The Role of Stem Cells in Obstetrics and Gynecology

Gita Pratama

Stem cells are undifferentiated cells that can divide to produce offspring cells (self-renewal) that continue as stem cells and also can differentiate into multiple mature cell types (become specialized) when required. Stem cells could develop into blood, skin, brain, bones, fats and all organs in the human body. They could repair and regenerate injured cells and might potentially treat many medical conditions. Sources of stem cells basically can be divided into embryonic stem cells and adult stem cells. Due to ethical concern and the possibility for tumour formation, research on embryonic stem cells is very limited. On the contrary, research using adult stem cells is increasing every year, especially on mesenchymal stem cells. Adult stem cells can be obtained from various sources such as bone marrow, blood, fats and also readily available from gestational tissues such as umbilical cord, amnion and placenta.1-3

Research on stem cells such as in vitro, using an animal as disease’s model and also clinical trial to human is currently undergone for therapeutic purposes for many diseases. To date, most of the stem cells therapy is in the form of clinical research not commercially available yet for patients, unless for some indications with hematopoietic stem cells. Unfortunately, we also know that there are industries which offer unproven stem cells therapy for patients. Unproven stem cells therapy can be unsafe and harmful to vulnerable patients. In Indonesia, it is clear that the law regulates such stem cells therapy and before considered as standardized service therapy, doctors should perform any therapy with stem cells under research which should be approved by the ethics committee.4

In the field of Obstetrics and Gynecology, stem cells research has been done for several conditions such as stress urinary incontinence, pelvic floor prolapse, uterine and vaginal reconstruction.5-8 Other studies, mainly using the animal model and few human studies, have looked for stem cells therapy for primary ovarian insufficiency.9-12 Few studies also addressing stem cells therapy for endometrial disorders, such as thin endometrium and Asherman’s syndrome.13,14 The results of the studies are varied, some shows the potential use of stem cells for Ob/Gyn conditions and some do not. Therefore, to date, there is no stem cells therapy, apart from research, that has been approved to be a standardized therapy for patients with Obstetrics and Gynecology problems. More studies and evidence are needed before we can integrate stem cells into our daily practices.
REFERENCES
