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Development of a Novel Clinical Screening Tool, Using the BSGE Pain Questionnaire, Clinical Examination and Ultrasound to Predict the Severity of Endometriosis Prior to Laparoscopic Surgery

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Abstract : Background: Endometriosis is a complex disabling disease affecting young females in the reproductive period mainly. The aim of this project is to generate a diagnostic model to predict severity and stage of endometriosis prior to Laparoscopic surgery. This will help to improve the pre-operative diagnostic accuracy of stage 3 & 4 endometriosis and as a result, refer relevant women to a specialist centre for complex Laparoscopic surgery. The model is based on the British Society of Gynaecological Endoscopy (BSGE) pain questionnaire, clinical examination and ultrasound scan. Design: This is a prospective, observational, study, in which women completed the BSGE pain questionnaire, a BSGE requirement. Also, as part of the routine preoperative assessment patient had a routine ultrasound scan and when recto-vaginal and deep infiltrating endometriosis was suspected an MRI was performed. Setting: Luton & Dunstable University Hospital. Patients: Symptomatic women (n = 56) scheduled for laparoscopy due to pelvic pain. The age ranged between 17 – 52 years of age (mean 33.8 years, SD 8.7 years). Interventions: None outside the recognised and established endometriosis centre protocol set up by BSGE. Main Outcome Measure(s): Sensitivity and specificity of endometriosis diagnosis predicted by symptoms based on BSGE pain questionnaire, clinical examinations and imaging. Findings: The prevalence of diagnosed endometriosis was calculated to be 76.8% and the prevalence of advanced stage was 55.4%. Deep infiltrating endometriosis in various locations was diagnosed in 32/56 women (57.1%) and some had DIE involving several locations. Logistic regression analysis was performed on 36 clinical variables to create a simple clinical prediction model. After creating the scoring system using variables with $P < 0.05$, the model was applied to the whole dataset. The sensitivity was 83.87% and specificity 96%. The positive likelihood ratio was 20.97 and the negative likelihood ratio was 0.17, indicating that the model has a good predictive value and could be useful in predicting advanced stage endometriosis. Conclusions: This is a hypothesis-generating project with one operator, but future proposed research would provide validation of the model and establish its usefulness in the general setting. Predictive tools based on such model could help organise the appropriate investigation in clinical practice, reduce risks associated with surgery and improve outcome. It could be of value for future research to standardise the assessment of women presenting with pelvic pain. The model needs further testing in a general setting to assess if the initial results are reproducible.

Keywords : deep endometriosis, endometriosis, minimally invasive, MRI, ultrasound.
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