

Awareness on hematological malignancies among college students

Ritya Mary Jibu,
Vishnu Priya Veeraraghavan,
R. Gayathri, S. Kavitha

Department of Biochemistry, Saveetha
Dental College and Hospitals, Saveetha
Institute of Medical and Technical
Sciences, Saveetha University,
Chennai, Tamil Nadu, India

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ABSTRACT

Cancers of blood arise when the abnormal blood cells undergo uncontrolled growth which outpaces the natural production of normal blood cells, interfering with the cells' normal functions. Leukemia, lymphoma, and myeloma are the three types of blood cancers. The aim of our study is to assess and create awareness of hematological malignancies among college students. A questionnaire was prepared using Google Forms based on the awareness of the Hematological malignancies disinfection methods among dental students in Chennai. It was then circulated among a certain set of participants using an online Google Form link. The participants were asked about their knowledge level regarding hematological malignancies and a majority (68.97%) were aware of the same, whereas 27.59% were not aware and the rest (3.45%) were not sure. When asked about how dental care detects various hematological malignancies, 10.34% of the participants replied as "patient speaks about any abnormality," 75.86% replied as "oral manifestations," and 13.79% replied as "dentists cannot detect hematological malignancies." From the above results and discussion, we can come to the conclusion that most of the dental students who participated in the survey are aware of hematological malignancies and its various types.

Key words: Blood, hematological malignancies, innovative technique, leukemia, novel method

INTRODUCTION

The average adult human body contains more than 5 L (6 quarts) of blood. The prime function of blood is to transport oxygen and nutrients to the cells,^[1] while delivering waste products away from them for excretion. The platelets present in the blood can also form a clot in a broken blood vessel to

prevent the loss of blood and offer immune cells to resist infection. Depending on the need of the body through circulation, the blood gets adapted. During exercise, the heart beats faster and harder to deliver more oxygen and nutrients to the muscles.^[2] When an infection occurs, the blood transports more immune cells to the site of infection, where they gather to protect the body from harmful invaders.^[3]

Most blood/hematologic cancers start in the bone marrow, which is where blood is made. The stem cells in bone marrow produce all blood cells including, red blood cells, white blood cells, and platelets. Cancers of blood arise when they grow in an uncontrolled manner and interfere with the natural production of normal blood cells, interfering with the cells' normal functions. Leukemia, lymphoma, and myeloma are the three

Address for correspondence:

Dr. Vishnu Priya Veeraraghavan,
Department of Biochemistry, Saveetha Dental College and
Hospitals, Saveetha Institute of Medical and Technical Sciences,
Saveetha University, Chennai - 600 077 Tamil Nadu, India.
E-mail: vishnupriya@saveetha.com

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types of blood cancers.^[4] The first hematologic malignancy was described by Thomas Hodgkin in 1832. Hodgkin's disease was named after him more than 30 years later, after the type of lymphoma he described. Other hematologic malignancies, such as leukemia and multiple myeloma, were soon described in the literature.^[5] Since then, these cancers have been further described, and attempts to categorize various subtypes have been made.^[6] It is now known that hematologic malignancies encompass a wide range of genetically diverse diseases thanks to immunophenotyping, cytogenetic, and molecular genetic testing. Hematological malignancies are a set of heterogeneous disorders that mostly impact the elderly,^[7] as the median age for most of these diseases arises from bone marrow to lymphatic system cells.

Multiple myeloma and other hematological cancers have a special tumor microenvironment that consists of a complex network of cellular^[8] interactions within the bone marrow cavity. The second most common hematological malignancy is multiple myeloma. The management of hematological malignancies during pregnancy is a difficult task that necessitates not only professional expertise^[9] and experience on the part of physicians but also sound clinical judgment and compassion, keeping in mind the patient's and family's needs, as well as the neonate's^[10] well-being. Hematological malignancies in pregnancy are very rare with an occurrence rate of 1 in 1,000–1 in 10,000 births. Indeed, the most common hematological malignancy is diffuse large B-cell lymphoma at a rate of 7.9 per 100,000 per year, and the second most common is chronic lymphocytic leukemia.^[11] Hematological malignancies are fifth among the most common cancer types in economically developed regions of the world. They are categorized into three groups depending on whether the cancer is first discovered in the blood (leukemias), lymph nodes (lymphomas – Hodgkin and non-Hodgkin), or bone (osteosarcomas) (myelomas).^[12]

The type of blood cancer, age, rate of progression of cancer, and its metastasis all will affect the treatment of cancer. Nowadays, many types of blood cancers are highly treatable due to the cancer treatments over the past several decades.^[13] Monoclonal antibody therapy has significantly improved patient survival in both solid tumors and hematologic malignancies, revolutionizing cancer treatment. Immunotherapy's effectiveness has increased as a result of recent technological advancements, allowing it to be used in a wider range of treatment settings.

As used in the context of patients, awareness refers to a situation of being aware of the illness and its symptoms.^[14] As a result, it is important to ensure that surveillance, early detection, and disease education are all improved. A lack of knowledge may be caused by a variety of factors. One of the main reasons for inadequate knowledge is the inability to obtain information, especially accurate information. This is sadly made more difficult by the stigma associated with

cancer, which can discourage people from taking preventative measures or even getting medical checkups out of fear. Lack of knowledge may have negative consequences not only in terms of health outcomes but also in terms of societal division and quality of life. People may come to hospitals when their disease has progressed or reached an advanced stage as a result of the earlier mentioned lack of knowledge, lowering their chances of obtaining successful treatment, and curing their tumors.^[15] Our research and knowledge have resulted in high-quality publications from our team.^[16-30]

The study was designed to check the level of awareness of the various hematological malignancies and its consequences among college students. It is done so that the students can have a wide knowledge to assess and act upon a situation when it arises.

MATERIALS AND METHODS

A questionnaire was prepared using Google Forms based on the awareness of the PPE disinfection methods among dental students in Chennai. It was then circulated among a certain set of participants using applications such as WhatsApp and Gmail. The results were then calculated and presented with accurate statistics using the statistics software IBM SPSS statistics (version 23, IBM, India). The results were obtained from SPSS in the form of graphs.

RESULTS

In Figure 1, the participants were asked about their knowledge level regarding hematological malignancies and

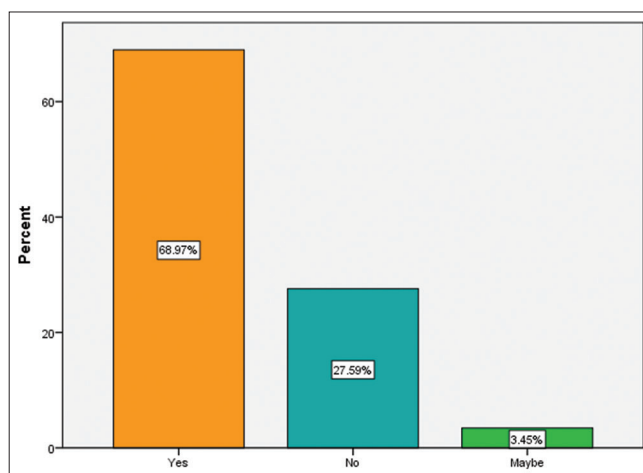


Figure 1: The above bar graph shows how aware the participants are of hematological malignancies. The X-axis represents the responses to how aware the respondents are and the Y-axis shows the percentage of participants. The orange bar indicates the participants who are aware of the hematological malignancies, the blue bar indicates the respondents who are not aware of the malignancies, and the green bar indicates the respondents who are not sure. The majority of the participants are aware of hematological malignancies

a majority (68.97%) were aware of the same, whereas 27.59% were not aware, and the rest (3.45%) was not aware. About 24.14% of the participants think it can be any malignancy in the body, 51.72% of the participants think that it is blood cancer or malignant cancer, and the remaining 24.14% are not sure. The majority of the participants think that hematological malignancy is a blood cancer or malignant cancer [Figure 2]. In Figure 3, the participants were asked if they knew what malignancies were termed hematological, and the majority (55.17%) agreed that leukemia, lymphoma, and myeloma were such malignancies. When asked if dental

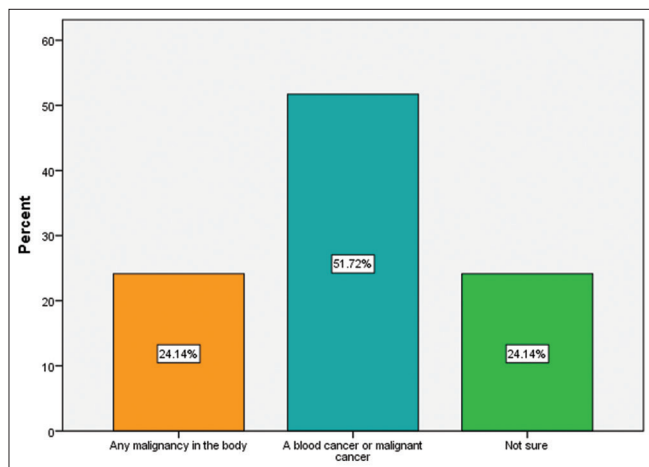


Figure 2: The above bar graph shows what the participants think hematological malignancies are. The X-axis represents the response to what the participants think hematological malignancies are and the Y-axis indicates the percentage of participants. The orange bar denotes any malignancy in the body, the green bar denotes a blood cancer or malignant cancer, and the green bar denotes a lack of surety about what hematological malignancies are. The majority of the participants think that hematological malignancy is a blood cancer or malignant cancer

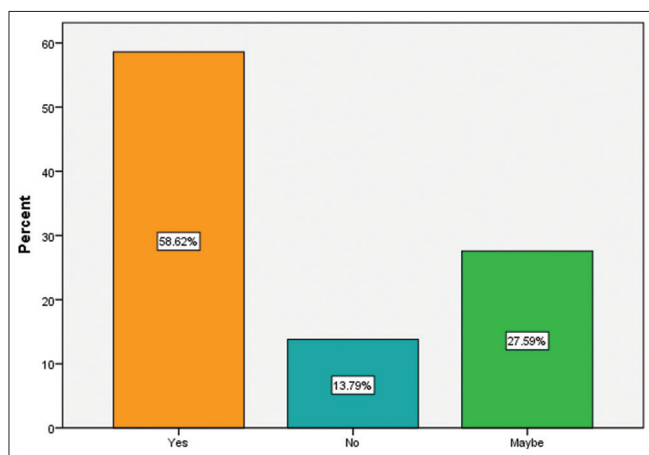


Figure 4: The above bar graph shows whether dental treatment is done when a patient is affected with hematological malignancies. The X-axis shows the responses to whether dental treatment is done and the Y-axis shows the percentage of participants. The orange color indicates “Yes,” the blue color indicates “No,” and the green color represents “Maybe”

treatment will be affected due to the presence of any such malignancy, around 58.62% agreed to say that it would affect, whereas 27.59% were not aware, and the remaining 13.79% chose to believe that the treatment would not be affected [Figure 4]. Later on, when the same participants were asked if dental care can differ based on the stage of treatment (for the malignancy) that the patient is undergoing, 58.62% agreed with a yes [Figure 5]. In Figure 6, 44.83% of the participants said that dentists can detect the presence of such malignancies, and that too due to the presence of oral manifestations (75.86%). However, 37.93% were not aware. About 10.34% of the participants have replied as “patient

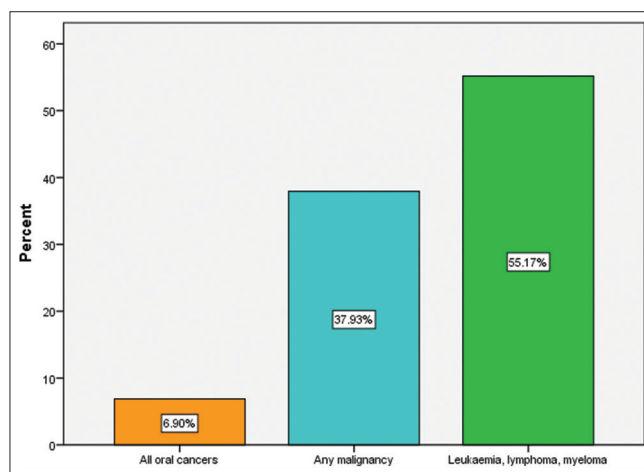


Figure 3: The above bar graph denotes what the various conditions are under hematological malignancies. The X-axis represents the various conditions under hematological malignancies and the Y-axis indicates the percentage of participants. The orange bar indicates all oral cancers, the blue bar denotes any malignancy, and the green bar denotes leukemia, lymphoma, and myeloma to be conditions under hematological malignancies. The majority of the participants know that leukemia, lymphoma, and myeloma come as conditions under hematological malignancies

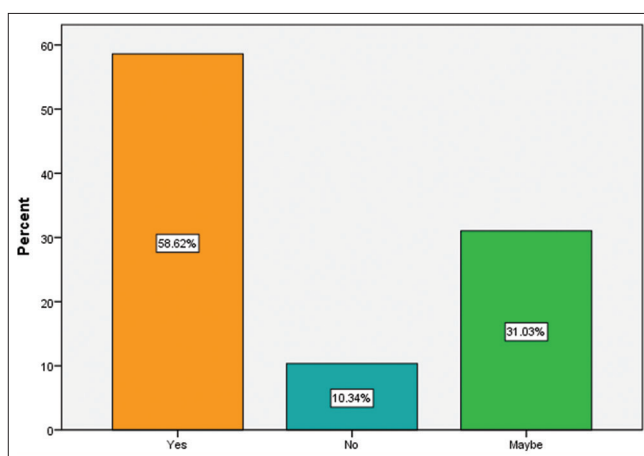


Figure 5: The above bar graph represents whether different dental care is given for different stages of hematological malignancies. The orange bar represents “Yes,” the blue bar represents “No,” and the green bar represents “Maybe”

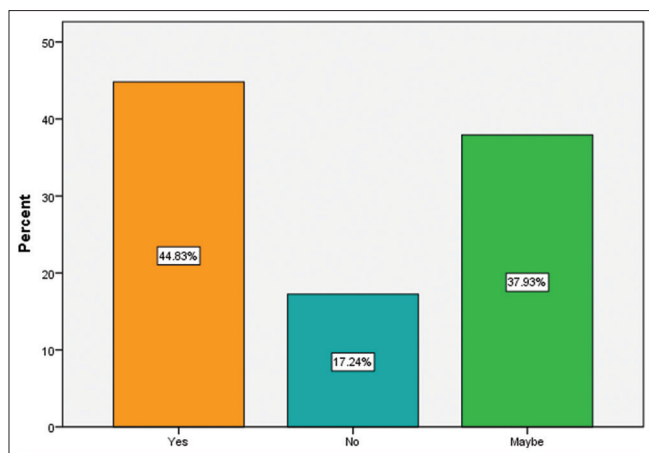


Figure 6: The above bar graph represents whether dental care can detect the presence of hematological malignancies. The orange bar represents “Yes,” the blue bar represents “No,” and the green bar represents “Maybe”

speaks about any abnormality,” 75.86% have replied as “oral manifestations,” and 13.79% have replied as “dentists cannot detect hematological malignancies” [Figure 7].

DISCUSSION

Hematologic malignancies are referred to as cancers affecting the blood, bone marrow, and lymph nodes and producing leukemia, lymphoma, and myeloma.^[31] Among the ones who were aware of the malignancies, they were also well-versed in various factors which would affect the dental treatment in case the patient had such a malignancy.^[32] However, since there is a percentage of students who are not aware of such a malignancy, there must be more importance given to educating each^[33] dental student so that the dental treatment and service they provide are top-notch. Often these blood/hematologic tumors develop in the bone marrow, which produces blood. All types of blood cells are formed from stem cells in the bone marrow. A key priority in ACCC’s educational portfolio is the development of quality improvement programs aimed at reducing disparities and improving the standard of care for patients with blood/hematologic cancers. Use our recent research to find practical and actionable resources that you can use right away in your cancer program or practice.

CONCLUSION

From the above results and discussion, we can come to the conclusion that the majority of the dental students who participated in the survey are aware of hematological malignancies and its various types.

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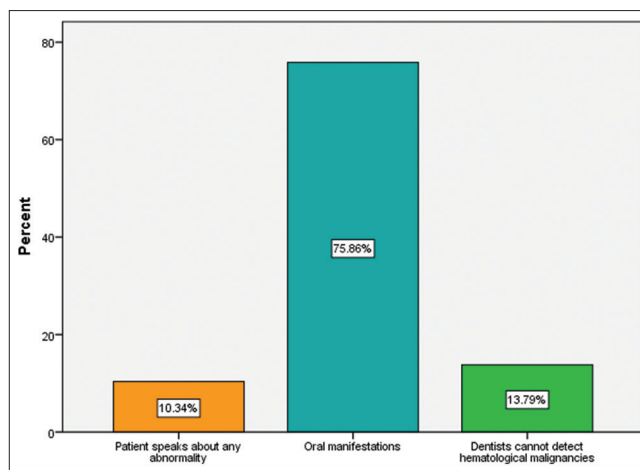


Figure 7: The above bar graph represents how dental care detects various hematological malignancies. The orange bar represents “patient speaks about any abnormality,” the blue bar represents “oral manifestations,” and the green bar represents “Dentists cannot detect hematological malignancies”

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Conflicts of interest

There are no conflicts of interest.

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