

Assessment of an oocyte retrieval simulation training program for residents: from training to clinical practice

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Abstract

Objective: To assess the impact of an oocyte retrieval simulation training program (ORSTP) on the clinical performance of residents. **Design:** Prospective comparative study. **Setting:** A tertiary care center. **Population:** All OR performed by residents between May 2018 and November 2021. **Methods & main outcome measures:** The Simulation (S) group included oocyte retrieval (OR) performed by residents who had undergone an ORSTP before performing them on patients (n=422) and the control (C) group included OR performed by residents who had not received prior simulation training (n= 329). Our main outcome measure was the OR rate (ORR) (number of oocytes collected/number of follicles aspirated) during the first 3 months of the rotation. **Results:** In the S group, 6 residents aspirated 657 ovaries while in the C group, 5 residents aspirated 508 ovaries. The mean ORR during the first 3 months of rotation were comparable between the S and C groups (59% (2800/472) vs 58% (1910/3281)). ORR during the first and second month, and at the end of the rotation were also comparable between the S and C groups (54% vs 63%, 58% vs 59% and 58% vs 58%, respectively). There was no significant difference in the rate of failed OR (3.3% vs 1.8%) between the S and C groups. Finally, 16% of residents in the S group reported being stressed before their first OR compared to 40% in the C group. **Conclusions:** The ORSTP does not improve the residents' clinical performance, but it could decrease their stress in clinical practice. **Keywords:** oocyte pick-up, infertility, simulation, education, student.

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In the field of Reproductive Endocrinology and Infertility, oocyte retrieval (OR) constitutes the main invasive procedure that is taught to residents and fellows in training.

Indeed, as the number of oocytes retrieved increases, so does the cumulative live birth rate.¹ Given the importance of the procedure, it is important that residents and fellows be well prepared when performing their first procedures on patients. Recently, a high-fidelity system for the simulation of OR was developed.

Based on that, we aimed to assess the impact of an ORSTP on the clinical performance of Ob/Gyn residents.

We performed a prospective study, between May 2018 to November 2021, at the Angers University Hospital. All patients signed an informed consent prior to inclusion.

We included all OR performed by Ob/Gyn residents during the study period. The Simulation (S) group included oocyte retrieval (OR) performed by residents who had undergone an ORSTP before performing them on patients (n=422) and the control (C) group included OR performed by residents who had not received prior simulation training (n= 329). The OR simulation training program was performed on PickUpSimTM.

Residents in the S group spent the first 15 days of rotation observing the OR performed by the physicians, and in the afternoon participated in simulation training sessions. In the following 15 days, the residents started performing the OR under direct supervision from senior physicians. Residents punctured one side and the senior physician the other side. In the C group, residents did not participate in any simulation sessions. Following the observation period of 15 days, they started and completed their training exactly as residents in the S group. After the end of the first month, residents started performing the entirety of the OR. At the end of the first month of their rotation, residents in both groups filled a satisfaction survey concerning their respective training.

Our main outcome measure was the OR rate (ORR) (number of oocytes collected/number of follicles aspirated) during the first 3 months of the rotation.

The acceptable ORR for senior physicians is at least 70% when including all mature follicles,²⁻³ while studies have shown that a resident without much REI experience has a significantly lower ORR than that of a senior physician.⁴ Based on that, and knowing that the policy at our center is to aspirate all follicles [?] 8 mm, we considered an ORR [?] 55% as acceptable for residents. On the other hand, we believe that the ORSTP could improve the ORR by 5% and that the improvement should be observable one month after training. Therefore, we included 834 OR, 417 in each group, in order to have a 90% power and an α risk of error of 5%.

In the S group, 6 residents aspirated 657 ovaries while in the C group, 5 residents aspirated 508 ovaries. The characteristics of patients and *In Vitro Fertilization* cycles were comparable between S and C groups.

The mean ORR during the first 3 months of rotation were comparable between the S and C groups (59% vs 58%). ORR during the first and second month, and at the end of the rotation were also comparable between the S and C groups (54% vs 63%, 58% vs 59% and 58% vs 58%, respectively) (Figure 1). There was no significant difference in the rate of failed OR (3.3% vs 1.8%) between the S and C groups. Finally, 16% of residents in the S group reported being stressed before their first OR compared to 40% in the C group.

The ORSTP does not improve the residents' clinical performance, but it could decrease their stress in clinical practice.

Author contribution

Conception: AW, PMP, PEB. Planning: AW, BB, PMP, PEB. Analyzing: AW, BB, HEH, PEB. Writing up: HEH, PEB.

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Conflict of interest

None of the authors have a conflict of interest to declare pertaining to this study.

Data availability statement

The data that support the findings of this study are available from Clinical Research Center, Angers University Hospital, Angers, France.

Details of ethics approval

The study was approved by the Ethical Committee of Angers University Hospital: 2018-03, 31th January 2018

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Figure 1 boxplot.docx available at <https://authorea.com/users/470366/articles/623366-assessment-of-an-oocyte-retrieval-simulation-training-program-for-residents-from-training-to-clinical-practice>