

令和 8 年度獨協医科大学大学院医学研究科入学者選抜試験問題

試験時間 6 0 分

科 目	産科婦人科学	試 験 施行日	令和 7 年 1 1 月 8 日（土）13：00～14：00	
受 験 番 号	番	氏 名		

問題 1．この段落でいいたいことを要約してください。

Ovarian stimulation protocols are critical to in-vitro fertilization(IVF) success as they optimize the number and quality of oocytes retrieved. These protocols typically involve the administration of gonadotrophins to stimulate the ovaries to produce multiple follicles and to retrieve a sufficient number of mature oocytes that can be fertilized to create viable embryos. Personalization of ovarian stimulation has become increasingly important due to the variability in patient characteristics such as age, ovarian reserve, and hormonal profile. For instance, younger patients with a higher ovarian reserve may require different stimulation protocols compared to older patients or those with diminished ovarian reserve. Despite personalized approaches, predicting individual patient responses to stimulation remains challenging. Suboptimal stimulation can lead to various issues, including ovarian hyperstimulation syndrome (OHSS), poor oocyte quality, and, ultimately, lower IVF success rates.

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試験時間 60 分

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問題 2. 不妊治療におけるArtificial intelligence (AI), machine learning (ML)活用に関するレビューです。
記載されているメリットを 2 つ抽出して日本語で要約してください。

Artificial intelligence (AI) can potentially revolutionize the personalization of ovarian stimulation protocols by leveraging vast datasets and advanced analytical techniques. Recent advances in AI, particularly in machine learning (ML) and deep learning (DL), have shown promise in improving the accuracy and efficacy of these protocols. AI can analyze extensive datasets comprising patient characteristics, historical responses to stimulation protocols, and IVF outcomes. AI can provide insights that may elude traditional analysis by identifying patterns and correlations within these datasets. For instance, AI can identify subtle correlations between specific patient profiles and their responses to different stimulation protocols, enabling more precise treatment tailoring.

Machine learning algorithms can develop predictive models to estimate each patient’s optimal type and dose of gonadotropins. These models consider various factors, including age, body mass index (BMI), antral follicle count (AFC), and anti-Müllerian hormone (AMH) levels. AI models can predict the best day for monitoring a patient, trigger day options, and the number of oocytes. AI systems can integrate data from previous IVF cycles to refine predictions for future treatments. This iterative learning process allows the AI to improve its recommendations continuously. By incorporating historical patient data, AI can enhance the personalization of stimulation protocols, resulting in improved clinical outcomes. Moreover, AI can also facilitate real-time adjustments to stimulation protocols. By monitoring patients’ responses during the stimulation phase, AI algorithms can recommend modifications to the dosage or type of gonadotropins. This dynamic approach ensures that the protocols are constantly optimized to achieve the best possible outcomes, reducing the incidence of complications like OHSS and enhancing overall treatment efficacy.