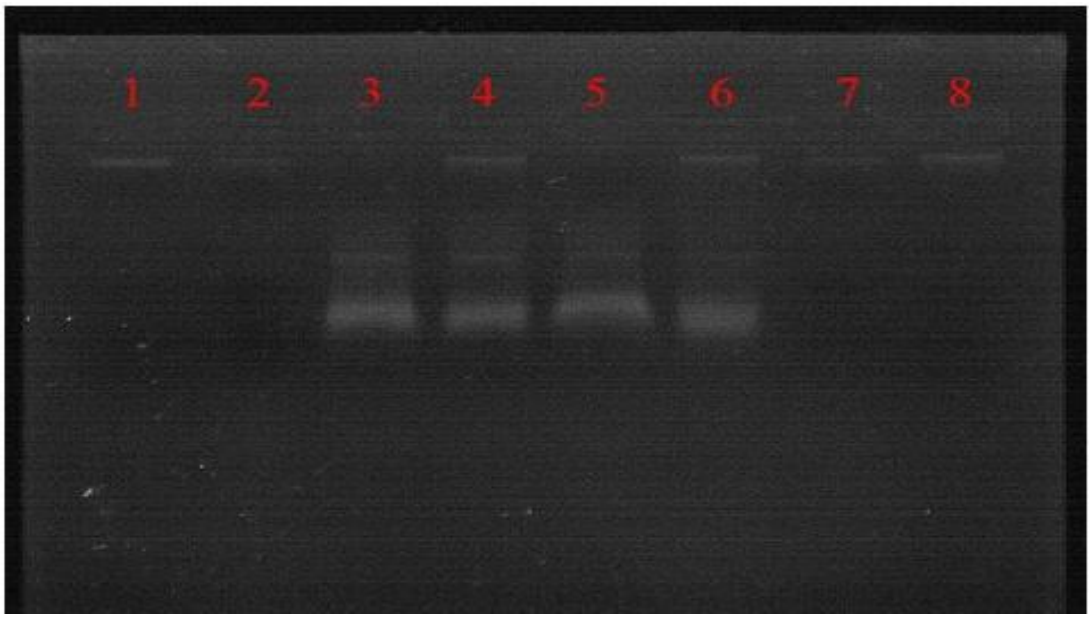

Fig. 4. BstNI and HphI enzymes digestion control (lanes 1, 3, 5 and 7 were unamplified DNA from AML patients while lanes 2, 4, 6 and 8 were unamplified DNA from control individuals). Lanes 3 and 4 contain DNA digested with BstNI. Lanes 5 and 6 contain DNA digested with HphI. Digested lanes show smear in comparison with undigested lanes which show single bands. Electrophoresis was done in 2% agarose gel containing ethidium bromide (final concentration 0.5 µg/ml) at (4V/cm) for 60 min.

AML patients pathology reports were retrieved again from archive of Department of Hematology/Teaching Laboratories at Baghdad Medical City) near the end of the study in order to assess patients' response to induction therapy (in term of complete remission, partial remission or failure) after 2-3 weeks from induction.

Data were analyzed using SPSS program (Statistical Package for Social Sciences) version 16 and Microsoft Office Excel 2007. Numeric data were expressed as (mean ± SE) and frequency was used to express discrete data. Student T-test was used to analyze numeric data while Chi-square and test was used to analyze discrete data. Values were considered statistically significant when ($P < 0.05$).

Results

Out of 58 patients with AML, there were 33 (56.89%) males and 25 (43.10%) females with a M:F ratio 1.3:1, mean age was 41.57 ± 2.53 year (age range was 13-75). Out of 30 individuals in control group, there were 18 (60%) males and 12 (40%) females with a M:F ratio 1.5:1, mean age was 38.77 ± 2.93 year (age range was 16-70).

N-RAS mutations were found in 10 out of 58 (17.24%) of AML patients ($P = 0.091$). All mutations were in codon 12 and no mutation in codon 13. No mutations were detected in control group.

There was no significant difference in patient's gender ($P = 0.855$) and mean age between mutant and wild type N-RAS AML patients (40.2 vs. 41.85, $P = 0.407$). The mean WBC count was significantly higher (54.33 vs. 31.25 x 10^9/L, $P = 0.033$) and the mean bone marrow blast percentage was significantly lower (56.50 vs. 69.31%, $P = 0.025$) in patients with mutated N-RAS than that of patients with wild type N-RAS. There was no significant difference in N-RAS mutation among different AML FAB subtype ($P = 0.105$) (rest of results summarized in table 2 and 3).

Regarding response to induction therapy, forty eight (82.76%) patients had received 3 and 7 induction regimen while ten (17.24%) patients with AML-M3 received ATRA as induction regimen.