

# Chromosomal abnormalities in chronic lymphocytic leukaemia patients treated in Hospital Ampang, Selangor

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## ABSTRACT

**Introduction:** Chromosomal abnormalities are seen in about 80% of Chronic Lymphocytic Leukaemia (CLL) patients and may confer prognostic information and determine potential therapeutic options. A patient's prior treatment status may offer a clue to the type of chromosomal abnormalities commonly seen in CLL. This retrospective analysis aims to look at the incidence and type of chromosomal abnormalities seen in treatment naive and previously treated CLL. **Materials and Methods:** A total of 20 CLL patients followed up in Hospital Ampang Selangor between March 2020 and September 2021 were randomly chosen for fluorescence in situ hybridization (FISH) testing at Subang Jaya Medical Centre prior to commencing treatment. The FISH testing was kindly sponsored by Johnson & Johnson (Malaysia). This FISH panel contains probes to 4 common abnormalities seen in CLL namely 17p13.1 (TP53), 13q14.2(D13S319), 11q22.3(ATM) and CEP12(D12Z3). **Results:** These 20 patients were diagnosed with CLL between 2002 and 2021. The median follow up is 4.3 years (0.6-19.7) at data cut-off date, death or last known follow-up. Median age at diagnosis was 56.5 years (31-80) with 70% (14) males and 30% (6) females. 80% (16) of the patients had at least 1 chromosomal abnormality and among these, 70.6% (12) had Del13q, 23.5% (4) Del17p, 17.6% (3) trisomy 12(CEP12) and 11.8% (2) Del11q. These are not mutually exclusive as 4 patients had  $\geq 2$  chromosomal abnormalities. Among the 11 treatment naive patients, 54.5% (6) had Del13q, 18.2% (2) trisomy 12 and 27.3% (3) had no abnormality. Among the 9 patients who had prior therapy, 44.5% (4) had Del17p, 22.2% (2) Del11q, 22.2% (2) Del13q as the sole abnormality and 11.1% (1) had no abnormality. 75% (3) of those with Del17p and 50% (1) of those with Del11q also had concomitant Del13q. Among all the patients tested, Del13q is the most common CLL chromosomal abnormality seen at 70.6%. Treatment naive patients did not harbour Del17p or Del11q. In contrast, among previously treated patients, 66.7% (6) had either Del17p or Del11q. The presence of these poor risk chromosomal abnormalities is commonly associated with prior therapy and confer chemoimmunotherapy resistance. Among the therapies received by the previously treated patients, 77.8% were exposed to Chlorambucil, 44.4% Rituximab and 33.3% Fludarabine. **Conclusion:** The findings of this study are consistent with established data. CLL patients with prior therapy are at a higher risk of developing poor risk chromosomal abnormalities, consistent with clonal evolution or selection. Genomic testing should be offered to all patients who relapse after their initial therapy and be considered for novel targeted therapies which are known to be effective against poor risk disease.

**Keywords:** Chronic Lymphocytic Leukaemia, chromosomal abnormalities, chemoimmunotherapy resistance, Chlorambucil, FISH.

# Effect of health education on the knowledge, attitude and behaviour of healthy snack choices in school among students of Sekolah Indonesia, Kuala Lumpur

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## ABSTRACT

**Introduction:** Snacking, defined as the intake of foodstuffs between main meals, is among the main sources of calorie intake. Snacks should be chosen not only based on students' interests and preferences, but also on their nutritional needs. Moreover, snacks should not affect their appetite for the main meals. Consumption of unhealthy snacks can bring students different health problems such as obesity, dental caries, and chronic illnesses. In this study, a health education package is utilized to make students improve their behaviour especially in choosing healthier snack foods. The aim of this study was to assess the effect of health education on the knowledge, attitude, and behaviour of healthy snack choices in school among students of Sekolah Indonesia, Kuala Lumpur. **Materials and Methods:** This was an interventional study, with pre and post-tests without a control group. 60 students from the 4th and 5th grades were selected by universal sampling. The interventional activities which included lectures, role play, and quizzes were carried out for 21 days. The data were analysed by SPSS 22 software, using descriptive statistics, Wilcoxon test and paired t-tests. **Results:** There was a positive influence of health education on the selection of snack foods on the student's knowledge ( $p=0.001$ ), attitude ( $p=0.001$ ) and behaviour ( $p=0.001$ ). Post-intervention also showed positive behaviour changes. **Conclusion:** Increasing the awareness of educational health in terms of knowledge, attitude, and behaviour is effective in choosing healthy snack food among students.

**Keywords:** Snacking, calorie, health education