

عنوان مقاله:

Amniotic fluid characteristics and its application in stem cell therapy: A review

محل انتشار:

مجله طب تولید مثل ایران, دوره 20, شماره 8 (سال: 1401)

تعداد صفحات اصل مقاله: 16

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خلاصه مقاله:

Amniotic fluid (AF) is a clear yellow fluid that surrounds the fetus during pregnancy. The amniotic sac consists of 2 layers: the amnion and the chorion. Osmotic and hydrostatic forces cause the maternal plasma to pass through the fetal skin and generate the AF. AF allows the fetus to grow inside the uterus, supports it from injuries, retains consistent pressure and temperature, and enables the exchange of body chemicals with the mother. At first, it consists of water and electrolytes but after the 12-14th wk the liquid also contains carbohydrates, proteins, lipids, phospholipids, urea, hormones, and some biochemical products. AF appearance is characterized by the grade of cloudiness and the number of flakes of the vernix. The volume of AF increases with the fetus's growth. Its appearance depends on the gestational age. In addition to differentiated cells, stem cells are also found within the AF. These cells express embryonic-specific cell markers and bear high self-renewal capacity and telomerase activity. AF stem cells possess the potential to differentiate into osteogenic, cardiac, skeletal muscle, lung, neuronal, kidney, bone, cartilage, ovarian and hepatic cells in vitro. They represent a great promise in regenerative medicine for the reconstruction of bio-artificial tissues and organs in vivo. The purpose of this paper was to briefly review the development and function of AF and the application of its stem cells in cell therapy.

کلمات کلیدی:

Amniotic fluid, Stem cells, Differentiation, Regeneration, Tissue engineering
مابع آمنیوتیک, سلول های بنیادی, تمایز, بازسازی, مهندسی بافت.

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