

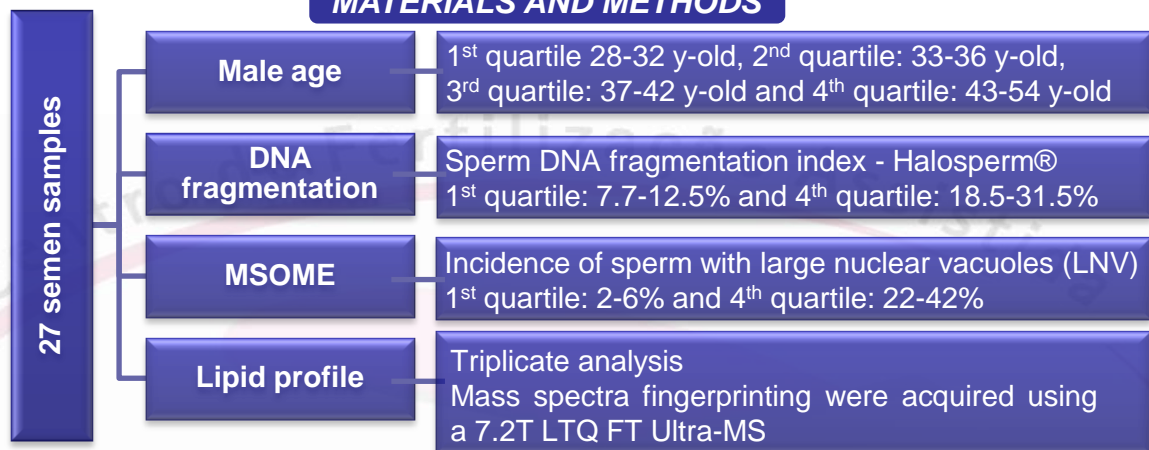
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INTRODUCTION

Semen analysis is the best tool available to assess male fertility; nonetheless, many infertility cases remain undiagnosed. Lipids are basic semen components that are involved in energy metabolism and in the events that lead to fertilization. In general, sperm fatty acids are suggested as markers of fertility disorders in men. Lipidomics is an emerging field of biomedical research. Not much is known about the association between sperm lipid profile and other assays for sperm quality.

MATERIALS AND METHODS



Data were analysed using the Partial Least Square Discrimination Analysis (PLS-DA) combined with variable influence on projection (VIP) scores. The lipid profiles were compared between the different groups of male age, MSOME and sperm DNA fragmentation results.

RESULTS

VIP analysis

Male age

The model detected an increase of 4 lipids in the 1st quartile group, 6 lipids in the 2nd quartile group, 4 lipids in the 3rd quartile group and 1 lipid in the 4th quartile group, with an accuracy of 60.0%

Sperm DNA fragmentation index

The model detected an increase of 5 lipids in the 1st quartile group and 10 lipids in the 4th quartile group, with an accuracy of 84.6%

Incidence of LNV-sperm

Regarding the incidence of LNV sperm, the model detected a significant increase of 10 lipids in the 1st quartile group and 5 in the 4th quartile group, with an accuracy of 85.0%

CONCLUSION

Specific lipids that are differentially represented depending on the male age, sperm DNA fragmentation index and incidence of large nuclear vacuoles (LNV) sperm were detected. The MS fingerprinting may be a valuable, non-invasive tool for the prediction of semen sample quality.