

Gametogenez, Fertilizasyon ve İmplantasyon

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GİRİŞ

Canlılar türlerinin devamı için üremek zorundadırlar. Tüm canlılar türlerine göre eşeyli ve eşesiz olarak ürerler. Memeliler eşeyli üremek zorundadırlar. Eşeyli üremek için gonadların belirli sayıya ve olgunluğa ulaşmaları, olgunlaşan bu gonadların fertilizasyon ile anneden ve babadan gelen genetik materyalin işlenmesi, bu sayede genetik çeşitliliğin sağlanması, döllenmeden sonra oluşan embrionun ana rahmine sağlıklı bir şekilde yerleşmesi gerekmektedir.

Gametogenez, olgun eşey hücrelerini oluşturma sürecidir. Hem bireyin hem de türün sağlığının ve esenliğinin ayrılmaz bir parçasıdır. Bu bölümde eşeyli üreyen biz insanların gonadal gelişimine değineceğiz. İnsan gametogenezinde hem erkek hem de kadınlarda gelişim süreçleri irdelenecektir. Fertilizasyon aşamasına kadar sperm ve oositlerin transportunu kısaca anlatacağız. Fertilizasyon, yumurta ve sperm arasında gerçekleşen, birbirini takip eden birtakım kompleks etkileşimleri içeren oldukça karmaşık bir süreçtir. Bu olaylar folikülden olgunlaşmış yumurtanın atımı ile başlar, ovule olan yumurtanın ve

koitusla anneye gönderilen spermın transportları, uygun yumurtaya sperm girişinden sonra 2 pronukleusun oluşması ve 1. mitoz bölünmenin gerçekleşmesiyle sona erer. İnsanlarda ve bütün hayvanlarda türün devamlılığı için gerekli olan bu süreç her zaman bilim adamlarının dikkatini çekmiştir. Biz de bu bölümde fertilizasyon olayı esnasında meydana gelen olayların mekanizmalarını moleküler düzeyde literatür bilgileri ışığında derlemeyi amaçladık.

Fertilize olmuş oositin gelimesi ve sıhhati için hormonlarla desidualize olmuş bir rahime yerleşmesi (implante olması) gerekir. İşte bu işleme blastokistin implantasyonu denir. Memelilerde başarılı embriyo implantasyonu, implant yapmaya yetkin bir blastokistin ve desidual bir endometriyumun koordineli gelişimini gerektirir. Türün ilerlemesi için implantasyonun vazgeçilmez rolü göz önüne alındığında, süreci düzenlemek için bir dizi moleküler mekanizma gelişmiştir. Embriyo ve anne dokusu tarafından üretilen çeşitli moleküller, implante olan blastokist ve endometriyum arasındaki çapraz etkileşimler gerekir. Çeşitli moleküller ve dahil oldukları yollar arasındaki etkileşim açıklanmaya başlıyor. İşte bu bağlamda literatürde bu konuya ışık tutan araştı-

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