GOVERNMENT DEGREE COLLEGE, CHENNOOR

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DEPARTMET OF ZOOLOGY

Project Report Submitted By

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PROJECT REPORT

ON

THALASSEMIA DISEA

Under the guidance of

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A STUDY ON ASSESSMENT AND ANALYSIS OF

THALASSEMIA DISEASE

INTRODUCTION /STATEMENT OF THE PROBLEM:

Thalassemia disorder has an autosomal recessive pattern of inheritance. Both alpha and beta types have been reported for the autosomal recessive form of the disease. It is caused due to mutation in globin gene. Both parents must be carriers for a child to be affected. If both parents carry haemoglobinopathy trait, the risk rate of disease is 25% for each child.

Thalassemia is genetic blood disorder. People with thalassemia are not able to make enough hemoglobin which causes severe anemia. Hemoglobin is found in red blood cells and carries oxygen to all parts of the body. When there is not enough Hemoglobin in the red

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Thalassemia is genetic blood disorder. People with thalassemia are not able to make enough hemoglobin which causes severe anemia. Hemoglobin is found in red blood cells and carries oxygen to all parts of the body. When there is not enough Hemoglobin in the red blood cells, oxygen cannot get to all parts of the body. Organs then become starved for oxygen and unable to function properly.

There are two types of thalassemia Alpha and Beta. Beta is also called as major or Cooley's disease, as it is a serious disorder. Symptoms appear in the first two years of life which includes anemia, paleness of skin, poor appetite and lack of proper growth. Blood transfusion is the only possible treatment available. On an average almost 25 blood transfusions are required per year for each patient.

AIMS AND OBJECTIVES:

To assess and analyze the factors influencing the thalassemia disease.

OBJECTIVES:

- To identify the most common factor behind thalassemia occurrence.
- To promote an awareness among students about the thalassemia.
- To encourage the rural people to prevent consanguineous marriage.
- To give knowledge /suggestion to the identified thalassemia patients to monitor and take proper medication and health care

REVIEW OF LITERATURE:

The literature is reviewed through Google, Wikipedia, and relevant references were noted down. WHO organization declared that 8th May as the international thalassemia day since 1994. According to survey conducted in 2010 the prevalent zone or Epidemic zone is known as thalassemia belt. Is mostly spread in Mediterranean countries, Middle East, South East Asia mainly Indian sub continent, Russia and China. In Bangladesh, the thalassemia occurs as one of the commonest inherited Hemolytic Anemia.

A recent review by N.Christian, (2017) revealed that around one Lakh new born are delivered each year with severe form of thalassemia and it is most common in South Asia and African ancestry.

The American college of obstetrician and gynecologists recommends all pregnant women to be tested for thalassemia. Genetic counseling and genetic testing is recommended for families who carry this trait.

Large scale awareness campaigns are being organized in India, both the Government and Non- Government organization favor for voluntary premarital screening to detect carriers of thalassemia and marriages between both carriers are strongly discouraged.

RESEARCH METHODOLOGY:

The Zoology Department of Government Degree College has a memorandum of understanding with Red Cross society Blood bank, our students visit the centre as part of the curriculum as a field visit. There is a thalassemia centre, voluntary run by Red Cross society blood bank. We approached them and collected the primary data of thalassemia patients from 2014 to till date.

We have taken few parameters from the data to assess, analyze and then interpreted the results.

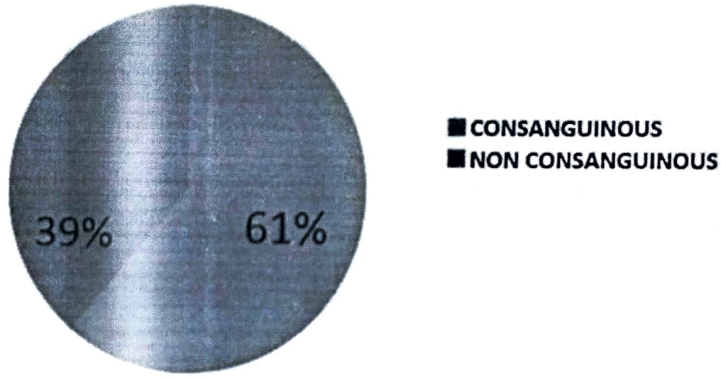
It is a genetic disease and inherited from parents to children. And from data it is very apparent that consanguineous marriages are playing key role in the occurrence of thalassemia disease in the population of certain tribes.

We have taken the sample size of 100 patients randomly and one parameter was taken into account for the study, assessment and analysis.

RESULTS:

Results are shown in table 1 represented by pie diagram. A sample of 100 patients was randomly selected and few parameters like age, gender, ethnic group and family history of their parents was taken into consideration. In addition to many other parameters, it is observed that out of 100 patients, 61 were born out of consanguineous marriages. There is a strong correlation between thalassemia occurrences with consanguineous marriages between parents. It is the major reason to increase the sustainability of this disorder in many ethnic families.

FIG. SHOWING THE RATIO OF THALASSEMIC PATIENTS DEPENDING ON CONSANGUINOUS MARRIAGES



DISCUSSION:

The study was conducted to show effects of consanguineous marriages on the occurrence of thalassemia. The main impact of consanguineous marriages is elevation in the rate for homozygosity in recessive disorders. The high mortality rate in developing countries is associated with such inborn blood disease.

It is caused due to mutation in globin gene. In consanguineous marriages some of the genetic disorder is transferred as autosomal recessive in carrier individuals and consanguinity facilitates homozygosity mapping of these genetic diseases which appear in the offspring as congenital anomalies.

If we look at how transmission of disease occurs from parents to children;

1. If both parents are not having any defective Globin gene there is no chance of children being thalasemic.
2. If one parent is affected or carrier then children may be carriers.
3. When both parents are carriers ½ children will be thalassemia carrier and ¼ will be thalasemic and ¼ will be normal.

The following table represents the pattern of disease transmission among the progeny of carrier parents.

Bb ♀	Bb ♂	
	B	b
B	BB unaffected	Bb carrier
b	Bb carrier	bb thalassemic

CONCLUSION:

At present, several countries have set up comprehensive national prevention programmes, which include public awareness and education, carrier screening and counselling as well as information prenatal diagnosis and pre implantation diagnosis.

It is not easy to control occurrence of the thalassemia in the population, but it can be reduced by prenatal diagnosis and awareness programmes. Through this project we can make an awareness among the students about the disease, its inheritance, and awareness to younger generation to discourage the further consanguineous marriages in future to reduce the burden of thalassemia disease in the popular

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