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Genetic Variants of CD33 and CLU are Associated with Dementia Risk in Indian Cohort

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Background

- Single nucleotide polymorphisms (SNPs) in dementia risk genes and their role have been examined across populations to determine mutant variant distribution (Carmona et al., 2018).
- Common polymorphisms of ***CD33***, ***CR1***, ***CLU***, and ***ABCA7*** associated to immune modulation and lipid transport are implicated in onset of dementia (Misra et al., 2018).
- Studies exploring such SNPs are lacking in India that have potential in risk prediction and patient stratification in dementia.

Aim

- To analyze association among common genetic variants of *CD33 (rs3865444) , CLU (rs11136000) , ABCA7 (rs3764650),* and *CR1 (rs6656401)* with risk of dementia

Study Cohort

Sample size n=83

Controls n=40

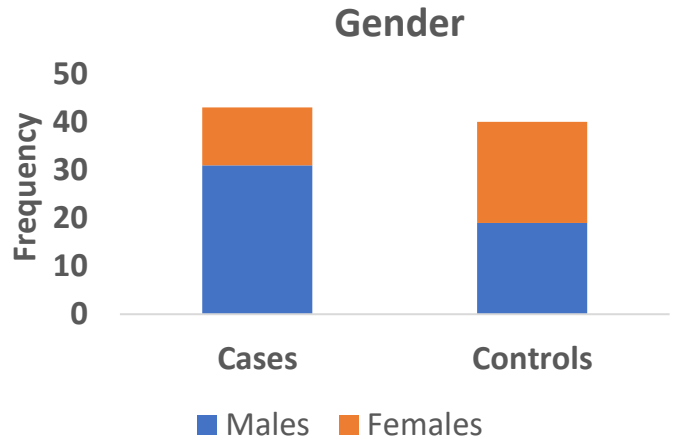
Mean age

49.27±7.01

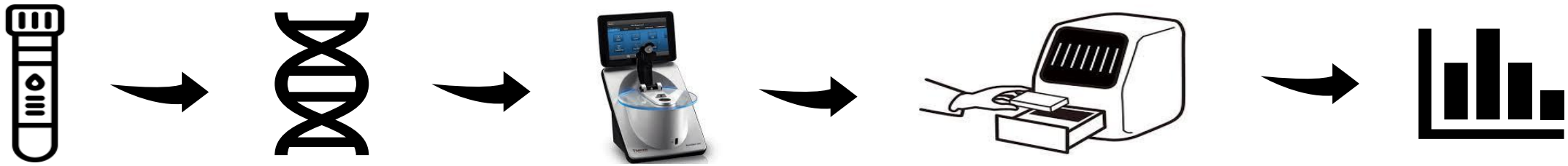
Cases n=43

Mean age

63.53±9.12



Methodology



Blood Sample → DNA Isolation → DNA QC → PCR-RFLP → Data Analysis

Results

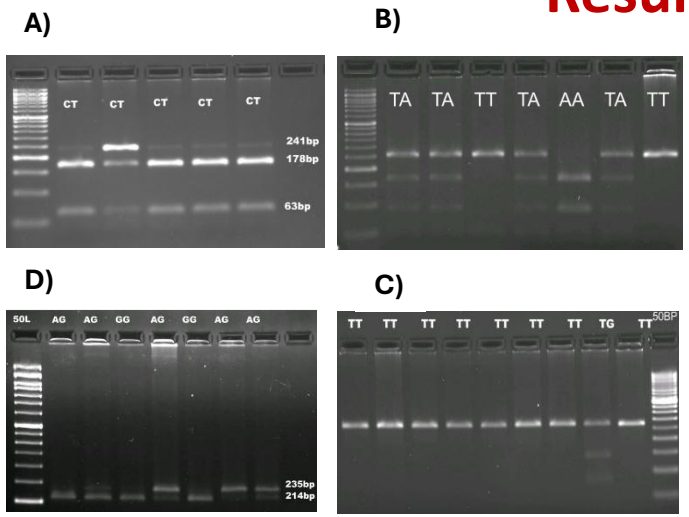


Fig1: Depicting fragment patterns on agarose gel a) CD33, b) CLU, c) ABCA7 and d) CR1

Linkage disequilibrium

Linkage	D	r	P value
CD33-ABCA7	0.997	0.190	0.018*
CD33-CR1	0.677	0.344	0.0001*
ABCA7-CR1	0.567	0.213	0.006*

Conclusion

Genotype C/T of *CD33 rs3865444* and A/A of *CLU rs11136000* are associated with ↓ dementia risk ($p<0.05$)

No significant association of *ABCA7 rs3764650* and *CR1 rs6656401* with dementia risk ($p>0.05$)

Significant co-inheritance between *CD33-ABCA7*, *CD33-CR1* and *ABCA7-CR1*