Study question
 Does leukocytospermia affect the level of seminal oxidation reduction (ORP) potential?

Summary answer
 ORP levels are not influenced by the presence of leukocytospermia.

What is known already
 Oxidative stress (OS) is a major contributor to male infertility. It is caused by an imbalance between reactive oxygen species (ROS) and reductants in favor of ROS, negatively affecting sperm functions. OS can be directly measured through ORP using the MiOXSYS system which has been shown to predict male infertility. In semen, ROS are produced by sperm and leukocytes. It is not clear as to what is the extent of leukocytic contribution to ROS production in semen as this could influence the ORP result.

Study design, size, duration
 This was a retrospective study. It included 3,968 patients presenting with male factor infertility to a tertiary medical center over a period of 18 months. The inclusion criteria were infertility > 1 year in duration and normal fertility assessment of the female partner.

Participants/materials, setting, methods
 ORP was determined using the MiOXSYS system (Aytu BioScience, Englewood, CO) which has a cut-off of 1.36mV/10^6 sperm (3,968 patients) while SDF testing was done using the Halosperm G2 test kit (Halotech DNA SL, Madrid, Spain) with a cut-off of 30% (1,147 patients). Leukocytospermia was detected by means of the Endtz test in 241 men. Statistical analysis was performed using MedCalc Statistical Software version 18.10 using non-parametric tests (Spearman Rank correlation, Mann-Whitney test, Fisher’s Exact Test, ROC curve).

Main results and the role of chance
 SDF showed positive correlation with ORP (r=0.225, P<0.0001) and negative correlation with the number of leukocytes (r=-0.262, P=0.0383). However, no significant correlation was detected between ORP and leukocyte count (r=0.0195, P=0.7665). While Fisher’s Exact test was significant (P=0.0408) for leukocytospermia and SDF, no relationship was found for leukocytospermia and ORP (P=0.1369). ROC curve analysis showed that neither ORP could predict leukocytospermia, nor could the leukocyte count predict high (≥1.36mV/10^6 sperm/mL)/low (<1.36mV/10^6 sperm/mL) ORP levels.

Limitations, reasons for caution:
 The main limitations are the retrospective design of the study.

Wider implications of the findings:
 More studies are needed to verify the effect of ROS source on sperm function.