BÖLÜM 1
Megakaryopoez ve Trombosit Formasyonu

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Giriş

Megakaryosit (MK) platelet oluşumundan sorumlu kök hücredir. Megakaryopoez ise kemik iliğinde hematopoietik kök hücreden (HKH) myeloid seri boyunca megakaryositlerin gelişimi ve olgunlaşmasını tanımlar. Olgunlaşan megakaryositler daha sonra bazı aşamalardan geçerek trombosit oluşumuna hazır hale gelecektir.

Megakaryositler ortalama 50-100 µm çapında ve 4700 fL hacminde olup çekirdekli kemik iliği hücrelerinin % 0,5-1'ini oluştururlar. Ortalama 1000-3000 trombosit üretirler (1,2).

Megakaryositler diferansiyasyon boyunca karmaşık bir olgunlaşma sürecinden geçer. Hücre siklusları geç anafazda sonlanır. Megakaryosit öncelikle normal 2N bölünme siklusundan geçer. Hücre siklusu daha sonra geç anafazda durarak (karyokinez ve sitokinezde) 4N, 8N, 16N ve 128N'e kadar DNA içeriğinine sahip olabilen tek polipoid bir nukleusa sahip olur. Bu DNA içeriği çok loblu tek bir nukleusta bulunur ve her lob bir diploid DNA'yı (2N) temsil eder (Resim 1). Bu sürece endomitoz denir (3,4).

Endomitoz ve poliploidinin daha sonraki platelet sentezi için gerekli protein ve membran sentezine yönelik olduğu öne sürülmektedir (5).

Sitokinez sırasında aktive RhoA orta zonda miyozin aktivasyonu ve aktin polimerizasyonunda görev alarak kontraktil ring oluşumunda rol oynar. RhoA kinaz inhibisyonu ile sitokinezin sonlanması polipoid nukleus ile sonuçlanır (6). Siklin D3 artışı siklin B1 düzeyinde azalma, siklin bağımlı kinaz inhibitörleri de endomitozda rol oynar (7,8).

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