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Title: Patients with a high proportion of immature and meiotically resistant oocytes experience defective nuclear oocyte maturation patterns and impaired pregnancy outcomes

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Short title: Outcomes of patients with immature and maturation resistant oocytes

Patients with a high proportion of immature and meiotically resistant oocytes experience defective nuclear oocyte maturation patterns and impaired pregnancy outcomes

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Key message

Patients with a high proportion of immature oocytes following routine ovarian stimulation, including at least one maturation resistant oocyte, fail to achieve pregnancy and their oocytes exhibit abnormal nuclear maturation. Appropriate treatment strategies, including clinical utilization of in-vitro maturation, require further investigation.

Yuechao Lu received her medical degree from Tongji Medical College, China. She has been studying for her PhD at the Centre for Reproductive Medicine at Ghent University Hospital in Belgium since 2011. Her research interests include Ca²⁺ signalling investigations with respect to meiotic maturation resistance, failed fertilization and oocyte ageing.

Abstract

Patients presenting with abnormally high numbers of immature oocytes at retrieval are more likely to exhibit maturation resistant oocytes. However, the clinical relevance of such events remains unknown. We investigated nuclear maturation competence of immature oocytes from patients showing >40% of collected immature oocytes (Study group) and Controls, in which a normal number of mature oocytes (≥60%) was retrieved. Following in-vitro culture, oocytes were classified as maturation resistant or in-vitro matured (IVM). Treatment outcomes were evaluated in Study and Control groups based on presence of maturation resistant oocytes. Overall, similarly high

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