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Effective Diagnosis of Diseases through Symptoms Using Artificial Intelligence and Neural Network

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ABSTRACT

In this Research paper is based on artificial intelligence. Artificial Intelligence means learn by knowledge. In this research mechanism for artificial doctor that based on knowledge based. This artificial doctor has the capability to give possibilities of all diseases on the basis of symptoms of patient. It's like an assistant doctor with more intelligent's. This mechanism asks the patient about the symptoms. On the basis of those symptoms it will suggest about the possibilities of diseases. This mechanism helps to doctor to identify the disease of the patient. It will also ask about the previous and family history. This mechanism gave the result by studying the previous treatment also, so it takes every possibility of diseases. And it will also alert the doctor for the medicine which cannot be given to the patient.

Keywords *– Artificial Neural Networks, General Disease Diagnosis, Medical Diagnosis, Medical Knowledge, Neural Networks*

I. INTRODUCTION

MEDICAL diagnosis always has been an art: we remember famous doctors as well as famous painters or composers throughout the history. Again, who is called an artist? A person who can carry out something those others cannot, and that is exactly what a good physician does during a medical diagnosis procedure. He (or she) employs his educations, experiences, and talent, to diagnose a disease. A diagnosis procedure usually starts with the patient complaints and the doctor learn more about the patient situation interactively during an interview, as well as by measuring some metrics such as blood pressure or the body temperature. The diagnosis is then determined by taking the whole available patients status into the account. [1]

AI doctors different from human doctors but they aren't limited by human capacity. AI doctors, having millions of points of data to draw on, will remember where a human doctor might forget. Because of this, they are in theory designed for more accurate diagnosis. AI doctors also do not need to sleep or eat and do not get sick themselves. This means they can work 24/7, stay alert the whole time and may cut costs for the hospital they work.

II. LITERATURE SURVEY

1.1 Hypertension is a disease that affects a wide range of the population, particularly the elderly after the age of 55. Hypertension is caused by Blood Pressure. Blood Pressure is the force of blood pushing against blood vessel walls. The heart pumps blood into the arteries (blood vessels), which carry the blood throughout the body. If blood pressure is extremely high, there may be certain symptoms such as Severe headache, Fatigue, disorientation, Vision problems, Chest pain, Difficulty in breathing, irregular heartbeat and Blood in the urine . Hypertension can cause Stroke, Heart failure, Heart attack, Kidney failure and Vision problems. Men have a greater likelihood of developing high BP than women. This varies according to age and among various ethnic groups. In some cases, computer-based assisted diagnoses have been claimed to be even more accurate than those by clinicians. Predicting the outcome of it is one of the most interesting and challenging tasks in which a Neural Network application is developed. Neural Networks are well suited to problems that people use good at solving but for which computers are not. Neural Networks provide a very general way of approaching problems.[2]

1.2 The diagnosis of diseases is a vital and intricate job in medicine. The recognition of heart disease from diverse features or signs is a multi-layered problem that is not free from false assumptions and is frequently accompanied by impulsive effects. Thus the attempt to exploit knowledge and experience of several specialists and clinical screening data of patients composed in databases to assist the diagnosis procedure is regarded as a valuable option. This research work is the extension of our previous research with intelligent and effective heart attack prediction system using neural network. A proficient methodology for the extraction of significant patterns from the heart disease warehouses for heart attack prediction has been presented. Initially, the data warehouse is pre-processed in order to make it suitable for the mining process. Once the preprocessing gets over, the heart disease warehouse is clustered with

the aid of the K-means clustering algorithm, which will extract the data appropriate to heart attack from the warehouse. Consequently the frequent patterns applicable to heart disease are mined with the aid of the MAFIA algorithm from the data extracted. [3]

1.3 An artificial neural network in typical disease diagnosis has been investigated. The real procedure of medical diagnosis which usually is employed by physicians was analyzed and converted to a machine implementable format. Then after selecting some symptoms of eight different diseases, a data set contains the information of a few hundred cases was configured and applied to a MLP neural network. The results of the experiments and also the advantages of using a fuzzy approach were discussed as well. Outcomes suggest the role of effective symptoms selection and the advantages of data fuzzificaton on a neural networks-based automatic medical diagnosis system.[1]

III. MEDICAL DIAGNOSIS PROBLEMS

The major task of medical science is to prevent and diagnosis of the correct diseases. Here our Focus is the second task, which as mentioned before, is not a direct and simple task at all.[1]

- Generally doctor does not remember each and everything. In some cases, sometimes doctor takes the patient symptoms normally, they don't take much care about to identify the particular disease and as they find the disease they are too late to cure it.
- As consider, in some cases sometimes doctor or the patient take the tumor normally and treat it normally, as they find later that it is a cancer, at that time it is too late to cure it. So it is a major problem.
- The quality of diagnosis is totally depends on the physician talent as well as his/her experiences. [1]
- The training procedure of doctors, in particular specialists, is a lengthy and expensive one. So even in developed countries we may feel the lack of MDs.

IV. PROPOSED SOLUTION

For This Mechanism We Are Giving The Proposed Solution Flow Chart. In This Flow Chart. We Are Considered All Possibility Of Condition Of Patient. Its Helps According To Symptoms and Identify The Disease.

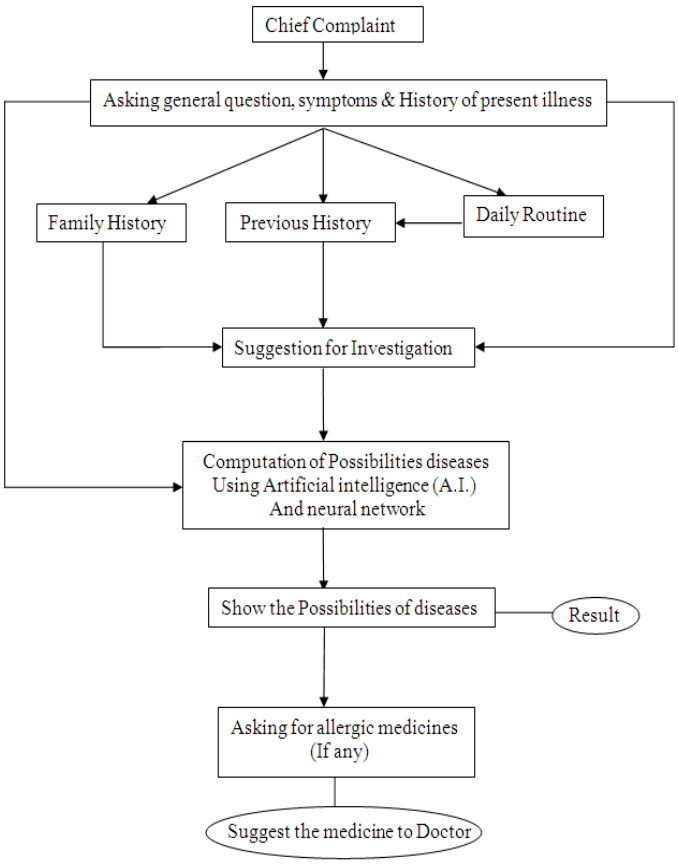

Fig: Proposed Flow Chart

- **Chief Complaint**: - Chief complaint mean major problem said by patient .Its 1st priority of major symptom. Ex. Fever, Loss of appetite, Headaches, Chills, Cough, Abdominal pain, Jaundice, Hair lost, Breathing Problem, Blood in urine, Weight loss. Etc. [5]
- **Asking general question, symptoms & History of present illness:-** According to chief complaint asking general question and its mechanism find out the other symptoms and decide the priority of the symptoms
- **Family History: -** Some symptoms indicated to the genetic diseases so asking family history its help to conformation of particular diseases.
- **Patient History:-**In Some diseases required the patient previous history because some symptoms related to the previous history.
- **Suggestion for Investigation:-**According to symptoms and analysis of real world data collection of report its advice to investigation .after the investigation report is may be correct diagnosis of particular diseases.
- **Computation of diseases: -** Its phase computation of Possibilities diseases using Artificial intelligence (A.I.) And neural network.
- Its computation base of real data collection and history of previous data.

After finalization of Possibilities diseases and also asking to patient if any medicine is prohibited or bad reaction to your body. It's most important suggestion to doctor giving medicines.

Searching of diseases based on symptoms priority:-

We are giving another flow chart and work on neural network, In this flow chart firstly we ask patient symptoms and according to patient symptoms we checked the highest priority of symptoms present in those diseases. And some time some common symptoms present more than one diseases. In this condition for confirmation for accurate result we suggested the investigation of related diseases.

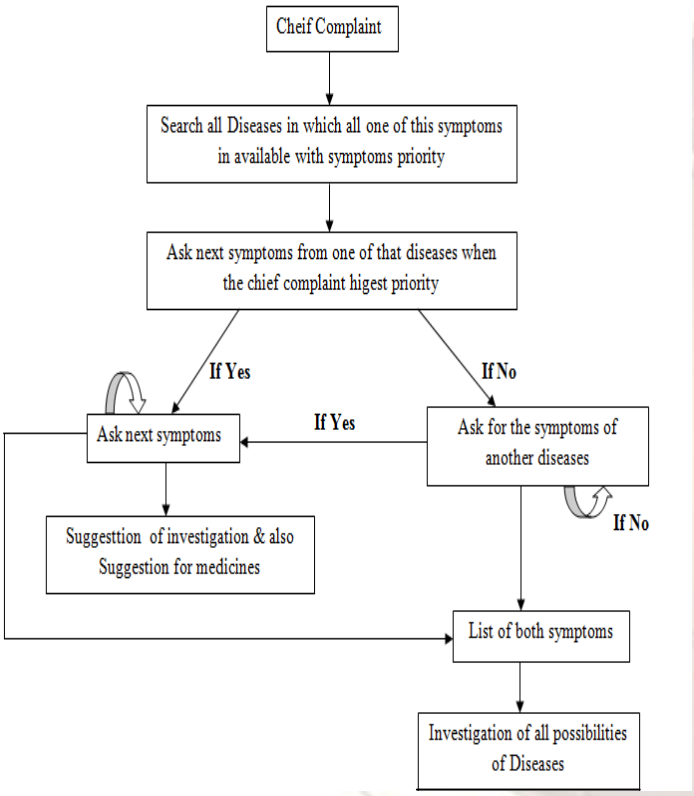

Fig: Symptoms Priority Based Diseases Identify

V. CONCLUSION

Its mechanism help to identify the particular diseases and In some Cases also identify the serious diseases those not operate on O.P.D. level, its early Identify as soon as cure and giving suggestion of investigation and then it will clear the Diseases are present or not and its mechanism also helpful for not experienced doctors. And all general doctor and its initially level also beneficial for general physician. physician Feed the symptom and according to symptoms identifies the disease. Its mechanism helps doctor's decision but can't replace doctor position.

VI. ADVANTAGE

Its mechanism work as real time environment it's beneficial in following field-

- All Hospitals in O.P.D. level.
- General physician.

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