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Title: THE BEST STRATEGY FOR FERTILITY PRESERVATION USING OVARIAN TISSUE IN JAPAN IS SAFER SLOW FREEZING AND USE OF THE TRANSPORTATION NETWORK

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**Background and aims:** More than 60 healthy babies have been born after transplantation of frozen-thawed ovarian tissue. Fifty-eight babies were derived from slow freezing and two babies were from the vitrification method. The concentration of cryoprotectants is 3-4 times higher and thawing time is shorter in vitrification, so we are concerned about toxicity for mothers and babies. Transplantation is useful in Denmark (one center) and Germany (two centers). In Japan, we examined fertility preservation methods for cancer patients.

**Methods:** We compared Germany with Japan: area, population, cryopreservation centers, operation centers (removal and transplantation of ovarian tissue), start dates, cryopreservation patients, number of transplantation patients, number of pregnancies, and number of births. We measured the residual EG and DMSO amount in ovarian tissue after warming following the vitrification protocol.

**Results:** Area and population of Germany vs. Japan are  $35.8 \times 10^4 \text{ km}^2$  vs.  $37.9 \times 10^4 \text{ km}^2$  and  $8,150 \times 10^4$  vs.  $12,650 \times 10^4$ . Germany has two cryopreservation centers and 101 operation centers, whereas Japan has 30 cryopreservation centers and 23 operation centers. Germany and Japan have had around 2,000 and 150 cryopreservation cases respectively. Start dates are 2006 (*FertiPROTEKT*) in Germany and 2006 (first center) in Japan. Transplantation patients were 95 in Germany and 2 in Japan. Pregnancies and births were 21 and 16 in Germany vs. 0 and 0 in Japan. For cryoprotectants, we confirmed around 10mg/g in ovarian tissue just before transplantation after complete warming.

**Conclusions:** In Japan, we should adopt safer slow freezing in cryopreservation for ovarian tissue and a transportation network like Germany and Denmark.