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INTRODUCTION

Context:

- Infertility is one of the most important reproductive health problems in Lithuania. Unexplained infertility is one of the main causes of infertility. It is estimated to account for 25%. Analysis of genetic markers using the latest diagnostic systems as a next-generation sequencing (NGS) system, identification of these markers is very important in the assessment of risk factors and causal etiopathogenesis mechanisms in the solution of infertility problems.

Objective:

- To determine genetic markers those are related or may be associated with unexplained infertility. To create diagnostic panel "Unexplained Infertility" that could be applied in daily clinical practice.

Methods:

- A systematic review of the literature is performed to analyze genes that are related or may be associated with unexplained infertility. The review was conducted in the electronic scientific databases PUBMED, Medline, and Cochrane, including articles published since 2010 until 2020. The following keywords were used for the search: "genes", "unexplained infertility", "diagnostic panel", "and next-generation sequencing (NGS)".

RESULTS

According to the literature and research, these diagnostic panels have been developed:

Gene sets – female unexplained infertility	Gene sets – male unexplained infertility
<i>MTHFR, FOLR3, TCN2, CTH, SLC19A1, SYCP3, ENOS, CYP19A1, ESR1, LIF, HABP2, MLH3, TUBB8, ZP1, PAD16, TLE6, F2, CFTR, CAPN10, AR, FSH, LHCGR, ACE, PAI-1-675, MnSODA16V, RNLS, VDR, PALT2</i>	<i>CATSPER1, POLG, RPL23A, RPS27A, RPS3, RPS8, TOMM7, MTHFR, C677T, APLF, CYB5R4, ERCC4, TNRF5R21, MORC1, PIWIL1, ZFAND6, RBMY1F, DPY19L2, ADAM3A, NXF2, SIRPB1, FSHR, LHCGR, AR</i>

CONCLUSION

- Correctly diagnosed infertility helps to choose individual treatment.
- The "Unexplained Infertility" diagnostic panel should be included in a standard test that identifies the cause of unexplained infertility.
- The use of new diagnostic tests will be applied in practice to address the unknown etiology of infertility detection.
- It is important to indicate the correct future medical intervention to address the growing problem.

KEY WORDS

Unexplained infertility; Genetic markers; Next-generation sequencing (NGS); Lithuania.

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