Thiol/Disulphide homeostasis in patients with idiopathic recurrent pregnancy loss assessed by a novel assay
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Objective
To evaluate the relationship between idiopathic recurrent pregnancy loss (RPL) and oxidative stress (OS) by means of thiol/disulphide homeostasis via a novel technique.

Methods
A total of 39 patients having the diagnosis of idiopathic RPL were compared with 50 controls without a history of abortion. Idiopathic RPL was defined as experiencing 2 or more consecutive miscarriages before 20 weeks of gestation with normal karyotypes of couple and/or abortus materials, negative maternal screening for anticardiolipin, anti β 2 glycoprotein antibodies and lupus anticoagulant, normal thyroid stimulating hormone, prolactin and hemoglobin A1C levels and normal pelvic sonography and/or hysterosalpingography. A new and fully automated method was used for the measurement of plasma native thiol, total thiol and disulphide levels. The method was based on the reduction of dynamic disulphide bonds to functional thiol groups by sodium borohydrait.

Results
Women with idiopathic RPL had significantly lower plasma levels of native thiol (341.89±50.0 µmol/L vs. 390.84±38.5 µmol/L, p<0.001) and total thiol (386.18±51.7 µmol/L vs. 435.78±42.3 µmol/L, p<0.001). In addition disulphide/thiol and disulphide/total thiol ratios were significantly higher and native thiol/total thiol ratio was lower in patients with idiopathic RPL. No difference was measured in the plasma levels of disulphide, albumin and total protein.

Conclusion
The main outcome of our study indicates a relation between idiopathic RPL and OS. More importantly, the new method used in our study proposes a promising, practical and daily applicable test for evaluating the patients with idiopathic RPL.