

Background. One novel variant and sixteen known variants were found in the MT-ND3 gene in normozoospermic males and asthenozoospermic there is no association between asthenozoospermia and these variants. A total of seventeen single nucleotide polymorphisms (SNPs) in the MT-ND3 gene; were detected in the asthenozoospermic and normozoospermic groups at different nucleotide positions, one of this SNPs found in the normozoospermic group is novel SNP; while the other SNPs were previously reported in the National Center for Biotechnology Information (NCBI) and database Human Mitochondrial Database(mtDB). Six variants were found through which the amino acid is changed in translation) missense variants(, distributed as follows: The SNPs found two missense variants that change the amino acids in asthenozoospermic; rs41487950 T>C (Ile9Thr) and rs1603222800 G>A (Ala103Thr). The study aims to investigate the mitochondrial ND3 gene in asthenozoospermic males in Jordan, with a focus on scanning for potential genetic variations or abnormalities that may contribute to this specific form of male infertility. In addition to three missense variants in normozoospermic; rs202131419 G>A (Gly29Ser), rs193302928 T>C (Val88Ala), and rs1603222776 T>C (Met89Thr), also found one missense variants in asthenozoospermic and normozoospermic; rs2853826 A>G (Thr114Ser). The mitochondrial genome comprises 13 genes, one of these genes is the ND3 gene, a part of complex 1 in mitochondria, which plays a crucial role in the ATP synthesis process. The chi-square test and Fisher's exact test were employed to compare genotypes and allele frequencies between the asthenozoospermic and normozoospermic groups. Eleven variants were found whose translation does not cause a change in the amino acid)synonymous variants(, distributed as follows: two synonymous variants in asthenozoospermic; rs1603222690 A>G (Leu24) and rs163222794 A>G (Leu98). Finally found six synonymous variants in asthenozoospermic and normozoospermic; rs3899188 T>C (Ile19), rs878969753 C>T (Asn28), rs1556423786 A>G (Met53), rs193302927 T>C (Ile60), rs1556423796 A>G (Trp77), and rs28358278 C>T (Thr114). The study involved 188 men, comprising 117 with asthenozoospermia and 71 with normozoospermia, collected from the Royal Jordanian Medical Services in vitro fertilization (IVF) units. Male infertility refers to the inability to achieve clinical pregnancy after 12 months of unprotected intercourse. Asthenozoospermia, a condition characterized by low sperm motility, represents 13% of male infertility cases. Extracted Mitochondrial DNA (mtDNA) from semen samples from normal as well as asthenozoospermic using a commercial kit according to the manufacturer's instructions. In addition to three synonymous variants in normozoospermic; rs2068720641 C>A (Val49), rs1603222757 C>T (Leu75) and rs1603222805 A>G (Trp106). Objectives. Method. Results. Conclusion.