Recommendation

Measurement of oxidative stress in semen of males with unexplained infertility should only be considered in the context of research.	Research only

Measurement of oxidative stress in women with unexplained infertility is not recommended.	Strong ⊕⊕◯◯

Justification

The included studies point towards an increase in ROS in males with UI. However, studies described have used many different methods, some of which are not readily available, limiting access and equity. The evidence for male testing is low and would benefit from further research. Patients would value a simple blood test if treatment was available and effective. In the absence of this, testing of oxidative stress should be standardised across research studies and treatment benefits compared with the work and expenses involved in testing. In females, there is good evidence that testing is not valuable, at least for serum, while follicular fluid is difficult to obtain before fertility treatment. Again, there is no evidence of any treatment being effective thereby limiting investigation and the cost of testing.

Further information

Details of the literature study and evidence tables are available in Annex 6 and Annex 7 (question II.10).

GENETIC/GENOMIC TESTS

Evidence

In a retrospective cohort study, 4345 (2261 male and 2084 female) individuals with reproductive disorders (11% of patients with UI) underwent karyotype testing. Abnormalities were found in 3% of patients with UI, compared with 2.2% for ART failure and 1.6% for recurrent miscarriage. No statistical analysis was performed (Ertosun et al., 2022).

In a prospective cohort study, genetic polymorphisms in the FSHB gene were evaluated in 36 females with UI and 169 healthy women without known fertility problems. Carriers of the FSHB-211 T-allele had significantly higher serum FSH and LH concentrations, and this allele was enriched among infertility patients, and even nearly doubled in women with UI (23.6% vs. 12.4%). Frequency of TT homozygosity was increased threefold (5.6% vs. 1.8%) (Rull et al., 2018).

In a prospective cohort study, 98 couples with UI were screened for genetic polymorphisms in the PPAR gamma gene. No relationship was found between pregnancy rate and the studied polymorphisms (Sahmani et al., 2011).

In a prospective cohort study, 19 women with UI were screened for genetic polymorphisms of CIAS1, an inflammasome component. Frequency was not significantly different between groups, 18.4% in unexplained vs. 17% in male infertility (Witkin et al., 2010).