Chromosome study of patients recovering from chronic lymphocytic leukemia

https://doi.org/10.31185/wjps.VolX.IssX.XX

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Abstract— Chronic lymphocytic leukemia is one of the cancers that is difficult to cure because it is chronic. Hence the idea of the research came and after the presence of patients who recovered from this disease or whose treatment was stopped and placed under follow-up, so the aim was to examine the chromosomes of chronic lymphocytic leukemia patients after follow-up. Materials and Method: Study of clinical observations and cytological analysis of patients recovering from chronic lymphocytic leukemia. The cases were collected from the oncology unit at Al-Karama Hospital in Al-Kut. Blood samples were taken and cultured in the laboratory by the culture method for a short time to study the chromosomal body using the G-Bind method. Results: Chromosome analysis of all recovered patients showed that the chromosomes were normal at the cellular level, and no chromosomal changes were observed in them. The number is normal and the chromosomal structure is also normal compared to normal and other cases. I examined the number of structural and chromosomal changes found in patients, recovery was closer to normal. Conclusion: The chromosomes were normal at the cellular level to heal afterwards Received treatment, no chromosomal changes were observed with them. The number is normal and the chromosomal structure is also normal Compared to normal cases and others, this result gives the importance of examining chromosomes for the recovering after each treatment period to follow up on the patient's condition after recovery.

Keywords—Chronic lymphocytic leukemia, recovered adults, chromosomes

1 Introduction

Chronic lymphocytic leukemia (CLL) is the most common type of leukemia in adults. It is a type of cancer that begins in the cells that become certain white blood cells (called lymphocytes) in the bone marrow. Cancer cells (leukemia) start in the bone

marrow and then enter the blood. The term "chronic" in chronic lymphocytic leukemia (CLL) is usually derived from the fact that the disease progresses more slowly than other types of leukemia 1,2 .

The term "lymphocytosis" in chronic lymphocytic leukemia is Disease, a group of white blood cells called lymphocytes 3. Lymphocytes are cells that help the body fight infection. Chronic lymphocytic leukemia is common in the elderly 4. There are treatment options that can help control the disease 5. The current scientific facts that have made this amazing progress in the treatment of these diseases, in addition to the health and safety of all diseases, especially for all individuals with varying cure rates 6 . Percentage of medical care provided based on degree, Not only the quality, but also many other factors that affect the cure rate of leukemia, such as age, disability, and the presence of certain genetic abnormalities at the stage of leukemia diagnosis. In addition, the cure rate for some types of cancer can be as high as 7.8 100%. The aim of the study of research chromosomes to heal patients

2 Materials and Methods

The study was conducted over a year from March 2020 to March 2021 in patients diagnosed with chronic lymphocytic leukemia who attended the Hematology Center at Kalama Teaching Hospital in Kut. This study included 20 cases, of which 10 (5 males and 5 females) were healthy, 5 (2 males and 3 females), and 5 cases (2 males and 3 females). I did. Blood is collected in a sterile tube containing sodium heparin. Place whole blood and lymphocytes purified from leukocytes in an appropriate medium (P chromosome medium) and incubate in an incubator at 37 °C for 72 h. The incubator should be shaken at least twice a day. This will greatly increase the splitting. Then, a few hours before harvest (usually 2-3 hours), colchicine are added to the culture for medium term cell arrest. Corsemide inhibits cell formation, preventing the mitotic spindle from progressing to the next stage of the cell cycle and developing to obtain high-quality chromosomes. After 72 hours of incubation, centrifuge the centrifuge tube at 1000 rpm for 10 minutes. Then discard the supernatant, gently shake it off the cells and add fresh potassium chloride solution. Potassium chloride causes cells to swell during osmosis and to properly disperse chromosomes. Treat hypotension by incubating the centrifuge tube in an incubator at 37 °C for approximately 30 minutes. Then, after repeated centrifugation, 3:1 methanol:acetic acid, which acts as a stabilizer, was added. The methanol and protein precipitate in a stable form. Dehydration and acetic acid under acidic conditions coagulate nucleoproteins and sheath proteins, preserve the chromosomal structure, and remove most of the cytoplasmic protein cells. The installed cleaning will be repeated several times. The chromosomes are then prepared by dropping the cell suspension onto a clean, grease-free slide. Here, the droplets spread and the chromosomes stick to the slide. As it slides, it is prepared and appropriate staining techniques are performed as needed to diagnose chromosomal abnormalities. 9. The statistical analysis data and tables were analyzed by means of the test (chi-square test), the mean and the percentage. Statistical analysis was performed using SPSS v.26 (Statistical Package for the Social Sciences, Chicago, IL, USA).

3 Results

In this study, 20 peripheral blood samples were collected for cytogenetic preparation, 10 cases were the control group, five cases of a CLL patient under chemotherapy, and five cases of a recurrent CLL patient in each case developed with good enough chromosomes as shown in Table (1) As for the ages of those recovering from chronic lymphocytic leukemia, a difference in age was observed between 50-69, and the statistical results did not give a significant difference as shown in Figure (1).

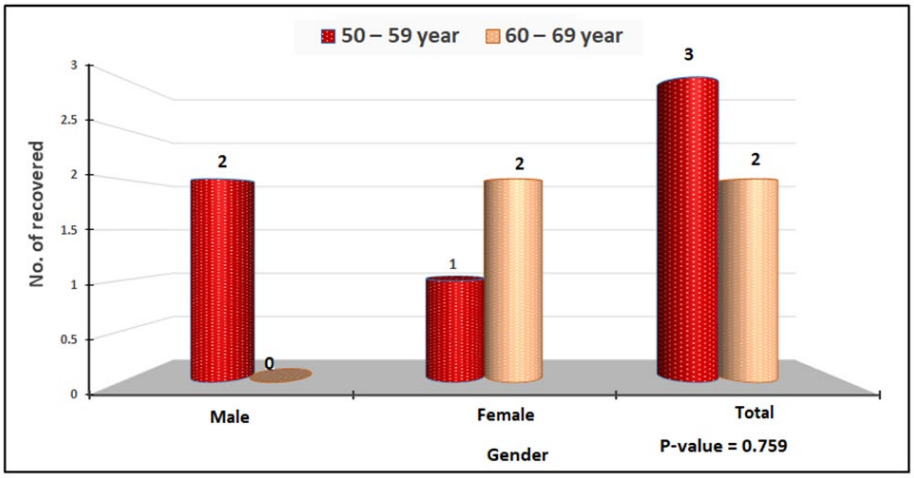

Fig. 1. Age and gender distribution of patients recovering from chronic lymphocytic leukemia

The chromosomes were normal at the cellular level, and no chromosomal changes were observed in them. The number is normal and the chromosomal structure is also normal compared to normal and pathological cases. The number of structural and chromosomal changes found in the patients, but recovery was closer to normal, as shown in table (1) and Figures (2).

Table 1. Summary of chromosomal study in all cases

Samples	Number of cases	Results obtained	Chromosomal aberration
Control group	10	Normal chromosomes	46,XY or 46,XX
Patient group (5 cases)	5	Complex chromosomes*	46, XY,del(13q), bridge chromosome Or 46, XY,del(13q),ring chromosome, bridge chromosome. 46,XX, t(21q:1q),acentric ,bridge chromosome

Recovered group (5 cases)	5	Normal chromosomes	46,XY or 46,XX
Total	20		

* complex chromosomes: This means that the cell contains more than one chromosomal change

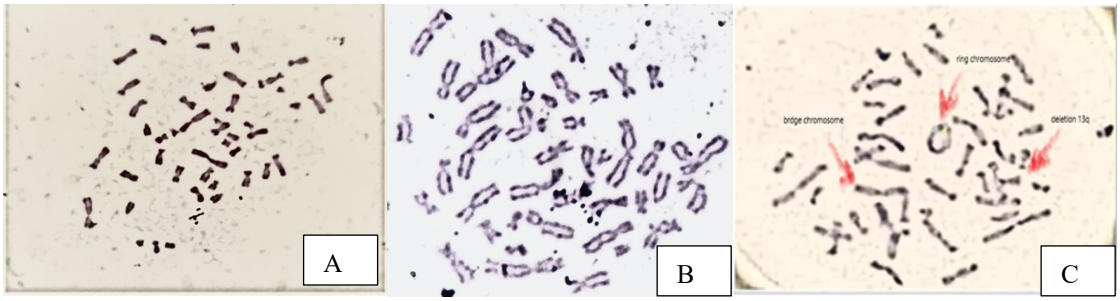

Fig. 2. A-Chromosomal normal case (46XX), B- chromosomal aberration of recovered patient 46,XX, C- chromosomal aberration of case 46, XY, del. (13), ring chromosome, bridge chromosome. (1000X)

4 Discussion

Age and gender statistics showed no significant difference between age and gender, and the cases studied showed recovery of chromosomal changes. This result is consistent with studies showing that females have higher survival rates than males, although there was no relationship between patient gender and age. In Asian countries, CLL is more common in men over the age of 60.10. As shown in Figure 1, there was no significant difference in the statistical results. Age-specific analysis showed that this result was consistent with some studies of consistently high survival rates, with the exception of the 15-44 age group in the United States. Overall, survival declined with age, but age-related variability was small in patients younger than 75 years. In both countries, the 5-year incidence was over 80% for patients under 75 years and less than 70% for patients under 75 years, but there are overall differences in age11. If female survival continues to decline in the United States, however, these imbalances are not fully explained by the treatment received, tumor diagnosis, or sociodemographic factors12,13. Recent studies have shown that women are more likely to have heart and lung problems than men. Post-processing function. However, females have a higher survival rate than men14. Chronic lymphocytic leukemia is said to be more common in men than in women, for unknown reasons. Another study involved a large number of older patients, and the outcome after a particular treatment depends on life expectancy15. Survival rates for all patients with CLL vary significantly over 18 months, depending on the prognostic factors of 10 years, but overall survival rates are lower than for older patients. One study showed that CLL survival was higher than many

other types of cancer. The 5-year survival rate is about 83 percent. This means that 83 percent of people in this condition survive 5 years after diagnosis 16,17.

Other studies have shown that CLL is "curable" because "most" patients have had the disease for many years. Some of them can live with CLL for years without treatment, but over time they need treatment. Treatment may stop for a while, but it never ends. Life after cancer means going back and making new choices. Learning to live with an indelible cancer can be very difficult and stressful. Because this type of cancer is a chronic disease, building relationships with the medical team is an important part of patient care and support throughout the stages of diagnosis and treatment18. Study the recovered chromosomes. Most of the previous studies were related to infection and few were cured worldwide, but they included chromosomal studies and were not found at the regional level19. This study showed that people with chronic lymphocytic leukemia can recover from their illness after receiving appropriate treatment. It is always under surveillance and bloodshed. Test every 6 months. The study found that people who recovered from the disease by chromosomal testing were nearly normal after treatment.

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Article submitted 20 November 2021. Published as resubmitted by the authors 12 January 2022.