failure is the most concerned with chronic diseases and the most deadly of people .. The patients of the patients from all departments of the hospital, the inpatients, and in severe cases, the ICU is under our eyes, In forensic medicine, for the autopsy of the deceased in heart diseases or heart and stroke, and the most common death and taking into account the use of the drug and the extent of its use correctly and the diagnosis of the true illness of patients with heart failure are all reflected on the patient negatively or positively, we used mathematical calculations and equations that calculate the cardiac out pit if high or Low formula

1) **high output heart failure There is an formula to calculate :**

**[CO = HR X SV [ CO – cardiac output in one minuet , HR-heart rate , SV-stroke valium ] .**

2) **HF with Depressed Ejection Fraction (<40%)**

**LVEF = stroke valium / Ventricular fullness = 70 ML / 120 ML = %58 ( EF )**

**Normal**

In addition to the important methods of routine laboratory examinations, radiography, Echocardiography , effort, halter , stress, and therapeutic peacemaker, cardiac catheterization, transferring the patient to heart surgery according to the case, we used important strategies 1) Early warning of patients about controlling and detecting heart diseases, chronic diseases, pressure, diabetes, other acquired and unearned diseases, transmissible diseases, patient preparedness, violent conflict for life, and the patient's psychological state of inability to withstand accidents and pollution of the environment surrounding continuous wars, pollution, radiation, and radioactive elements present in the remnants of wars .. Eliminate the maximum possible risk factors . It was prominent for us by developing a treatment and preventive plan and protocol until the patient reached the control stage, put the patient on the periodic table, periodic reviews, and stabilized the patient's condition for safety. 2) The second strategy is for patients with heart failure over the age of 60 who are most concerned and complex to receive patients with complications, risk factors, and organ damage .. the most prominent of which are coronary artery disease. And cardiac and valvular abnormalities, rheumatic heart fever, cardiomyopathy, and chronic diseases that significantly advance the disease, with heart disorders, the most prominent of which are cases Atrium fibrillation , Atrium flutter , ventricle tachycardia , ventricle fibrillation , The death-threatening patient that appears on ECG and we used an formula to try to calculate cardiac subtraction and injection fraction :

[ HF = CO + EF +valve +LV,RV dysfunction + Control chronic disease + Biomarkers ,Electrolyte balance + Drug therapy ] .

And cardiac condition, intra cardiac anomalies, aneurism heart , cardiac muscle valves Cardiac chordae, And calculate LV,RV dysfunction It is possible to treat the patient's condition, a strict treatment plan, by eliminating the risk factors, the psychological state of the patient, administering drug treatment as indicated in the research. And when administering digoxin in cases of heart failure, the observed change in ECG as shown clearly in the table Rehabilitation of the patient, stabilization of his condition and prolonging his life as far as possible inside the hospital and after his discharge and recovery period putting the patient on the control using the treatment protocol supported by the international scientific references, the World Health Organization and the American Society of Cardiology, and the assessment of the country and city and the scientific and technological capabilities in place according to the indications Which monitored 43% of the medical staff and organized medical work and 57% They are borne by health care, limited income, technology, infrastructure, prescribed medicines, environmental factors, genetics, the ability to treat diseases and their exacerbations, the available capabilities, the changes we have seen with the results, the percentage of disease decline and its accompaniments. ECG, Echocardiography , radiation, and high-technic therapeutic methods to work and fill gaps in poor diagnosis, use of devices in a better way, and cardioprotective drugs play a decisive role in treatment, as shown in the research, tables, statistical data, and strategies that we have worked with, which had the greatest effect in reducing mortality to the maximum extent possible from worsening heart failure And the dimensions of its complications ... the mortality rate decreased by 32%, stroke 25%, and sudden cardiac arrest 19%, according to the data, analyzes and statistics that we have collected, the changes that have occurred and the remarkable improvement ... and the patient's return to their normal life under periodic monitoring of patients among his family and relatives.



## Keyword

Heart failure , cardioprotective drug , ECG, Echocardiography , patient , pacemaker , cardiovascular disease , symptomatic drug , Cardiac catheterization , Rehabilitation , formula ( HF) , Protocol treatment , Strategic program , chronic disease , hospitalization .

## **Objective / purpose**

The aim of the research is the provisions for maximum control of mortality in cardiovascular diseases, especially heart failure and its complications, linking work to approved international scientific references, and using a technique for cardiac and arithmetic equation of cardiac subtraction( cardiac out put) , And (injection fraction), And according to the level and nature of the heartbeat, the ECG algorithm, the Echocardiography , and the control of chronic diseases, the use of a precise working strategy system, and the cardio protective system of safe and accurate medicines, according to the health and technology potential of the city and the country in which we work and the economic level of the country and the individual.

## **Introduction**

The global development and the urgent need in practice to reduce heart disease and its severity, especially heart failure that causes death and is the most prevalent in our world, <sup>[1]</sup> especially people of limited and middle income, who suffer from violent life struggles that negatively affect their health and the health of society, our main goal is to set an early strategic program With the dimensions of risk factors, controlling chronic diseases, and not prematurely exacerbating the disease to more complex cases.<sup>[2,3]</sup> especially the elderly whose conditions must be taken into account and the dynamic balance between medication and treatment and the state of disease that afflict our work is to reduce deaths and their incidence, our work will be essential on heart failure and chronic diseases leading (heart flair) and on the environment surrounding humans from pollution, wars and the radiation emanating from them.<sup>[5,6]</sup> What prompted us to evaluate the cases and all the academic references that we use as a guide to action and for further evaluation and other disorders outside the cardiovascular system that are expressed in the form (septum and symptoms), so its definition, Heart failure (HF) is a clinical syndrome that occurs in patients who, because of an inherited or acquired

abnormality of cardiac structure and/or function,<sup>[4,7]</sup> develop a constellation of clinical symptoms (dyspnea and fatigue) and signs (edema and rales) that lead to frequent hospitalizations, a poor quality of life, and a shortened life expectancy.<sup>[8,9]</sup> It is described when the condition develops when the heart is unable to maintain adequate cardiac output to meet its needs and obligations towards the body when undertaking an effort, exercise or any form of stress, and is divided into:

2) **high output heart failure** **There is an formula to calculate :**

**[CO = HR X SV [ CO – cardiac output in one minuet , HR-heart rate , SV-stroke valium ] .**

(HR)<sup>[10,11]</sup> Therefore, when the blood volume increases despite the blood being pumped a lot, but it does not meet the purpose after a period of time the patient enters into major problems that lead to death the reasons : Acute anemia, hyperthyroidism T3 and T4 ,TSH , By stimulating the heart muscles and increasing the stimulation of Adrenergic Nerve sympathetic, Thymine ( Vitamin B1), helps break down glucose in the mitochondria to produce energy , Artery vein facula (shunt), renal disease , But there are normal cases of increased heart rate (pregnancy, stress ,Hyperthermia, Exercise <sup>[12,13]</sup> , 2) **HF with Depressed Ejection Fraction (<40%)** , The calculation of (EF) shall be according to this Formula :

**LVEF = stroke valium / Ventricular fullness = 70 ML / 120 ML = %58 ( EF )**

**Normal**

**It** indicates the inability of the left ventricle (LV) to push the required amount at the same normal speed due to changes in its size, shape and composition that occur after ischemic <sup>[15,16]</sup> to the heart or conditions of abnormal load on it and the mechanical burdens that the changes generate, which creates a burden on the failed heart, as the heart begins to thin and expand To increase the subsequent load resulting from the stretching of the low voltage to a functional mismatch that contributes to reducing the volume of the heart stroke and the problem is the change in the shape of the ventricle and the change in the papillary muscles in their inefficiency reflected on the efficiency of the mitral valve, To contribute and

increase the hemodynamic load, all of which are sufficient to contribute to the progression of HF,<sup>[17,18]</sup> Therefore, the **\*true neurological** cause associated with causing heart failure results in reduced ejection fraction. Heart failure begins after an event that results in an initial indication of a decrease in the heart's pumping ability.<sup>[19,20]</sup> After this initial decrease in pumping capacity, a variety of compensatory mechanisms are activated, including the adrenergic nervous system, the renin-angiotensin-aldosterone system, and the cytokine system. Short term, These systems are able to restore cardiovascular function to the normal homeostasis range resulting in the patient remaining asymptomatic. However, over time, the continuous activation of these systems can lead to secondary damage to the peripheral organs within the ventricle, with the remodeling of the left ventricle worsening.<sup>[21,22]</sup> And the subsequent compensation of the heart. As for the most important reasons, HF Structure of Heart or valve Anatomic Defect, Ischemia (CAD), PMP EF, so symptoms appear Paroxysmal Nocturnal Dyspnea (PND), Cheyne-Stokes Respiration (Apnea and elevation phase PCO<sub>2</sub>), Jugular Veins, Cardiac Cachexia, tachypnea.

## Cardio protective

They are the drugs that maintain the rhythm and regularity of the heart, protect against angina, heart disease and heart failure, and reduce the risk of the patient entering the hospital, and play a crucial role in treating heart diseases, the most important of these drugs:



Table: 1

N <sup>o</sup>	Group drug (cardio protective)
1.	Angiotensin converting enzyme (ACEI) .
2.	Angiotensin receptor block 2 ( ARBs ) .
3.	B-Blocker .
4.	Calcium channel block ( CCB <sub>2</sub> ) .
5.	Anti-platelet .
6.	Anti-coagulants blood .
7.	Anti-lipidemia .
8.	Diuretic drug
9.	Aliskrin drug
10.	Nitrate drug .
11.	Anti-arrhythmic drug .
12.	Inotropic drug .
13.	Vasodilation drug .

14.	Thrombolytic drug
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Table: 2

**Etiologies of Heart Failure****Depressed Ejection Fraction (<40%)**

<b>Coronary artery disease</b>	<b>No ischemic dilated cardiomyopathy</b>
<b>Myocardial infarction</b>	<b>Familial / genetic disorders</b>
<b>Myocardial ischemia "</b>	<b>Infiltrative disorders</b>
<b>Chronic pressure overload</b>	<b>Toxic/drug-induced damage</b>
<b>Hypertension</b>	<b>Metabolic disorder</b>
<b>Obstructive valvular disease</b>	<b>Viral</b>
<b>Chronic volume overload</b>	<b>Chagas' disease</b>
<b>Regurgitant valvular disease</b>	<b>Disorders of rate and rhythm</b>
<b>Intracardiac (left-to-right) shunting</b>	<b>Chronic bradyarrhythmias</b>
<b>Extracardiac shunting</b>	<b>Chronic tachyarrhythmias</b>

**Preserved Ejection Fraction (> 40–50%)**

<b>Pathological hypertrophy</b>	<b>Restrictive cardiomyopathy</b>
<b>Primary (hypertrophic cardiomyopathies)</b>	<b>Infiltrative disorders (amyloidosis, sarcoidosis) .</b>
<b>Secondary (hypertension)</b>	<b>Storage diseases (hemochromatosis)</b>
<b>Aging</b>	<b>Fibrosis, Endomyocardial disorders</b>

**Pulmonary Heart Disease**

<b>Cor pulmonale</b>	
<b>Pulmonary vascular disorders</b>	

### High-Output States

<b>Metabolic disorders</b>	<b>Excessive blood-flow requirements</b>
<b>Thyrotoxicosis</b>	<b>Systemic arteriovenous shunting</b>
<b>Nutritional disorders (beriberi)</b>	<b>Chronic anemia</b>

## Materials and method

The work was encouraging based on scientific and clinical foundations to come up with results that limit heart disease, especially (HF) for what patients suffer and the direct impact on the country's economy and health system .Therefore, the majority of the people who are exposed were gathered (HF), A group of both sexes from ( 50 - 59 ) years old .. and the elderly over 60 years old randomly in the General Teaching Hospital in Iraq / and the Specialty Center For chronic diseases in the city of Samawah because of its negative effects on the societal structure of the city and their short life. The number of patients is (910) patients, divided in the form For chronic diseases in the city of Samawah because of its negative effects on the societal structure of the city and their short life span, the number of patients is 910 patients, divided in the form (650 patients of both sexes from 50 to 59 years) .. (men have 180 patients and women 80 patients after the age of 60 years or above) Between year (2019-2020) For a period of one year and four months, the follow-up and collection were carried out from outpatient clinics, emergency and resuscitation, the complete history of the disease, the history of patients who died of this disease and the most important real causes of death in forensic medicine, and the study of the general framework to determine the problem is one of the most important real causes of poor diagnosis and the development of cases .. and loss of warning It works with early and controls heart rhythm and associated diseases (chronic), And congenital anomalies .. The most prominent of death from the autopsy was cardiomyopathy, expansion and expansion of the ventricle and heart valves, defect and abnormalities in the heart muscle and muscle cords of valves, sudden blood clots associated with the immune system and internal and external effects of people, in addition to the



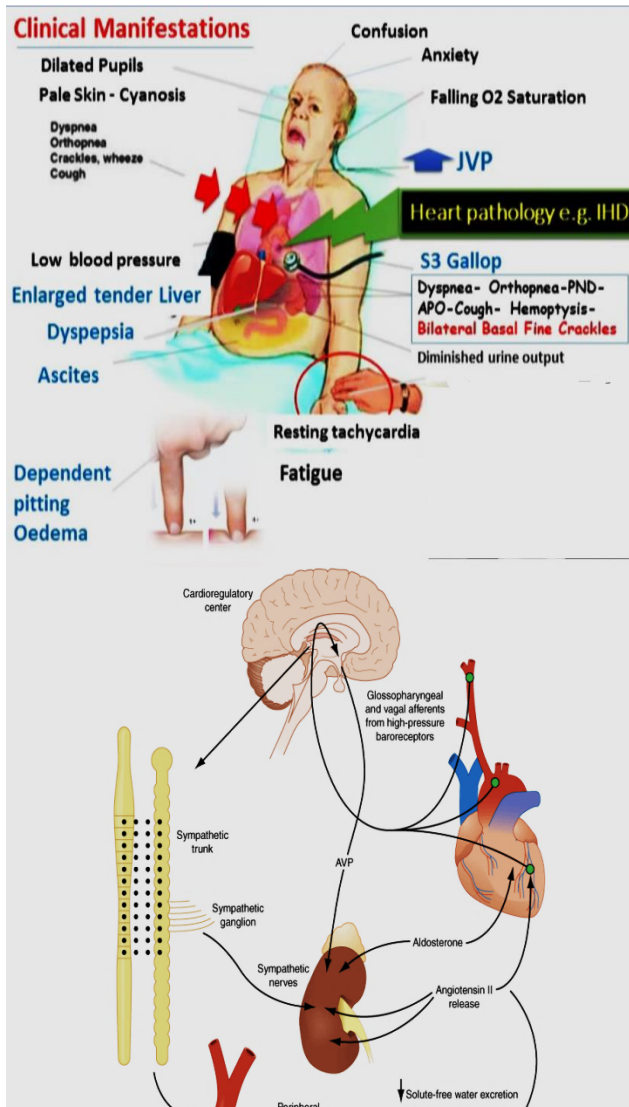
misuse of chemical drugs that have an effect on patients, which led To the deterioration of the condition (struck) leading to death, **We used \*a primary strategic system**: it is to place the patient with all measurements under the control by periodically reviewing and keeping the risk factors away from the patient and controlling chronic diseases (high blood pressure, diabetes, heart disease (coronary arteries), Polycythemia, bronchial asthma, renal disease , liver diseases, and infection diseases) , By laboratory examination, radiological and Cardiac catheterization , pacemaker, Voltage test, Heart monitor, ECG, Echocardiography study ,carotid test , Jugular Veins, Abdomen and Extremities, And controlling the patient's psychological state, dietary pattern, taking treatment and periodic review, to be under control and most patients of the ages were (50-59 years), As for the patients who are more important and focused and have more care, they are (HF) who suffer from illness and whose lives are threatened by danger and death when they are over 60 years old, **\*Second strategic action**: Patients were more interested in calculating (Cardiac output ), Echocardiography(Injection fraction aneurysm, LV defection, RV defection, cardiac valve placement, Ischemia , hypokinase), Cardiomyopathy, Chronic diseases and his disease history, and control the symptoms that appear on the patient, psychological state (despair) and treatment, admission of the patient to the hospital, broadcast hope and longevity of the patient, determination of the degree of disability of the patient, removal of risk factors, chest X-Ray , heart shape, edema of cracking in the chest ,The presence of water, swelling in the foot, Jugular vine , then the patient's delivery to the control phase continues with the strict treatment of what the patient's life poses to danger .. The men had the largest share and deterioration of their condition from the women and we try to limit the disease to the narrowest place we used the formula : -

$$[ HF = CO + EF + valve + LV, RV dysfunction + Control chronic disease + Biomarkers , Electrolyte balance + Drug therapy ] .$$

They were the patients who responded to treatment and their health improved in the corridor and a rehabilitation process began for them, either the worse patients or heart disorders ( FA atrium fibrillation, atrium flutter , VF ventricle fibrillation) threatened death to I.C.U unit , For follow-up and treatment of critical cases, we used cardiac drugs (Cardio Protection), according to the patient's condition with

extreme accuracy and according to the sequence: 1) Diuretic (Farsi med, spironolactone , Combination ) , 2) ACEI drug , 3) Vasodilation( hydralazine + Nitrate) , 4) B-blocker ( Preferred Carvedilol 3.125) , 5) Cardiac glycoside (digoxin ) Take with caution the last thing at a dose of 0.25 with 2 days per week Holyday, Half Life 48 hours. Its effect may slow down. In more effective cases, increase the dose for one day only. Start 1 tablet in the morning and 1 pill in the evening only, after which only one tablet per day with Holiday ), 6) thiamin vitamin B<sub>1</sub> 7) Dopamine , 8) Amarin -This is a small drug and rare to use Merinol in the case of Acute ( HF) only for a period of 24 hours only alternative to digoxin , It is noted that it was in the case of (HF) with AF and any atrium flutter of the preferred drug Digoxin , , In addition to the use of Symptomatic medicines for patients, you are Anti - allergic, Anti- depressant, Anti-spasmin , fluid , Atropine, thyroxin 25 ,50,100, carbimazole 5mg ,Insulin soluble, lente , mixture , sulfonylurea Daniel 5mg , DPP-IV ,metformin ,Plavix tab 75mg , heparin .warfarin ,thrombolytic (Acetyl's ) , In resuscitation it is given morphine , pathdin , Therefore, we monitored the most important variables that fall on the responsibility of the medical staff, % 43 and %57 on health care, income, technology and infrastructure. The prescribed drugs, environmental and genetic factors, the ability to treat patients, and the capacity available to the country in which we work , Important aspects were among the most important findings of our findings .

**(( Neurological functional change ))**



- 1) After we combined our results analyzes for patients, the 12-lead electrocardiogram (ECG) was a useful tool for predicting both atrial and ventricular arrhythmias via P-wave measurements and QT, QRS, T, and its derivatives. Slight disturbances in the depolarization and repolarization of the heart with a tachycardia, an elevation in the QRS segment greater than 120

mm Sec, in addition to sporadic disturbances, most notably atrium fibrillation, atrium flitter , VT tachycardia , expansion of Wave- p, T-Inversion , ST Slowing depuration, , ST Elevation, change in precordium , Myocardia, Block Heart.

**After using Cardio glycoside, change ECG is as follows:**

**Tablet : 3**

Noticing changes after taking digoxin Electrooculography (speed 25mm /sc)

N <sup>o</sup>	ECG WAVE	Data of change	Cardiac change
1.	Slow passage of the p-R segment .	p- min $\leq$ 0.120 ms p-mix $\geq$ 0.120 ms	I left atrial hypertrophy
2.	2. Prolong p-R segment .	Hallmark p-r $\geq$ 200 ms	Medication effect
3.	ST Depression Myocardial Stream .	Change myocardial Ischemia	Digoxin effect
4.	T- Inversion .	Change precordial ischemia	Digoxin effect
5.	Q –T Short .	$\leq$ 300 ms Refractory period short	Digoxin effect
6.	Arrhythmia is possible at any time. Anyone, see me.	Disturbance rhythm	Digoxin effect
7.	QRS interval is narrow .	$\leq$ 100ms Refractory period	Digoxin effect
8.	Normalization pressure BP	Ejection fraction	Digoxin effect
9.	Heart Rate	72 $\pm$ 10	Digoxin effect
10.	Q wave	< 3ms deep	No effect

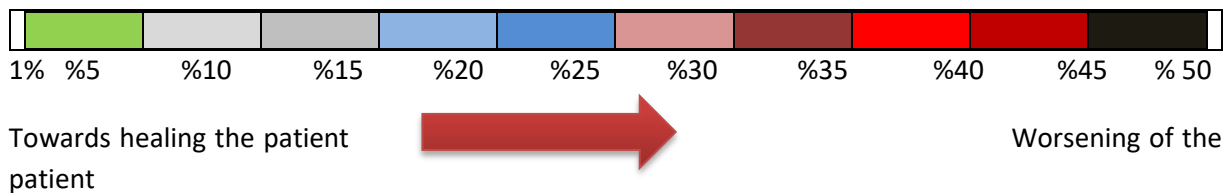
## Result

Through continuous work and thinking about solutions by analyzing the data that contribute to the strategy, working to support our work to reduce heart failure, the result was that we used a primary strategy and put the patient in a stable condition, and the second strategy that the patient's condition after 60 years and the most complex to exacerbate the condition... all the routine and radiological analyzes,

the strict monitoring, the integrated treatment plan and the accuracy, using a therapeutic technique and the used Cardioprotective drugs in the order and strength of diagnosis and monitoring, with the improvement and condition of the patient gradually reaching the stage of continuing treatment and medication, rehabilitating the patient and extending the patient's life longer .. and safer the patient reaches Periodic monitoring of chronic diseases contributes to reducing the disease and its exacerbation, and the most important and prominent diseases that cause the development of the patient's condition are: ) Cardiovascular disease 15% > , 2) Rheumatic fever 6% > 3) Cardiac muscle weakness and diabetes mellitus 16% > 4) Cardiomyopathy and cardiac valve anomalies 9% > The main results were as follows:

Tablet : 4

The results that have a high impact to save the patient's life and reduce mortality to the lowest level



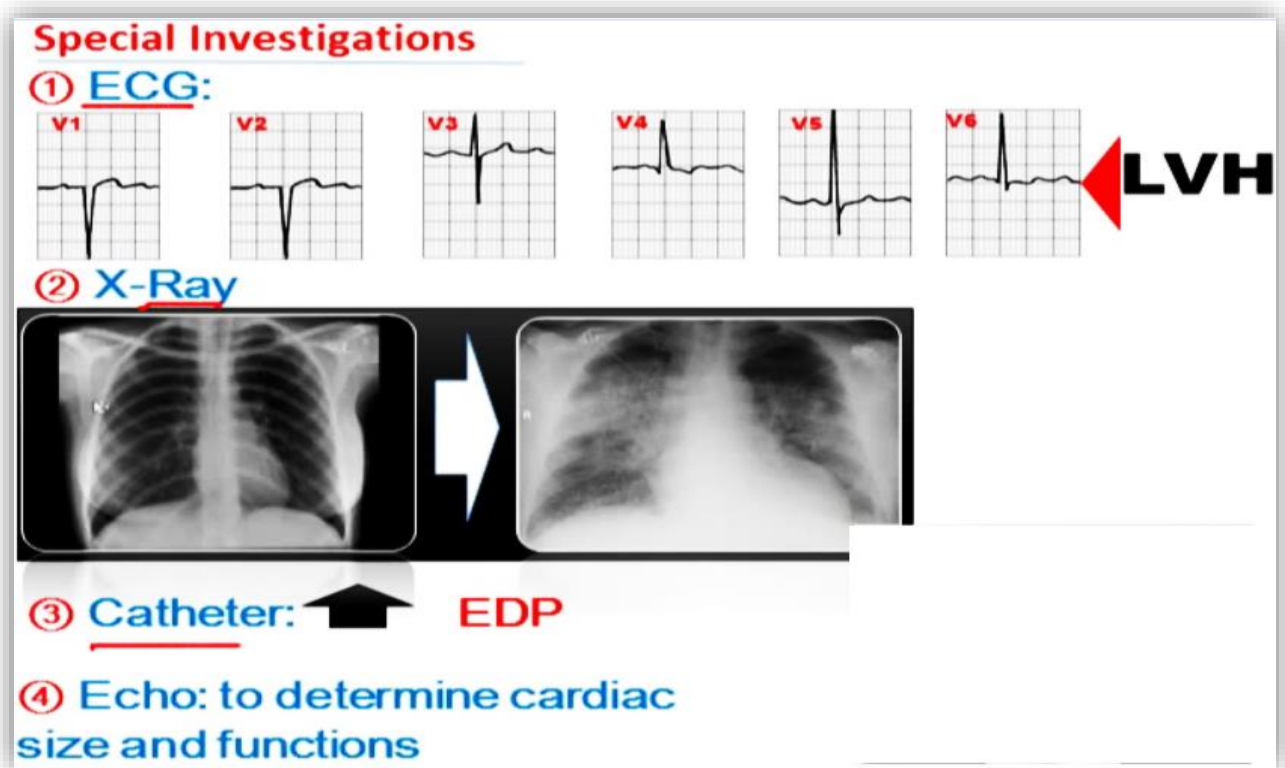
A	Pathological case	Patients are between 50-59	After 60 years women	After 60 years men	Final evaluation
1.	Factor Risk	↓ %35	↓ %32	↓ %30	% 32
2.	Protocol treatment	Improvement	Improvement	Improvement	% 68
3.	chronic diseases	↓ % 43	↓ %37	↓ %35	% 38
4.	Psychology	Improvement	Improvement	Improvement	% 77
5.	Biomarker test	Normal %85	Normal %75	Normal %65	% 75
6.	Chest –x-Ray	Improvement	Cardiomegaly % 5	Cardiomegaly % 7	% 6
7.	Cardiac catheterization	% 4	% 4	%8	% 5
8.	Pacemaker	% 0.2	% 2	%2	%1.7
9.	Arrhythmia	↓ %65	↓ % 70	↓ % 50	% 60
10.	Atrium fibrillation	↓ % 82	↓ % 72	↓ % 68	% 74
11.	Atrium flutter	↓ %85	↓ % 80	↓ % 75	% 80
12.	Heart block	↓ % 75	↓ % 65	↓ % 55	% 65
13.	Pulmonary embolism	↓ % 85	↓ % 80	↓ %70	% 78
14.	Edema	↓ % 85	↓ %85	% 70	% 79

15.	High out put	↓ % 70	↓ % 75	↓ % 70	% 72
16.	Low out put	Normal	Improvement	Improvement	%70
17.	Valve defect	%3	%9	6%	% 7
18.	body mass index (BMI)	↓ %24	↓ %12	↓ 4%	%12

Tablet : 5

The percentage of the most important clinical strategy variables for patients (heart failure)

B	Data Clinical trials	Patients are between 50-59	After 60 years women	After 60 years men
1.	Admission to the hospital	Pt : 6%	Pt : 22%	Pt: 28%
2.	Clinical variants	%12	%22	%30
3.	Systolic blood pressure	Reduce 24 %	Reduce % 26	Reduce %29
4.	Diabetes mellitus	Reduce %22	Reduce %23	Reduce % 26
5.	Kidney disease	Reduce % 8	Reduce %10	Reduce %15
6.	Tobacco	Reduce %9	Reduce% 3	Reduce 18%
7.	Alcohol	Reduce %5	Not use 0%	Reduce% 6
8.	Chronic obstructive pulmonary	Reduce %4	Reduce %6	Reduce %7
9.	Left ventricular insufficiency	Improvement	Improvement	Improvement
10.	Pulmonary Hypertension	Reduce % 5	Reduce %6	Reduce %8
11.	CAD , MI	Reduce %12	Reduce %20	Reduce %26
12.	Heart valve defect	Surgery	Surgery	Surgery
13.	Hyperthyroidism	Improvement	Improvement	Improvement
14.	Hypothyroidism	Improvement	Improvement	Improvement
15.	Retina examination (cataract)	Surgery % 3	Surgery %7	Surgery %9



## Discussion

The work was advanced and useful in all the scientific and technological capabilities and the desired results with the scientific support of the global references and the clinical work to face all conditions everywhere in emergency, outpatient consulting, resuscitation, heart attacks and disease history. Chronic, cardiac malformations, acquired and unearned heart diseases. which calls for converting it to heart surgery in a timely manner ... The weakness of diagnosis and early action was the first seed and the real start on which we relied on the good doctor for all segments of society with responsibility and duty and to determine the geographical area and the effects of the environment, heredity, customs and traditions of the population, food, excessive medicine. Hospital review, education about heart disease and its avoidance, poor social life and limited income, have practically contributed to the results for simple people, And the transfer and transformation of the infrastructure for organized health work from suffering to organization and appropriate treatment, the seriousness of fatal heart diseases, sudden death, and the death rate that leads to deterioration for social and

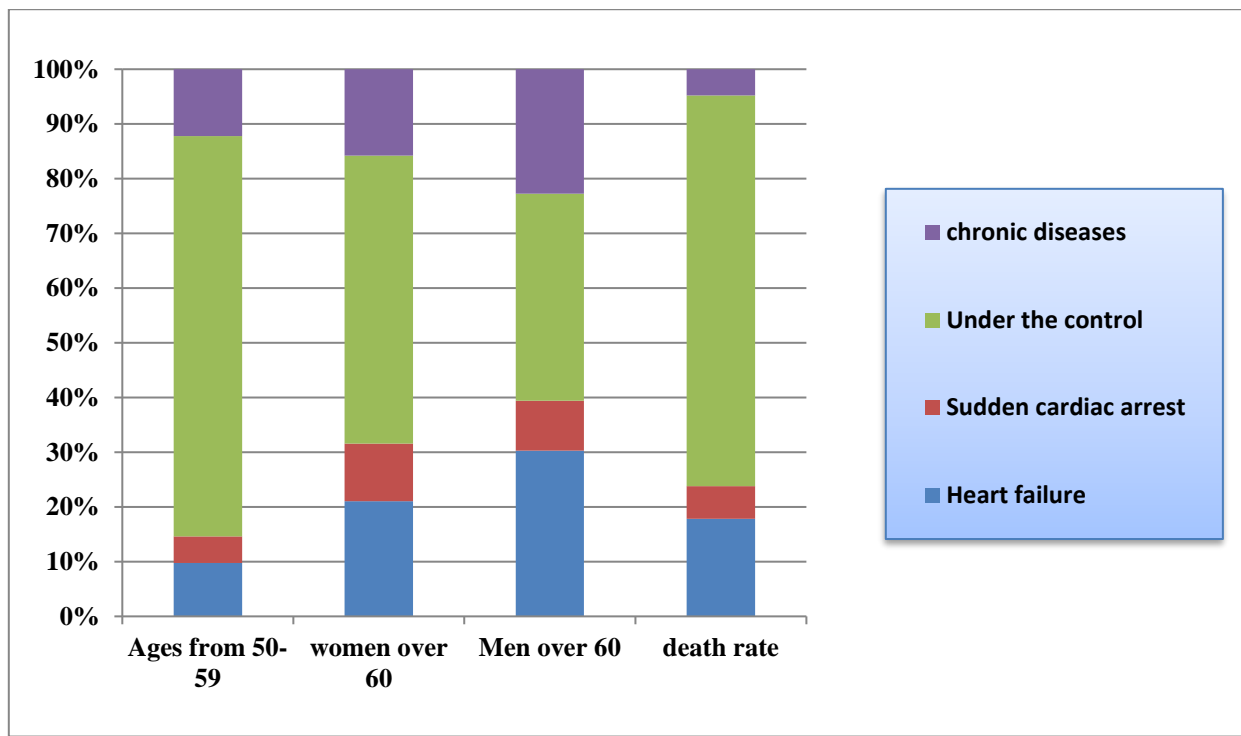
international reasons related to support for heart disease and the shift to advanced scientific development. It was the most hope and goal for us .. and when we touched it on the practical and technical side, identifying the heart deficit in the early stages and collecting all the risk factors that exacerbate the patient's condition and keep it away, he used treatment technique, patient communication technology Conversely, the technology used cardiac devices to identify cardiac disorders, coronary artery diseases, cardiac valve diseases, cardiomyopathy, echocardiography, placing the peacemaker in cases of necessary cardiac blocking and the use of cardiac catheters. Cardiac failure and its complications, which determine the patient's movement from work and the daily activities. In the most dangerous way, the patient is impeded and cannot work from here. Raising the efficiency and stability of the heart is a requirement. And sorting out the obstacles that we touched during work, so we adhered to the treatment strategy before and after the patient improved the system that strengthened work and reduced deaths to the lowest level in pursuit of the goal for which we worked, and following a protocol that helps and preserves the patient's life and reduces the percentage of deaths and critical cases that exhaust the patient, the hospital and the state economically .. The work is positive and wonderful, by reducing practical difficulties and linking them to the scientific and scientific aspects International scientific references. Especially when seeing patients have regained their health and their lives again among their loved ones and loved ones.

## **Conclusion**

From the balance, the scientific effort, the real practical idea that started and the urgent need to develop further in preserving the lives of patients from heart failure and its complications, we worked on important strategies 1) early warning, correct diagnosis, removal of risk factors, and the patient's transition to medical stability prematurely before the disease develops and is under control The periodic review .. 2) The second most complex strategy for the cases received in the hospital, the patient's condition is bad, risk factors, social factors, and neglect in his healthy life, It has been focused on and confined to a strict and regulated operational protocol that controls risk factors, pressure, cardiac malformations and valves and ( LV , RV) dysfunction , Cardiac output , ejection fraction , Cardiac catheterization, Pacemaker, and the real balance of the patient's Psychology



condition, providing him with a treatment protocol in the hospital and outside the hospital, a treatment system that continues with him in the long term, and taking the necessary measures that the patient may need in the internal and cardiac department, and the surgery department and improving the patient's condition. .. all of these things significantly contributed to the patient's apparent improvement and the rehabilitation of what could be saved by the affected organs of the kidneys, the retina of the eye, blood sugar, cardiac and thoracic edema, the foot, and coronary arteries, according to the available capabilities, the external balance of damage, exposure to risk factors, genetics, the environment surrounding the patient and his complaints. The internal procedures involved in the practical procedures, providing the correct medical service, standing on the real illness causing the disease and the patient's transition to the stage of stability and periodic follow-up and extending the patient's life to the extent possible in prevention, treatment and responsibility towards the patient's life, Which boosted the reduction in mortality by 32%, stroke by 25%, and sudden cardiac arrest by 19%, according to the data, analyzes and statistics we have collected that appear in the research.



The graph that shows boosted deaths by 32%, stroke by 25% and sudden cardiac arrest by 19%

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