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Heart Attack Chances Prediction Model

Introduction: We are going to build a model to predict the chances of having heart attack among people

with the following symptoms:

Chest Pain: Discomfort in the chest including a dull ache, a crushing or burning feeling, a sharp stabbing pain and pain that radiates to the neck or shoulder.

Types of Chest Pain

i> Typical Angina

ii> Atypical Angina

iii> Non-Anginal chest pain

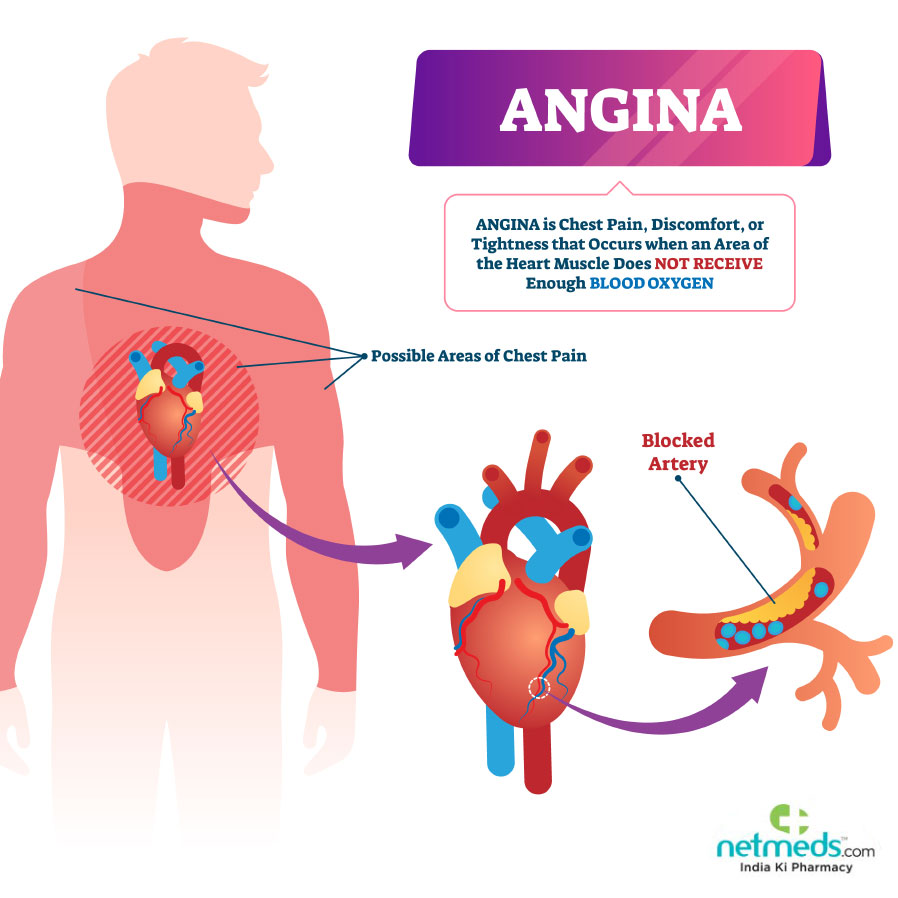
iv> Asymptomatic chest pain

Objective: The objective of the model is to predict the chances of having heart attack among human beings

with the above mentioned criterions based on the given dataset for heart attack with utmost accuracy.

Let’s define the above mentioned factors which can directly or indirectly affect our chances of having a heart attack.

Angina: Is the discomfort/uneasiness in chest.There are four types of Angina which are as follows:



a> Typical Angina: Is the high sensation of chest pain.

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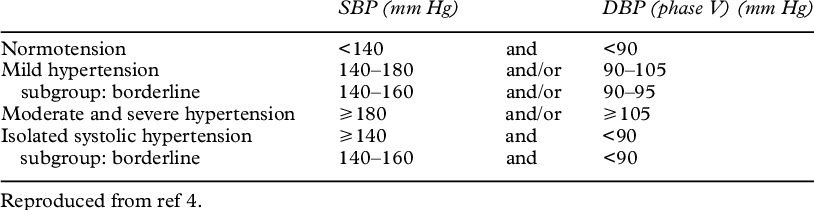
c> Non-Anginal chest pain: Is a term used to describe chest pain that resembles heart pain in patients who do not have heart disease.

The pain is typically felt behind the breast bone (Sternum) and is described oppressive, squeezing or pressure like.

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with absence of Angina symptoms.

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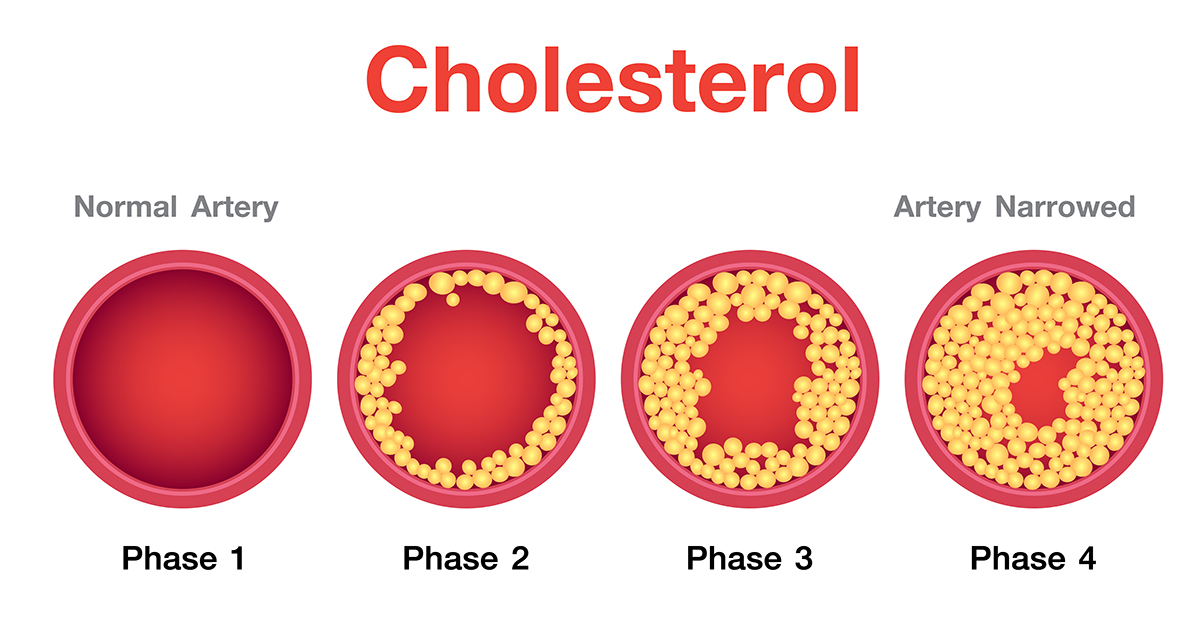


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Good Cholesterol (H.D.L.)

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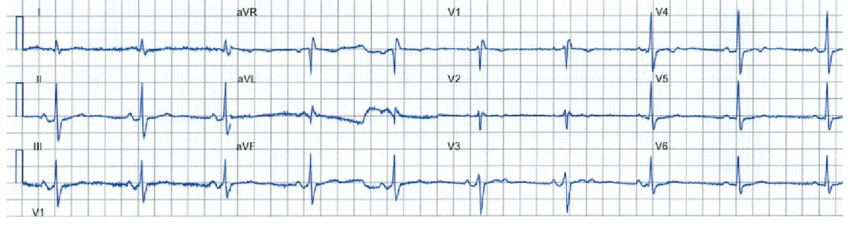


viii> F.B.S.: Fasting blood sugar

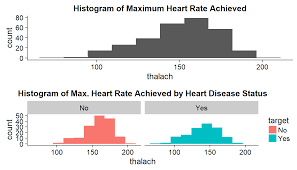
Normal Range: 100-125 mg/dl

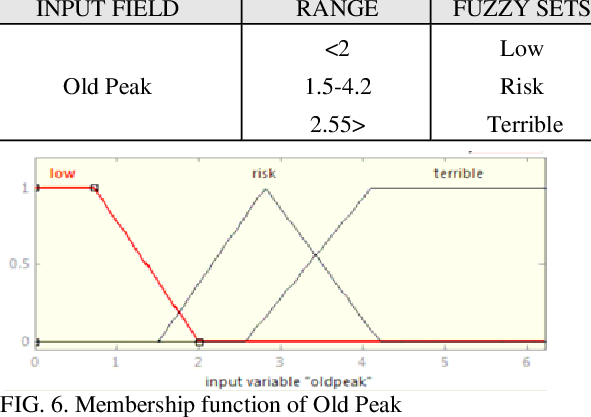


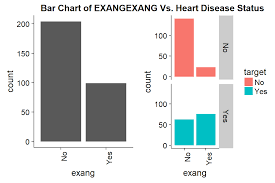
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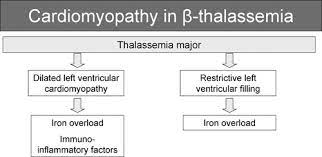
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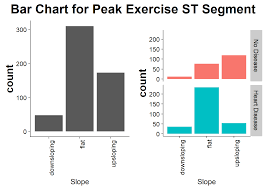
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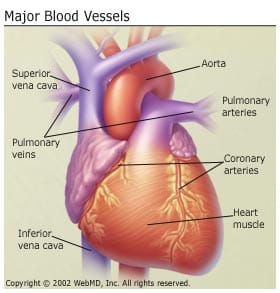
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xv> Ca-coronary artery: Major vessels at heart aorta.



Superior venacava

Inferior venacava

Pulmonary veins and arteries

Coronary arteries

|  |  |  |
| --- | --- | --- |
| Features | Description | Data type |
| Sex | 1=Male,0=Female | Categorical |
| Chest Pain | Chest Pain | Categorical |
| Angina | Is the discomfort/uneasiness in chest. | Categorical |
| Typical Angina | Is the high sensation of chest pain. | Categorical |
| Atypical Angina | Is when there is non-cardiac chest pain. | Categorical |
| Non-Anginal Chest Pain | Is a term used to describe chest pain that resembles heart pain in patients who do not have heart disease. | Categorical |
| Asymptomatic Chest Pain | Defined as the typical E.C.G. changes recorded on an ambulatory E.C.G. monitoring depicting underlying ischemia with absence of Angina symptoms. | Categorical |
| Trestbps | Resting blood pressure. According to modern research if anyone is having more blood pressure then there would be more no. of blood vessels in the heart which could lead to clotting of blood in the heart or in the stain. | continious |
| Cholestrol | : Is an important ingredient in our body which produces fatty cells in our body. There are two types of cholesterol :  Good Cholesterol (H.D.L.)  Bad Cholesterol (L.D.L.) | continious |
| FBS | Fasting blood sugar  Normal Range: 100-125 mg/dl | continious |
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| Exang | Exercise induced Angina. Stable Angina is usually triggered by physical activity like when you climb stairs, exercise or work your heart demands more blood but narrowed arteries slow down the blood flow. It is called Exang. | categorical |
| Thalassemia | It is a blood disorder. The heart cannot pump enough blood. | categorical |
| Slope | The ST segment merge due to excessive exercise. The ST segment shift relative to exercise induced increments in heart rate. The ST/heart rate slope expressed as a more accurate E.C.G. criterion for diagnosing significant coronary artery disease. | categorical |
| Ca-Coronary artery | Major vessels at heart aorta.  Superior venacava  Inferior venacava  Pulmonary veins and arteries  Coronary arteries | numerical |