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Recurrent pregnancy loss and obesity

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Recurrent pregnancy loss (RPL) was defined as two or more miscarriages. Antiphospholipid syndrome, uterine anomalies, and parental chromosomal abnormalities, particularly translocation and abnormal embryonic karyotype, are identifiable causes of RPL. Obesity may increase the risk of sporadic miscarriage in pregnancies conceived spontaneously. Obesity with body mass index (BMI) > 30 kg/m^2 is an independent risk factor for further miscarriage with odds ratio 1.7–3.5 in patients with early RPL. Obesity is associated with euploid miscarriage. Unexplained RPL with euploid embryo might be a common disease caused by both polymorphisms of multiple susceptibility genes and lifestyle factors such as women's age, obesity, and smoking. Patients with a history of RPL were found to have a higher risk of cardiovascular disease, celiac disease, gastric ulcer, gastritis, and atopic dermatitis. No study has examined the effect of weight loss on the prevention of further miscarriage in patients with RPL.

The cause of recurrent pregnancy loss

Miscarriage is the most common complication of pregnancy. The estimated incidence is about 15% and it mainly depends on women's age [1]. Recurrent miscarriage (RM) is classically defined as three or more consecutive pregnancy losses [2]. However, many researchers have now revised the definition to two or more pregnancy losses, namely recurrent pregnancy loss (RPL), because of the recent increase in the prevalence of childless couples. The estimated incidence of RM and RPL are 1% and 5%, respectively [3].

Antiphospholipid syndrome (APS), uterine anomalies, and abnormal chromosomes in either partner are identifiable causes of RPL (Fig. 1a) [4–6]. Approximately 50–70% of sporadic early (<10 weeks

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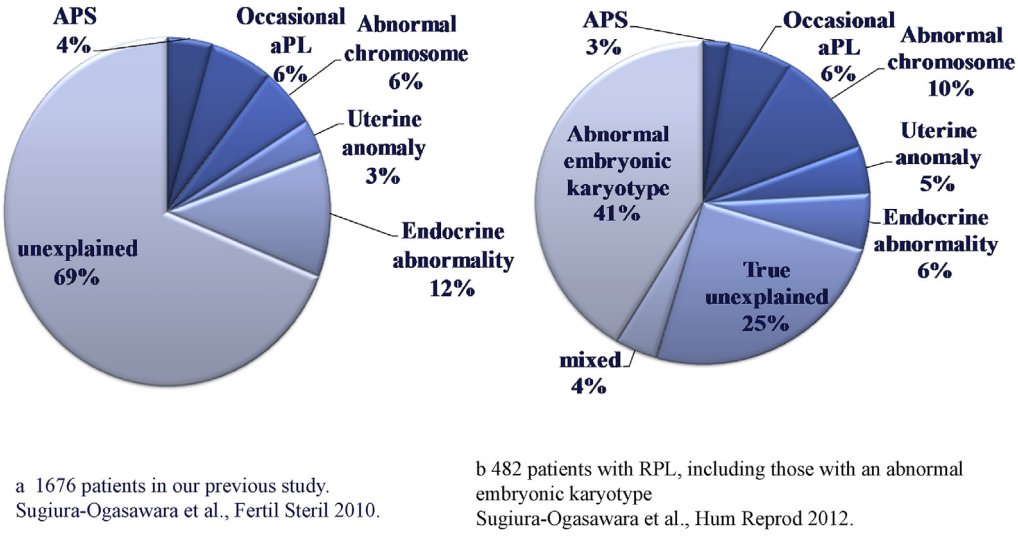

a 1676 patients in our previous study.
Sugiura-Ogasawara et al., Fertil Steril 2010.

b 482 patients with RPL, including those with an abnormal embryonic karyotype
Sugiura-Ogasawara et al., Hum Reprod 2012.

Fig. 1. Comparison of the distribution of causes in our 482 patients with RPL, including those with an abnormal embryonic karyotype, and the 1676 subjects of a previous study.

of gestation) miscarriages are associated with lethal numeric chromosome errors, such as trisomy, monosomy, and polyploidy, of which trisomy increases dramatically with advancing maternal age. We found chromosomal abnormalities in the embryo as a causative factor of RPL [7]. In our previous study, both live birth rate and abnormal rate of embryos decreased according to the number of previous miscarriages (Fig. 2). In addition, abnormal embryonic karyotype was found to be a predictor of subsequent live birth [7].

It is well known that the cause remains indeterminate in over a half of the cases (Fig. 1a) [8]. It has not been established whether hypothyroidism, diabetes mellitus, polycystic ovary syndrome (PCOS), thrombophilia, or infection cause RPL [8]. Branch et al. recommended the examination of

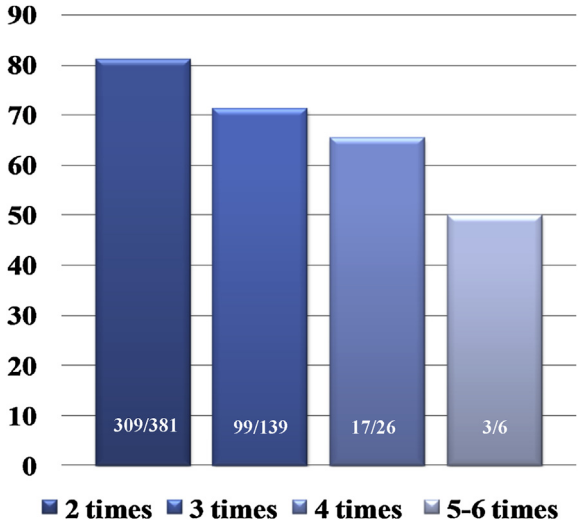

Fig. 2. Miscarriage rate according to the number of previous miscarriages in patients with unexplained RM who received no medication.