Hematological studies in young individuals with Down syndrome

Abstract

Down syndrome (DS) is a common chromosomal abnormality occurring in about 1 in 700 live births. One of the major medical problems in DS individuals is hematologic abnormalities. This study was carried out to compare the hematological status in young individuals with DS aged 5 to 20 years old (divided into three different age groups: 1 to 7 years [n=7], 8 to 12 years [n=49] and 13 to 20 years [n=50]) and in comparison to age-matched controls and also between genders. Blood samples were collected with informed consent from 106 DS participants and another 106 controls. The blood count was evaluated by blood analyzer (Coulter T-540). There were significantly lower levels of red blood cell count in DS females than in males at the ages of 13 to 20 years (p=0.011). Hemoglobin levels in DS females were significantly lower in the age of 13 to 20 years (p=0.016). A significantly lower hematocrit level was observed in DS females at the age of 13 to 20 years (p=0.005). The mean of white blood cells count in DS was significantly lower than in controls at the ages of 1 to 7 years (p=0.014) and 8 to 12 years (p=0.021). The granulocyte levels was significantly lower in DS by about 45% than in controls aged 8 to 12 years (p=0.038) and also in DS females, aged 13 to 20 years as compared to males (p=0.04). These findings indicate that DS individuals experience hematologic abnormalities and further study should be conducted in order to understand the significance of the abnormalities.