

## P262. Matrix metalloproteinase-9 and neutrophil gelatinase-associated lipocalin levels in advanced stage endometriosis

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**Context:**Endometriosis is a chronic disease, which is surgically diagnosed and treated. Peritoneal disease and adhesions in severe endometriosis cannot be detected without surgery. **Objective:**The aim of this study is to develop a non-invasive test for prediction of severe endometriosis. **Methods:**All cases and controls gave informed consent and accepted to give serum samples for matrix metalloproteinase-9 (MMP-9) levels and urine for neutrophil gelatinase-associated lipocalin (NGAL). **Participants:**Between November 2016-June 2017 surgically treated endometriosis cases at laparoscopic surgery were included in the study performed at hospital. Controls were cases undergoing laparoscopy for benign gynecological purposes without endometriosis. **Intervention:**Laparoscopic surgery for endometriosis was performed for infertility and/or pain. In controls infertility, tubal occlusion, hydrosalpinx, chronic pelvic pain, benign ovarian cysts were the indications for surgery. Before any intervention, blood sample for MMP-9 was collected. After anesthesia the bladder was drained and urine sample was used for uNGAL analysis. **Main outcome Measures:**The correlation between biochemical parameters in cases and surgical stage of the disease (American Fertility Society staging system) was documented. The predictive value of MMP/NGAL ratio for endometriosis and also the severe forms of the disease (Stage 3-4) was also analyzed. **Results:**The median age of the cases were 34 and the body mass index (BMI) was 26.7 kg/m<sup>2</sup>. NGAL levels did not differ significantly between groups with (n=60) and without endometriosis (n=31) (p=0,551) and between those with early stage (n=30) and advanced stage endometriosis (n=30) (p=0,232). MMP-9 levels were significantly different between the patients with and without endometriosis (p=0.002) and those with early stage and advanced stage endometriosis (p<0.001). A similar significant difference was also observed in the comparison of the ratio of MMP-9/NGAL between the groups (p<0.05). Among the variables (age, BMI, Ca125, NGAL, MMP-9, MMP-9/NGAL ratio), MMP-9 [OR:1.69; 95% CI:(1.17-2.43); P=0.005] was found to be independent factor for advanced stage endometriosis. The threshold value for advanced stage endometriosis for MMP-9 is 14,13 pg/mL, with 80% sensitivity and 73,3% specificity. **Conclusion:**Severe endometriosis is associated with high MMP-9 levels which can help to predict advanced stage disease before surgery.

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