BÖLÜM 4

HÜMORAL İMMÜNİTE

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B LENFOSİT GELİŞİMİ

GİRİŞ

İnsanlarda B hücresi fetal yaşamda karaciğerde ve daha sonra kemik iliğinde olgunlaşır. B hücreleri üretiminde yaşla birlikte azalma olmakla birlikte yaşam boyunca kemik iliğinde üretilmeye devam eder. Erken B hücresinin hayatta kalabilmesi ve işlevi için kemik iliğinde yüzey immünoglobulin ekspresyonunun olması gerekir. Bu olaylar, lenf düğümleri, dalak ve bağırsaktaki peyer plakları gibi sekonder lenfoid dokulara göç eden olgun B hücrelerinin üretimi ile sonuçlanır. (1) En erken tanınabilir aşama, B progenitör hücresi olarak adlandırılır. Sonraki aşamalar pro-B hücresi, pre-B hücresi, naif veya olgun B hücresi, birkaç farklı tipte antijenle aktive olan B hücresi, plazma hücresi ve bellek B hücresidir.(2)

Kemik iliğinde prekürsür B hücreleri, antijenden bağımsız olarak gelişir ve immünoglobulin (Ig) geninin yeniden düzenlenmesi sürecinden geçer. Progenitör B hücreleri, u ağır zincirleri eksprese eden öncü B (Pre B) hücrelerine farklılaşmak için Ig ağır zincir genlerini yeniden düzenler. Pre-B hücreler daha sonra IgM+ immatür B hücrelerine farklılaşmak için Ig hafif zincir genlerini yeniden düzenler ve daha sonra IgM+IgD+ olgun B hücreleri haline gelir. B hücresi gelişimi ve olgunlaşma yolunun her aşamasındaki kusurlar, primer immün yetmezliklere, otoimmün hastalıklara ve hatta B hücresi malignitelerine yol açabilir (3).

Gelişmekte olan B hücresinin membrana bağlı Ig, Igα ve Igβ (CD79a ve CD79b) koreseptörleri ve yardımcı sinyal iletim bileşenlerinden oluşan sağlam ve işlevsel bir B hücresi reseptör (BHR) komplexi mevcut olmalıdır. Fonksiyonel bir BHR'nin ekspresyonu, B hücresi gelişimi, olgunlaşması ve kemik iliğinden salınması için esastır. BHR ayrıca sekonder lenfoid dokularda olgun B hücrelerinin antijen kaynaklı aktivasyonu sırasında kritik bir rol oynar.(4)

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dan aktive edebilir. Protein antijenlerine verilen birincil ve ikincil antikor tepkileri farklıdır. İkincil yanıt, birincil yanıta göre daha hızlı gelişir ve daha büyük miktarlarda antikor üretilir

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