Aim: To ensure the sample quality meet the requirement of experiment research, the gynecology and obstetrics biobank of Nanjing Drum Tower hospital designed different quality control method for relevant types of samples and a range of viable quality control procedure has been formulated.

Methods: The gynecology and obstetrics department and biobank cooperate to accomplish the biobanking process. Disease categories included birth defect, preeclampsia (PE), endometriosis and gynecological oncology. Sample types after disposition were frozen tissue, paraffin-embedded tissue, OCT-embedded tissue, plasma, buffy coat, serum, blood clots and urine. Different categories of samples were randomly selected 1% cases for quality control experiments:

- Frozen tissue, buffy coat and blood clots: RNA and DNA were extracted and the concentration, purity and integrity were detected.
- Paraffin-embedded tissue: morphological observation after hematoxylin-eosin staining and immunohistochemistry (IHC) detection of β-actin.
- OCT-embedded tissue: immunofluorescence detection of β-actin.
- Four kind of organs (skin, heart, liver and placenta) frozen tissue samples derived from 18 fetal autopsy specimens were chosen for study of RNA quality between cold ischemia time (CIT).

Results: Recently there are about 2,000 cases, 360,000 vials samples in the obstetrics and gynecology disease biobank. According to the results of quality control experiments: 1) All the concentration and purity parameters of selected samples were qualified. 2) Frozen tissues with cold ischemia time (CIT) ≤1h, using qualified standard RIN≥7, the qualification rate was 90%.

- Frozen tissue: DNA extraction, DNA concentration and purity, DNA integrity, β-actin mRNA expression.
- Buffy coat and blood clots: DNA extraction, DNA concentration and purity, DNA integrity, β-actin protein expression.
- Paraffin-embedded tissue: morphological observation after hematoxylin-eosin staining, immunohistochemistry, morphological images of β-tubulin protein expression.
- OCT-embedded tissue: immunofluorescence, β-tubulin protein expression.

3) Frozen tissues with CIT between 1~18h, using qualified standard RIN≥5, the qualification rate was 61.1%. 4) All the paraffin-embedded tissues were qualified for morphological observation 5) The qualification rate of OCT-embedded tissue was 89%. 6) CIT had a great influence on the integrity of frozen tissue RNA, and the RNA integrity parameters of different tissue types in the same specimen were significantly different.

Conclusions: An obstetrics and gynecology disease biobank with various types of diseases and abundant samples was constructed. Using specific quality control experiments for different types of samples was a reliable operating strategy, which can be beneficial for providing qualified research resources.

Key word: obstetrics and gynecology disease, biospecimen, biobanking, quality control, qualification rate