KADIN HASTALIKLARI VE DOĞUM ÖZELİNDE

Güncel Yaklaşımlar

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Önsöz

Tıp dünyası, baş döndürücü bir hızla ilerliyor ve Kadın Hastalıkları ve Doğum alanı da bu değişimin en dinamik sahalarından biri. Her geçen gün, hastalıkların tanı ve tedavisinde çığır açan yeni yöntemler geliştiriliyor, gebelik takibi ve doğum süreçleri daha güvenli ve hasta odaklı hale geliyor. Bu sürekli gelişim, biz hekimler için hem bir fırsat hem de kendimizi sürekli güncel tutma sorumluluğu getiriyor.

Kitabın hazırlanmasında, her bir bölümün kendi alanında uzman, deneyimli hekimler tarafından en güncel literatür taramaları ve kişisel tecrübeler ışığında kaleme alınmasına özen gösterilmiştir.
Bu eserin, Kadın Hastalıkları ve Doğum uzmanları, asistan hekimler ve bu alana ilgi duyan tüm tıp profesyonelleri için değerli bir kaynak olacağına inanıyoruz.
Bilimin ışığında, kadın sağlığına adanmış bu yolculukta yeni ufuklar açması dileğiyle…

Prof. Dr. Deniz Balsak
Kadın Hastalıkları ve Doğum Uzmanı

İÇİNDEKİLER

BÖLÜM 1

GEBELİK DÖNEMİNDE BESİN GEREKSİNİMLERİ

EDA GÜNER ÖZEN [1]

Giriş

Gebelikte optimal beslenme, prekonsepsiyonel dönemde başlamalıdır çünkü fetüs, büyüme ve gelişimi için gerekli olan tüm besin öğelerini plasenta aracılığıyla anneden alır (Marshall NE, 2022).Doğumdan sonra ise, bebeklerin beyin gelişimi ve organlarının sağlıklı büyümesi için, anne sütüyle alınan yüksek besin değeri taşıyan gıdalar gereklidir.

Gebelik sırasında aşırı kilo alımı ya da kilo kaybı; düşük, gebelik hipertansiyonu, gestasyonel diyabet (GDM), konjenital anomaliler, erken doğum, gestasyonel yaşa göre küçük (SGA) bebek doğumu ve nörobilişsel bozukluklar gibi birçok komplikasyonla ilişkilidir (Shaw GM, 2014). Barker hipotezine göre, gebelik döneminde annenin beslenme ve metabolik durumu tarafından şekillenen çevresel faktörler; epigenetik değişikliklere ve gen ekspresyonunda farklılıklara yol açarak, bebeklikten yetişkinliğe

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kadar sürecek kronik hastalıkların gelişimiyle ilişkili olabilir (Ryznar, 2021).

Gebelik öncesinde fazla kilolu veya obez olmak, maternal preeklampsi insidansında artışla ilişkilendirilmiştir (Gong, 2022). Gebelik öncesi kilo, doğacak bebeğin boyutunu da etkiler. Yapılan çalışmalar, vücut kitle indeksi 18.5 kg/m²'nin altında olan annelerin, SGA ve büyüme problemleri yaşayan bebeklere sahip olma riskinin yüksek olduğunu göstermiştir (Nakanishi, 2022).

Mikro besin ögeleri de fetal gelişim üzerinde doğrudan etkilidir. Demir, çinko, iyot ve omega-3 yağ asitleri; beyin ve sinir sistemi gelişiminde önemli rol oynarken; A, B6, B12 vitaminleri ve folik asit, DNA oksidasyonu ve metilasyon süreçlerinde görev alır. Bir çalışmada, B6 ve folat seviyelerinin yetersiz olması, spontan düşük riskini artırmıştır (Ronnenberg, 2002). Aksine, yeterli folik asit tüketiminin, nöral tüp defekti (NTD) insidansını azalttığı gösterilmiştir (Van Gool, 2018).

Anne adaylarının beslenme alışkanlıkları da, doğumsal malformasyonlar üzerinde etkili olabilir. Örneğin, Batı tipi beslenme düzeni -yüksek yağ ve şeker içeriğiyle- yarık dudak, damak ve konjenital kalp hastalıkları (CHD) gibi yenidoğan anomalilerinin artışıyla ilişkilendirilmiştir (Yang, 2021). Ancak, gebelik döneminde yapılan çalışmaların türü ve kalitesi ile ilgili zorluklar nedeniyle, bu alanda hâlâ birçok soru yanıtlanmamış olup daha fazla araştırmaya ihtiyaç duyulmaktadır.

Beslenme Durumunun Değerlendirilmesi

Kadınlarda beslenme durumu, gebelik öncesi dönemde değerlendirilmelidir. Bu sayede, daha gebelik gerçekleşmeden önce sağlıklı bir beslenme düzenine geçiş sağlanabilir ve bu alışkanlıklar gebelik ve emzirme dönemlerinde de sürdürülebilir hale gelir.

Beslenme durumunun değerlendirilmesi çok yönlü bir yaklaşımla yapılır:

Tıbbi öykü, beslenme durumunu doğrudan etkileyebilecek sağlık sorunlarını içermelidir. Örneğin; diyabet, obstetrik öyküde gestasyonel diyabet (GDM), hiperemezis gravidarum veya nöral tüp defekti (NTD) gibi durumlar; kalıtsal metabolik hastalıklar (fenilketonüri [PKU], maple syrup urine disease [MSUD]); bariatrik cerrahi öyküsü; inflamatuvar bağırsak hastalığı (IBH), kistik fibrozis, çölyak gibi gastrointestinal hastalıklar; sigara, alkol ve opioid kullanımı gibi kötü alışkanlıklar bu kapsamda değerlendirilir.

Diyet öyküsü, bireyin beslenme alışkanlıklarını belirlemek için düzenlenmiş anket formlarıyla sorgulanır. Bu sayede, yeterli ve dengeli beslenme alışkanlıkları olup olmadığı tespit edilir.

Antropometrik değerlendirme, ağırlık ve boy ölçülerek vücut kitle indeksinin (VKİ) hesaplanması ile yapılır. Özellikle gebelik öncesi ağırlık ya da son adet tarihindeki ağırlık, bazal değerlendirme için kullanılır. Aşağıda, gebelikle ilişkili vücut kitle indeksi (VKİ) değişikliklerine uygun bir tablo sunulmuştur (Tablo 1). Ayrıca, kuru cilt, saç dökülmesi gibi fizik muayene bulguları da beslenme yetersizliklerini gösterebilir.

Tablo 1. Gebelikte Vücut Kitle İndeksine (VKİ) Göre Önerilen Ağırlık Artışı

Gebelik Öncesi VKİ Kategorisi	Tekil Gebelikte Toplam Ağırlık Artışı (kg)	2. ve 3. Trimesterde Haftalık Kilo Artışı Ortalaması (kg/hafta)	İkiz Gebelikte Toplam Ağırlık Artışı (kg)
Zayıf (VKİ < 18.5)	12.5 – 18	0.51 (aralık: 0.44–0.58)	Yeterli veri yok
Normal (VKİ 18.5–24.9)	11.5 – 16	0.42 (aralık: 0.35–0.50)	17 – 25
Fazla kilolu (VKİ 25.0–29.9)	7 – 11.5	0.28 (aralık: 0.23–0.33)	14 – 23
Obez (VKİ ≥ 30.0)	5 – 9	0.22 (aralık: 0.17–0.27)	11 – 19

VKİ: Vücut Kitle İndeksi (kg/m²).

Laboratuvar testleri, aneminin saptanması için ilk prenatal muayenede ve üçüncü trimesterin başında hemoglobin, hematokrit ve ferritin düzeylerini içermelidir. Ayrıca, güneşe maruziyeti az olan, obezitesi bulunan veya emilim bozukluğu öyküsü olan kadınlarda D vitamini düzeyinin ölçülmesi önerilir.

Gebelikte Sağlıklı Beslenme

Sağlıklı Beslenme Örüntüleri

Gebelikte artan kalori ihtiyacının karşılanması için, kaloriye oranla yüksek miktarda önemli besin öğesi içeren "besin yoğunluğu yüksek" diyetler önerilir. Bu tür sağlıklı beslenme örüntüleri; tam tahıllar, süt ve süt ürünleri, sebzeler, meyveler, baklagiller, balık ve yağsız etler gibi besinleri içermelidir. Böylece hem enerji ihtiyacı karşılanır hem de mikro ve makro besin eksiklikleri önlenmiş olur.

Enerji Gereksinimi

Tekil gebeliklerde metabolik hız yaklaşık %15 oranında artar. Enerji ihtiyacı birinci trimesterde anlamlı şekilde artmasa da, ikinci

trimesterde günlük yaklaşık 340 kcal, üçüncü trimesterde ise ortalama 452 kcal kadar artış gözlenir. Ancak gebelikteki enerji ihtiyacı, kadının gebelik öncesi vücut kitle indeksi (BKİ) ve fiziksel aktivite düzeyine bağlı olarak değişkenlik gösterir. Toplam enerji harcamasında en büyük değişken, bireyin planlı fiziksel aktivitelere ayırdığı enerjidir. Fiziksel aktivite, vücut ağırlığına bağlı olarak enerji tüketimini artırır. Amerikan Obstetrisyenler ve Jinekologlar Koleji (ACOG), gebelere haftanın çoğu günü, en az 20–30 dakika orta şiddette egzersiz önermektedir (McGee, 2018).

Protein Gereksinimi

Maternal ve fetal doku sentezini desteklemek için gebelikte ek protein alımına ihtiyaç vardır. Protein ihtiyacı toplam kaloriye orantılı olarak artmalı ve toplam enerjinin yaklaşık %10–35'ini karşılamalıdır. Gebeliğin ilk yarısında protein ihtiyacı, gebe olmayan kadınlarla aynıdır; ancak vücut ağırlığı arttıkça, özellikle ikinci yarıdan itibaren protein gereksinimi artar. Tavsiye edilen günlük protein miktarı (RDA), gebeliğin ikinci yarısında mevcut vücut ağırlığı üzerinden 1.1 g/kg/gün olarak hesaplanır (Mousa, 2019) . Çoğul gebeliklerde, Institute of Medicine (IOM), ikinci trimesterden itibaren her ek fetus için günlük +50 gram protein alımını önermektedir (Otten, 2006). Sağlıklı protein kaynakları arasında yağsız kırmızı et, tavuk, yumurta, deniz ürünleri, fasulye, mercimek, kuruyemiş ve soya ürünleri bulunur. Ayrıca, toplam enerjinin %30–35'inin proteinlerden sağlandığı bazı durumlarda, artmış protein alımının fetal gelişim üzerinde olumsuz etkiler yaratabileceği bazı çalışmalarla gösterilmiştir (Millward, 2012).

Karbonhidrat ve Lif Gereksinimi

Gebelikte günlük karbonhidrat ihtiyacı 175 grama yükselir ve bu toplam enerjinin %45–65'ini oluşturmalıdır . Ayrıca, kabızlığı önlemek, preeklampsi ve dislipidemi riskini azaltmak amacıyla, günlük 28–36 gram veya her 1000 kcal için 14 gram lif alımı önerilir

(Ionita-Mindrican, 2022). Bu nedenle, tam tahıllar, sebzeler ve meyve gibi doğal, lif içeriği yüksek besinlerin tüketilmesi önemlidir.

Yağ Gereksinimi

Gebelikte toplam enerjinin %20–35'i yağlardan sağlanmalı; bunun ise %10'undan daha azı doymuş yağlardan gelmelidir. Zeytinyağı ve kuruyemiş gibi bitkisel yağlar ile haftada 2–3 kez tüketilen balık, uzun zincirli çoklu doymamış yağ asitleri (PUFA) açısından önemli kaynaklardır. Özellikle beyin gelişimi için önemli olan DHA (dokosahekzaenoik asit) gereksinimi, günlük 200–300 mg düzeyinde karşılanmalı; bu da DHA ile zenginleştirilmiş gıdalar veya takviyeler yoluyla sağlanabilir (Li, 2021).

Mikronutrientler (Vitamin ve Mineraller)

Gebelikte mikro besin öğeleri gereksinimi belirgin şekilde artar. Ulusal Tıp Akademisi (National Academy of Medicine) ve Hastalık Kontrol ve Önleme Merkezleri (CDC), yeterli beslenme sağlayamayan gebelere çoklu mikronutrient takviyelerinin (MMS) verilmesini önermektedir (Garcia-Casal, 2018). Mikro besin eksikliği açısından risk altında olan gruplar arasında: yoğun sigara içenler, ergen gebeler, veganlar, madde bağımlılığı olanlar, çoğul gebelik yaşayanlar ve emilim bozukluğu ya da bariatrik cerrahi geçirmiş bireyler yer alır (Ducarme, 2021).Bu bireylerde supplement reçetesi verilmeden önce mutlaka dikkatli bir değerlendirme yapılmalıdır. Eğer böyle bir değerlendirme mümkün değilse, en azından günlük demir, kalsiyum, folik asit, D vitamini ve iyot içeren bir multivitamin takviyesi önerilmelidir (Wolf, 2017).

Demir

Demir eksikliği anemisi (DEA), intrauterin gelişme geriliği (IUGR), erken doğum, fetal ve neonatal mortalite artışı ile ilişkilidir. Erken dönemde gelişen demir eksikliği, fetal beyin gelişimini olumsuz etkileyebilir. CDC, gebelikte günlük demir alımını 27 mg

olarak önermektedir. Bu değer, gebe olmayan bireyler için önerilen 18 mg'dan daha yüksektir. Ancak gebelerde yalnızca besinlerle alınan ortalama demir miktarı 17 mg'dır ve bu nedenle prenatal takviyeler demir eksikliğini önlemede önemlidir (Bailey, 2019).

WHO'ya göre gebelikte anemi; birinci trimesterde Hb <110 g/L, ikinci trimesterde <105 g/L, üçüncü trimesterde <105–110 g/L, postpartumda ise <100 g/L olarak tanımlanır. Demir eksikliği şüphesi olan bireylerde serum ferritin düzeyi değerlendirilmelidir. Ferritin <30 ng/mL olması eksikliği doğrularken, ≥30 ng/mL olması (kronik hastalık yoksa) eksikliği dışlar. Özellikle kısa gebelik aralığına sahip, alışılmış beslenmesi yetersiz olan ya da emilim bozukluğu yaşayan (bariatrik cerrahi öyküsü, uzun süreli antiasit kullanımı) kadınlarda demir eksikliği daha sık görülür.

Tedavide, 60 mg elementer demir içeren oral preparatların gün aşırı kullanılması önerilir. Bu kullanım şekli, hem toleransı artırır hem de emilimi optimize eder. Demir, kahve, çay veya sütle birlikte alınmamalıdır. İkinci ve üçüncü trimesterde; oral demir intoleransı, malabsorpsiyon, Hb 80–100 g/L arası ya da 30. haftadan sonra başlanan demir tedavilerinde intravenöz demir tercih edilebilir (Pavord, 2012).

Eğer demir tedavisine rağmen 4 haftada Hb'de 10 g/L veya hematokritte %3 artış gözlenmezse, B6, B12 ve folat düzeyleri ile birlikte diğer besin ögeleri (protein, magnezyum, çinko, selenyum, A ve C vitaminleri, lipidler, karbonhidratlar) de değerlendirilmelidir. Aşırı demir takviyesi de GDM, IUGR ve erken doğum riskini artırabilir. Diyetle alınan demir ise güvenlidir. En iyi kaynaklar kırmızı ve av hayvan etleridir. İlk trimesterde karaciğer ve sakatat tüketimi sınırlandırılmalıdır çünkü A vitamini içeriği yüksektir. Bitkisel kaynaklı (non-hem) demirin emilimi düşüktür; ancak C vitamini veya bir miktar et ile birlikte alındığında emilim artar (Piskin, 2022).

Kalsiyum ve D Vitamini

Gebelikte önerilen günlük kalsiyum alımı 1000–1300 mg'dır. ABD'de gebelerin diyetle ortalama kalsiyum alımı 1090 mg'dır. Düşük kalsiyum alımına sahip kadınlarda, takviye olarak yüksek doz kalsiyum verilmesi gebelikte hipertansiyon gelişme riskini azaltabilir (Hofmeyr, 2018).

D vitamini için önerilen günlük alım 600 IU'dur. Ana doğal kaynağı güneşe maruziyetle dermal sentezdir. Doğal olarak D vitamini içeren gıdalar sınırlıdır; genellikle balık karaciğeri gibi az sayıda besin içerir. Prenatal takviyelerin çoğu 400 IU D vitamini içerir. Gebelikte optimal D vitamini düzeyi hâlen net olarak tanımlanmamıştır.

A Vitamini

A vitamini hızlı büyüme dönemlerinde kritik öneme sahiptir. Hücre farklılaşması, göz, akciğer ve bağışıklık sistemi gelişimi ile gen ekspresyonunda rol oynar . Gebelikte önerilen alım dozu 2500–2560 IU olup, gebe olmayan kadınlar için önerilen 2330 IU'dan daha yüksektir . Diyetle ortalama alım yaklaşık 2300 IU'dur. Eksikliğin yaygın olduğu bölgelerde günlük <10.000 IU veya haftalık <25.000 IU takviye olumlu etki sağlayabilir (McGuire, 2012).

Ciddi eksiklik yoksa, günlük 5000 IU'nun üzerinde A vitamini içeren takviyelerden kaçınılmalıdır. Takviyelerde genellikle retinol yerine beta-karoten tercih edilir. Yüksek beta-karoten alımı ile doğumsal anomali riski arasında ilişki gösterilmemiştir (Bastos Maia, 2019).

Folik Asit

Folat eksikliği düşük, düşük doğum ağırlığı ve erken doğum riskini artırabilir. İlk trimesterde yetersiz folat alımı; NTD (nöral tüp defekti), yarık dudak ve kalp anomalileri gibi doğumsal malformasyonlarla ilişkilidir (Obeid, 2013).

ABD Beslenme Rehberi gebelikte günlük 600 mcg folat alınmasını önerir. Gıda kaynaklı folat genellikle yeterli olmadığından takviye gerekir. Konsepsiyondan bir ay önce başlanıp, üç ay sonrasına kadar günlük 400–800 mcg folik asit alınması önerilir. Yüksek riskli kadınlar (epilepsi ilaçları kullananlar, diyabetikler, daha önce NTD'li bebek doğuranlar veya eşinde NTD öyküsü olanlar) için günlük 4 mg folik asit önerilir (American College of Obstetricians and Gynecologists (ACOG)., 2004). Doğal folatın biyoyararlanımı düşüktür. B2, B6, B12, kolin ve inositol gibi diğer metil vericilerin de NTD riskini azaltabileceği gösterilmiştir.

Çinko

Çinko büyüme ve gelişme için gereklidir. Hafif çinko eksikliği, fetal büyüme geriliği, beyin gelişimi bozukluğu ve bağışıklık sisteminde zayıflamaya yol açabilir. Ciddi eksiklik ise akrodermatitis enteropathica ve düşük riskini artırır. Gebelikte önerilen günlük çinko alımı 11–12 mg'dır; ancak ortalama alım 10.3 mg'dır (Hennigar, 2018).

İyot

İyot, tiroid hormonu olan tiroksinin yapısında bulunur. Gebelikte tiroid hormon sentezi %50 oranında arttığından iyot ihtiyacı da artar. Ciddi iyot eksikliği; düşük, konjenital anomali, fetal guatr ve düşük zeka düzeyi ile ilişkilidir. Balık ve deniz ürünleri iyi iyot kaynaklarıdır. Beyaz balıklarda iyot içeriği daha yüksektir.

Ulusal Tıp Akademisi, gebelikte günlük 220 mcg iyot alımını önerirken, WHO 250 mcg önermektedir ((WHO)., 2018). İyotlu tuz, ana kaynaklardan biridir (1/4 tatlı kaşığında 95 mcg). ABD ve İngiltere'de iyot eksikliği riski olduğu için, Amerikan Tiroid Derneği, gebe kalmayı planlayan veya gebe olan bireylerin günlük 150 mcg potasyum iyodür formunda iyot takviyesi almasını önermektedir (Alexander, 2017). Aşırı iyot alımı da tıpkı eksikliği gibi hipotiroidiye neden olabilir.

B12 Vitamini

Kobalamin (B12), metiyonin ve tetrahidrofolat üretimi gibi enzimatik reaksiyonlarda görev alır. ABD'de gebelikte önerilen günlük B12 alımı 2.6 mcg'dır; ancak birçok gebe yaklaşık 5.6 mcg alır (Obeid R. M.-N., 2017). Yalnızca hayvansal gıdalar (et, balık, yumurta, süt ürünleri) B12 vitamini içerir. Vejetaryenler (özellikle veganlar), Crohn hastalığı olanlar, gastrik bypass geçirenler, proton pompa inhibitörü veya metformin kullananlar eksiklik riski taşır ve takviye almalıdır.

B6 Vitamini

Piridoksin, aminoasit metabolizmasında görevli birçok enzimin kofaktörüdür. Gebelikte bulantı ve kusma tedavisinde sık kullanılır (günlük 10–25 mg, 3–4 dozda). Et, tavuk ve balık iyi kaynaklardır. Prenatal vitamin takviyeleri genellikle yeterli B6 içerir.

C Vitamini

Gebelikte C vitamini ihtiyacı artar. Özellikle sigara içen, aspirin kullanan veya madde bağımlılığı olan bireylerde bu artış daha belirgindir. Aşırı takviye önerilmez. Yeterli C vitamini alımı, antioksidan etki ve kolajen sentezi yoluyla erken doğum riskini azaltabilir. Ancak, yüksek doz C (1000 mg) ve E vitamini (400 IU) kombinasyonu, gestasyonel hipertansiyon ve erken membran rüptürü (PROM) riskini artırabilir (American College of Obstetricians and Gynecologists (ACOG). , 2013).

Kolin

Kolin, metil grupları sağlayarak hücresel sinyal iletimi ve sinir impulslarının iletiminde önemli bir rol oynar. Yapılan küçük çaplı bir çalışmada, gebeliğin üçüncü trimesterinde annelere kolin takviyesi verilmesinin, doğan bebeklerin bilgi işleme hızını artırdığı gösterilmiştir . Kolinden zengin gıdalar arasında süt, et ve yumurta sarısı bulunur. Ancak piyasada yaygın olarak kullanılan birçok

prenatal takviye, ya hiç kolin içermemekte ya da sadece çok düşük miktarlarda (25–50 mg) içermektedir (Roeren, 2022).

Magnezyum, fosfor ve selenyum gibi diğer bazı mikro besin öğelerinin ise gebelik süresince gereksinimlerinde anlamlı bir değişiklik olmadığı bildirilmektedir.

Tablo 2. Gebe Olmayan ve Gebe Kadınlar İçin Günlük Önerilen Besin Alım Miktarları (RDA)

Besin Öğesi	**Gebe Olmayan Kadınlar**	**Gebelik (>19 yaş)**	
Protein	%10–30 (yaklaşık 46 g)	71 g	Et, balık, yumurta, baklagiller
Karbonhidrat	%45–65 (130 g)	%45–65 (170 g)	Tahıllar, meyve, sebzeler
Lif	25–28 g	25–34 g	Tam tahıllar, sebze, meyve
Toplam yağ	%20–35	%20–35	Zeytinyağı, balık, kuruyemiş
Doymuş yağ	<%10	<%10	Tereyağ, hindistan cevizi
Alfa-linolenik asit	1.1 g	1.1 g	Keten tohumu, ceviz
Linoleik asit	11 g	11 g	Ayçiçek yağı, mısır yağı, ceviz
Mineraller			
Kalsiyum	1000 mg	1000–1300 mg	Süt ürünleri, yeşil yapraklı sebzeler
Demir	18 mg	27 mg	Kırmızı et, sakatat
Magnezyum	310–360 mg	360 mg	Kabak çekirdeği, ıspanak, badem
Fosfor	700 mg	700 mg	Yeşil yapraklı sebzeler, baklagiller
Çinko	8 mg	11 mg	Et, deniz ürünleri
İyot	150 mcg	220 mcg	İyotlu tuz, balık
Selenyum	55 mcg	60 mcg	Ton balığı, tam buğday ekmeği
Vitaminler			
A Vitamini (RAE)	700 mcg	770 mcg	Havuç, karaciğer, koyu yeşil yapraklı sebzeler
D Vitamini	600 IU	600 IU	Güneş ışığı, yağlı balıklar
E Vitamini	15 mg	15 mg	Ay çekirdeği, badem
K Vitamini	90 mcg	90 mcg	Yeşil yapraklı sebzeler
C Vitamini	75 mg	85 mg	Turunçgiller, çilek, yeşil sebzeler
Tiamin (B1)	1.1 mg	1.4 mg	Tahıllar, baklagiller, ay çekirdeği
Riboflavin (B2)	1.1 mg	1.4 mg	Süt ve süt ürünleri,yumurta
Niasin (B3)	14 mg	18 mg	Tavuk ve hindi eti, fıstık
B6 Vitamini	1.3 mg	1.9 mg	Et, tam tahıllar
B12 Vitamini	2.4 mcg	2.6 mcg	Et, balık, yumurta, süt ürünleri
Kolin	425 mg	450 mg	Yumurta sarısı, süt, et
Folik Asit (DFE)	400 mcg	600 mcg	Yeşil yapraklı sebzeler, baklagiller

Diğer Hususlar

Akdeniz Diyeti

Akdeniz diyeti; tam tahıllar, sebzeler, meyveler, baklagiller, kuruyemişler, tohumlar, bol miktarda balık ve zeytinyağı ile orta düzeyde süt ürünleri ve kümes hayvanlarını içeren bitkisel ağırlıklı bir beslenme modelidir. Sınırlı sayıda gözlemsel çalışmada, bu diyetin gestasyonel diyabet, gebelikte hipertansiyon bozuklukları ve çocuklukta hışıltı gibi solunumsal semptomların görülme sıklığını azalttığı öne sürülmüştür (Zhang, 2019).

Vejetaryen ve Vegan Diyetler

Vejetaryen diyetlerin beslenme yeterliliği, tüketilen besinlerin türü, miktarı ve çeşitliliğine göre bireysel olarak değerlendirilmelidir. Vegan diyetlerde hayvansal kaynaklı tüm besinler dışlandığından, gerekli beslenme değişiklikleri yapılmazsa B12, D, E vitaminleri, kalsiyum, demir, kolin ve omega-3 yağ asitleri gibi besin ögelerinde eksiklik görülebilir. Ayrıca, bu bireylerin bebeklerinde düşük doğum ağırlığı ve SGA riskinin arttığına dair bazı endişeler bulunmaktadır.

Makro besin ögeleri açısından da eksiklikler bildirilmektedir. Ancak gün boyunca tahıllar, baklagiller ve kuruyemişler gibi çeşitli bitkisel protein kaynakları tüketilerek tüm esansiyel aminoasitler karşılanabilir. Gebelik ve laktasyon döneminde vejetaryen ve vegan diyetler genellikle güvenli kabul edilse de, yüksek kaliteli kanıtlar sınırlıdır. Bu nedenle, bu diyeti uygulayan gebelere kişiselleştirilmiş beslenme danışmanlığı için diyetisyenle görüşmeleri önerilir.

Glütensiz Diyet

Glütensiz diyet; buğday, arpa, çavdar ve yulafın dışlanmasını içerir. Ancak bu tahıllar doğal lif kaynaklarıdır. Glütensiz beslenen bireylerde lif alımı düşerken protein alımı da azalabilir. Ayrıca bu tahıllar, tiamin, niasin, riboflavin, folat ve demir açısından da

zengindir. Bu nedenle, gebelikte glütensiz diyet uygulayanlarda bu mikro besin ögelerinde eksiklik riski yüksektir (Saturni, 2010). Glütensiz diyetle artan pirinç tüketimi, kanda arsenik ve cıva düzeylerini yükseltebilir. Bu düzeyler toksik olmasa da biyolojik etkileri henüz tam olarak bilinmemektedir.

Ketojenik Diyet

Ketojenik diyet, karbonhidrat alımını toplam enerjinin %5–10'u ile sınırlayan, genellikle epilepsi tedavisi ve kilo kaybı amacıyla kullanılan çok düşük karbonhidratlı bir diyettir. Gebelikte ketojenik diyetin etkileri üzerine çalışmalar sınırlıdır. İnatçı epilepsisi olan iki gebenin incelendiği bir olguda, klasik ketojenik diyetin (KD) ve modifiye Atkins diyetinin (MAD) epilepsi kontrolü açısından etkili olabileceği bildirilmiştir. Doğum ağırlıkları normal olan iki erkek bebekten biri, sol preauriküler uzantı ve düzensiz heliks deformiteleriyle doğmuş, ancak işitme testleri normal bulunmuştur (Van der Louw, 2017).

Dini ve Diğer Oruçlar

Gün doğumundan batımına kadar süren oruç, 22 çalışmanın meta-analizine göre doğum ağırlığı veya prematürite oranlarını kısa vadede etkilememektedir. Ancak gebeliğin ilk trimesterinde ya da konsepsiyon döneminde Ramazan'a denk gelmek, beş yaş altı ölüm oranlarında artış, boy kısalığı, düşük beden kütle indeksi, görme/işitme/öğrenme bozuklukları ve eğitim başarılarında düşüş gibi olumsuz etkilerle ilişkilendirilmiştir (Mahanani, 2021).

Aralıklı oruç (intermittent fasting, IF) gibi diğer oruç modelleriyle ilgili araştırmalar sınırlıdır. Hayvan modellerinde, gebelikte uygulanan IF'nin fetal büyüme kısıtlılığı ve plasental besin taşımasında bozulmalara yol açabileceği gösterilmiştir. İnsanlarda yapılan bir çalışmada ise, doğum ağırlığı etkilenmemiş ancak erkek yavrularda büyüme gecikmesi ve yüksek tuz içeren diyette böbrek hasarına yatkınlık artışı bildirilmiştir (Alkhalefah, 2022).

Alkol

Alkol tüketimi miktarı, genetik yatkınlık, alkolün vücuttan atılım hızı ve gebeliğin hangi döneminde tüketildiği gibi faktörler fetüs üzerinde değişen etkiler yaratabilir. Bu nedenle gebelikte **güvenli bir alkol düzeyi yoktur** ve tamamen kaçınılması önerilir.

Kafein

Gebelikte kafein metabolizması yavaşlar. Kafein ve metabolitleri plasentadan geçerek fetal dolaşıma ulaşır ve fetal kalp atımı ile solunumu artırabilir. Gebe ve emziren kadınlar için önerilen güvenli kafein miktarı günde 200–300 mg'ı geçmemelidir (yaklaşık 2–3 fincan kahve).

Gıda Kaynaklı Enfeksiyonlar

Gebelikte gıda kaynaklı enfeksiyonlara yakalanma riski artar. Bu enfeksiyonların türleri bölgesel olarak değişebilir. *Listeria monocytogenes* kaynaklı listeriyoz, özellikle gebeler, yenidoğanlar ve immün sistemi baskılanmış bireylerde ciddi komplikasyonlara yol açabilir. Sağlıklı bireylerde asemptomatik seyredebilmesine rağmen, gebelerde grip benzeri belirtiler ve uterus enfeksiyonu görülebilir. Enfeksiyonları önlemek için iyi hijyen, etlerin tam pişirilmesi, çiğ veya az pişmiş besinlerin tüketilmemesi ve mutfak yüzeylerinin temizliği önerilmektedir. Avrupa Hastalık Önleme ve Kontrol Merkezi, 2022'de bu önlemleri vurgulamıştır (Einarson, 2010).

Toksik Gıdalar

Balıklar ve metilciva: Çevresel toksinlerle kirlenmiş balıklar (örneğin köpek balığı, kılıç balığı, kral uskumru, marlin, tilefish) fetüste merkezi sinir sistemi hasarına yol açabilir. FDA ve EPA, gebelerin bu balıklardan kaçınmasını; düşük civa içeren mavi balık, mezgit gibi balıklardan haftada 1 porsiyon; somon, sardalya,

pollock gibi çok düşük civalı balıklardan ise haftada 2–3 porsiyon tüketmesini önermektedir (Mariscal-Arcas, 2009).

Karaciğer ve sakatatlar: Yüksek A vitamini içeriği nedeniyle, gebeliğin özellikle ilk trimesterinde aşırı tüketiminden kaçınılmalıdır.

Çevresel toksinler (BPA): Konserve gıdalardan, plastik saklama kaplarından ve mikrodalgada ısıtılan ambalajlı ürünlerden gıdaya geçen BPA maddesi; erken doğum ve nörolojik gelişim sorunlarına neden olabileceği için sınırlanmalıdır.

Bitkisel ürünler: Zencefilin gebelikte güvenle kullanılabileceği ve 1000 mg/gün altı dozların hiperemezis gravidarum'u hafiflettiği gösterilmiştir. Ancak diğer bitkisel ürünlerle ilgili veriler yetersizdir; bu nedenle gebelikte fitoterapi konusunda dikkatli olunmalı ve daha fazla araştırma yapılmalıdır (Sarecka-Hujar, 2022).

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ORAL GLUCOSE TOLERANCE TESTS AND HBA1C LEVELS IN PREGNANCY: SIGNIFICANCE AND COMPARISON

Hamza YILDIZ[1]

Introduction

Gestational diabetes mellitus (GDM) represents a form of glucose intolerance that manifests during pregnancy and is associated with significant maternal and fetal morbidity as well as long-term complications(Nugroho, 2025). The accurate diagnosis of hyperglycemia during pregnancy is crucial for both maternal and neonatal health outcomes. While the oral glucose tolerance test (OGTT) has traditionally been considered the gold standard for diagnosing GDM, recent evidence has increasingly focused on the diagnostic utility of hemoglobin A1c (HbA1c) as an alternative or complementary screening tool (Crimmins et al., 2024; Kautzky-Willer et al., 2023).

The prevalence of GDM varies considerably depending on the diagnostic criteria employed, ranging from 1% to 14% globally (Al-Rifai, Abdo, Paulo, Saha, & Ahmed, 2021). The adoption of International Association of Diabetes and Pregnancy Study Groups (IADPSG) criteria has led to an increase in diagnosed cases, emphasizing the importance of accurate diagnostic methodologies (Sweeting, Wong, Murphy, & Ross, 2022). The burden of GDM is particularly pronounced in low- and middle-income countries (LMICs), where more than 90% of global cases are estimated to occur, yet access to comprehensive screening remains limited (Saravanan et al., 2024).

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Current diagnostic approaches face significant challenges, particularly regarding the feasibility and acceptability of traditional screening methods. The OGTT, while considered highly accurate, requires prolonged fasting periods and extended clinic visits, creating barriers to universal screening implementation (Meek et al., 2021). These limitations have prompted extensive research into alternative diagnostic strategies, with HbA1c emerging as a potentially valuable tool due to its simplicity and practical advantages (Hughes, Moore, Gullam, Mohamed, & Rowan, 2014).

Characteristics and Clinical Application of Oral Glucose Tolerance Test

Test Protocol and Methodology

The OGTT remains the most widely utilized diagnostic test for GDM worldwide, typically performed between 24-28 weeks of gestation using a 75-gram glucose load (Mellitus, 2018). The IADPSG and American Diabetes Association recommend a one-step screening approach utilizing a 2-hour 75-gram OGTT, which offers the advantage of simultaneous screening and diagnosis in a single visit (Hartling et al., 2012). The test protocol requires an 8-14 hour fasting period followed by measurement of plasma glucose at baseline, 1 hour, and 2 hours post-glucose administration.

Diagnostic Criteria and Reference Values

According to IADPSG criteria, GDM is diagnosed when any of the following thresholds are met: fasting glucose ≥92 mg/dL (5.1 mmol/L), 1-hour glucose ≥180 mg/dL (10.0 mmol/L), or 2-hour glucose ≥153 mg/dL (8.5 mmol/L) (Metzger et al., 2010). These criteria are derived from the landmark Hyperglycemia and Adverse Pregnancy Outcome (HAPO) study, which demonstrated continuous relationships between maternal glucose levels and adverse pregnancy outcomes (Lowe et al., 2010).

Advantages and Limitations of OGTT

The primary advantage of OGTT lies in its established diagnostic accuracy and strong correlation with pregnancy outcomes. Studies consistently demonstrate that OGTT results show continuous associations with risks of macrosomia, neonatal hypoglycemia, and cesarean delivery (Landon et al., 2009). However, the test presents significant practical limitations, particularly in resource-constrained settings. The requirement for prolonged fasting and a 2-3 hour clinic visit creates substantial barriers to implementation, especially in LMICs where women may need to travel considerable distances to access laboratory facilities (Bogdanet et al., 2021).

Furthermore, the OGTT is prone to analytical errors and demonstrates poor reproducibility, which can affect diagnostic reliability (Bartoli, Fra, & Schianca, 2011). These limitations have led to incomplete screening coverage, with a high proportion of women remaining unscreened for GDM, particularly in developing countries where the disease burden is highest (X. Sun, McKeaveney, Noble, O'Hara, & Perra, 2024).

Role of HbA1c in Gestational Diabetes Mellitus Diagnosis

Methodological Characteristics of HbA1c Testing

HbA1c testing offers several methodological advantages over OGTT, including the absence of fasting requirements, rapid result availability, and single blood sample collection (Paula Breitenbach Renz, Cavagnolli, Weinert, Silveiro, & Camargo, 2015). The test reflects average glycemic control over the preceding 8-12 weeks, providing an integrated measure of glucose exposure. During pregnancy, physiological changes including shortened erythrocyte lifespan and increased plasma volume can influence HbA1c values, typically resulting in lower concentrations compared to non-pregnant states (Lu, Huo, Ge, & Luo, 2022).

Early Pregnancy HbA1c Screening

Recent evidence from large-scale prospective studies has demonstrated the potential utility of early pregnancy HbA1c as a screening tool for GDM. The STRiDE study, conducted across three diverse populations in India, Kenya, and the United Kingdom, revealed that early pregnancy HbA1c was independently associated with the development of GDM at 24-28 weeks of gestation (Saravanan et al., 2024). The study reported adjusted risk ratios of 1.60 (95% CI 1.19-2.16) in India, 3.49 (2.8-4.34) in Kenya, and 4.72 (3.82-5.82) in the UK, demonstrating consistent associations across different ethnic populations.

A composite risk score model incorporating HbA1c with age, body mass index, and family history of diabetes demonstrated optimal predictive performance across all populations studied (Poo, Wright, Ruochen, & Singh, 2019). This approach offers the potential to implement a population-specific, two-threshold screening strategy that could reduce OGTT requirements by 50-64% while maintaining diagnostic accuracy (Nielsen et al., 2004).

Diagnostic Performance of HbA1c

Sensitivity and Specificity Analysis

Systematic meta-analyses have provided comprehensive evaluations of HbA1c diagnostic performance for GDM. A meta-analysis of 23 studies involving 16,921 women demonstrated pooled sensitivities and specificities of 50.3% (95% CI 24.8%-75.7%) and 83.7% (67.5%-92.7%) for a 5.4% (36 mmol/mol) threshold; 24.7% (10.3%-48.5%) and 95.5% (85.7%-98.7%) for a 5.7% (39 mmol/mol) threshold; and 10.8% (5.7%-19.4%) and 98.7% (96.2%-99.5%) for a 5.8% (40 mmol/mol) threshold (Paula B Renz, Chume, Timm, Pimentel, & Camargo, 2019).

These findings consistently demonstrate that HbA1c exhibits high specificity but relatively low sensitivity for GDM diagnosis,

regardless of the threshold employed (Amaefule et al., 2020). The high specificity suggests utility as a "rule-in" test, where elevated values can confirm GDM with high confidence, while the low sensitivity indicates that normal values cannot reliably exclude the diagnosis (Khalafallah et al., 2016).

Receiver Operating Characteristic Analysis

Multiple studies have reported area under the receiver operating characteristic curve (AUC) values for HbA1c ranging from 0.668 to 0.898, indicating moderate to good diagnostic performance (Arbiol-Roca et al., 2021; Kwon, Kwon, Park, Kim, & Lim, 2015). However, these values consistently fall below those achieved by OGTT components, with one comparative study reporting AUC values of 0.962 for combined OGTT results, 0.881 for 2-hour glucose, 0.898 for 1-hour glucose, 0.831 for fasting glucose, and 0.668 for HbA1c (Khan et al., 2019).

Comparative Analysis of OGTT and HbA1c

Diagnostic Accuracy Comparison

Direct comparative studies have consistently demonstrated superior diagnostic performance of OGTT compared to HbA1c. In a study of 280 patients, the additive value of all OGTT glucose measurements achieved an AUC of 0.962, significantly outperforming HbA1c (AUC 0.668) (Khan et al., 2019). Individual OGTT components, including 2-hour glucose (AUC 0.881) and 1-hour glucose (AUC 0.898), also demonstrated superior performance compared to HbA1c.

High-risk pregnant women evaluated at 6-14 gestational weeks showed that first-trimester levels of fasting plasma glucose, 1-hour glucose, 2-hour glucose, and HbA1c were all significant predictors of GDM, with 1-hour glucose demonstrating the most significant predictive value (Peng, Liu, Gang, Wang, & Ma, 2023). The AUCs for predictive values were 0.63 for fasting glucose, 0.76 for 1-hour

glucose, 0.71 for 2-hour glucose, and 0.67 for HbA1c (Chen et al., 2024).

Clinical Feasibility Assessment

The COVID-19 pandemic provided a natural experiment for evaluating alternative screening strategies. A French study of 7,334 women assessed whether HbA1c ≥5.7% (39 mmol/mol) and/or fasting plasma glucose ≥5.1 mmol/L could substitute for OGTT during pandemic restrictions (Nachtergaele et al., 2021). The alternative approach demonstrated a sensitivity of only 57% for detecting hyperglycemia in pregnancy, with no advantages in predicting adverse outcomes compared to standard OGTT-based diagnosis (González González et al., 2022).

Cost-Effectiveness Analysis

The practical advantages of HbA1c testing include reduced patient burden and healthcare resource utilization. Studies have demonstrated that HbA1c-based screening strategies can potentially obviate the need for OGTT in approximately 60% of women when used as part of a structured screening algorithm (Maegawa, Sugiyama, Kusaka, Mitao, & Toyoda, 2003). This approach offers particular advantages in resource-limited settings where OGTT implementation faces significant logistical challenges (Coetzee, Hall, & Conradie, 2022).

Risk Stratification and Clinical Decision Making

Two-Threshold Screening Approach

Implementation of population-specific, two-threshold screening strategies using HbA1c offers a rational approach to risk stratification. This methodology employs lower thresholds to "rule out" GDM and higher thresholds to "rule in" the diagnosis, with intermediate values requiring confirmatory OGTT (Meek, Lewis, Patient, Murphy, & Simmons, 2015). Studies have demonstrated that

this approach can reduce OGTT requirements by 50-64% while maintaining diagnostic sensitivity for clinically significant GDM (Saravanan et al., 2024).

The optimal thresholds vary by population, with the STRiDE study reporting rule-in and rule-out thresholds of 5.4% and 4.9% respectively in India, 6.0% and 5.2% in Kenya, and 5.8% and 5.1% in the UK (Saravanan et al., 2024). These population-specific variations underscore the importance of local validation before implementation.

Application in High-Risk Populations

Early pregnancy screening using HbA1c demonstrates particular utility in high-risk populations. A study of 1,311 high-risk pregnant women showed that first-trimester HbA1c, combined with OGTT parameters, provided significant predictive value for subsequent GDM development (Peng et al., 2023). The approach offers opportunities for early intervention and intensive monitoring in women identified as high-risk during early pregnancy (Niu, Bai, & Lu, 2024).

Postpartum Monitoring with HbA1c

HbA1c demonstrates utility in postpartum screening of women with previous GDM. Studies have shown that HbA1c ≥48 mmol/mol (≥6.5%) provides reasonable sensitivity and high specificity compared to OGTT for early postpartum diabetes screening (Katreddy et al., 2013). This application offers practical advantages for long-term follow-up of women at increased risk for developing type 2 diabetes mellitus (Varejão et al., 2021).

Limitations and Future Perspectives

Limitations of HbA1c Testing

Despite its practical advantages, HbA1c testing presents several important limitations. The test primarily identifies women with elevated fasting glucose concentrations while frequently missing those with normal fasting but elevated postprandial glucose levels (Schaefer-Graf et al., 2005). This limitation is particularly significant given that postprandial hyperglycemia is the primary driver of fetal hyperinsulinemia and subsequent macrosomia (Hernandez, Friedman, Van Pelt, & Barbour, 2011).

Additionally, physiological changes during pregnancy, including alterations in erythrocyte turnover and iron metabolism, can affect HbA1c reliability (Lappharat, Rothmanee, Jandee, Suksai, & Liabsuetrakul, 2022). Conditions such as anemia, hemoglobinopathies, and ethnic variations in glycation rates may further influence test accuracy (Chivese et al., 2022).

Ethnic Differences and Population-Specific Approaches

Substantial heterogeneity exists among studies evaluating HbA1c performance across different ethnic populations. Factors contributing to this variability include genetic differences in glucose metabolism, varying baseline HbA1c levels, and population-specific relationships between HbA1c and glucose tolerance (Zhang et al., 2023). These findings emphasize the necessity for population-specific validation and threshold determination before clinical implementation (J. Sun et al., 2021).

Point-of-Care HbA1c Technology

Advances in point-of-care HbA1c testing technology offer promising opportunities for expanding screening accessibility, particularly in resource-limited settings (Maesa, Fernandez-Riejos, Gonzalez-Rodriguez, & Sanchez-Margalet, 2019). Studies have

demonstrated comparable performance between venous and capillary point-of-care HbA1c measurements, suggesting feasibility for implementation in primary care and community settings (Nguyen, Nguyen, & Nguyen, 2024). This technological advancement could significantly improve screening coverage in LMICs where traditional laboratory infrastructure is limited (Calero Rojas et al., 2021).

Conclusions and Clinical Recommendations

Based on current scientific evidence, HbA1c cannot replace OGTT as a standalone diagnostic test for GDM due to insufficient sensitivity and specificity. First-trimester HbA1c demonstrates inadequate diagnostic performance compared to standard OGTT, although women with elevated early pregnancy HbA1c values show increased risk for subsequent GDM development (Valadan, Bahramnezhad, Golshahi, & Feizabad, 2022).

The optimal clinical application of HbA1c appears to be as a "rule-in" test, where elevated values (≥5.7% or 39 mmol/mol) can identify GDM with high specificity and low false-positive rates (Agarwal, Dhatt, Punnose, & Koster, 2005). However, this approach requires supplementation with more sensitive testing methods to avoid missing women with clinically significant glucose intolerance (Soumya et al., 2015).

The most promising clinical strategy involves implementing HbA1c-based risk stratification to optimize OGTT utilization and resource allocation. Early pregnancy composite risk scores incorporating HbA1c with clinical risk factors can identify high-risk women for early intervention while reducing unnecessary testing in low-risk populations (Singh & Warman, 2023).

Future research priorities should focus on establishing population-specific threshold values, developing and validating point-of-care testing technologies, and conducting comprehensive cost-effectiveness analyses across diverse healthcare settings (Khobrani,

Binmahfoodh, Hemedy, & Abbas, 2024). Additionally, investigation of novel biomarkers and continuous glucose monitoring technologies may provide complementary approaches to traditional screening methods (Di Filippo, Sunstrum, Khan, & Welsh, 2023).

The integration of HbA1c into GDM screening protocols represents an evolutionary rather than revolutionary approach, offering opportunities to enhance screening efficiency and accessibility while maintaining diagnostic accuracy. Successful implementation requires careful consideration of population characteristics, healthcare infrastructure, and resource availability to develop optimal screening strategies for diverse clinical settings (Hu et al., 2025).

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BÖLÜM 3

THE EFFECT OF THE COLLABORATION AND COMPATIBILITY LEVEL OF THE PARTNERS ON THE TREATMENT DURING THE IN VITRO FERTILIZATION TREATMENT PROCESS

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Giriş

Although most couples want to have a baby, in some cases, it is not possible to have a baby naturally and therefore, in vitro fertilization methods are tried. In its most general definition, in vitro fertilization refers to the use of various methods in a laboratory environment to achieve pregnancy if the mother and father cannot have a baby naturally. In vitro fertilization treatment is also known as in viro fertilization (IVF), and is the fertilization of an egg with a sperm outside the body (1,2). The method is then completed by the implantation of the fertilized egg into the mother's uterus.

The main advantage of the in vitro fertilization method is that it prevents the negative or obstacle factors inside the body that prevent the mother and father from having a baby naturally by fertilization outside the body (3). However, although the egg and sperm come together outside the body, some physiological,

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anatomical and psychological factors play a role in both the quality of the egg and sperm and the subsequent reattachment of the fertilized egg in the mother's uterus (4,5). While anatomical and physiological factors are more easily measured and more easily associated with prognostic factors than psychological factors, spiritual or psychological factors also include concepts that are more difficult to measure and have more variables (6). One of these is the concept of marital compatibility.

It is possible to define marital harmony in its most general definition and literal meaning as the level of agreement and coexistence between two spouses (7). However, this harmony and coexistence, and the desire for a common future may not always be due to sincere reasons. Many factors such as social and cultural difficulties, economic conditions, and family reasons cause couples to be together as a necessity and obligation rather than a desire to be together (8,9). In this case, it would be insufficient to describe marital harmony as simply being together and agreeing. Even in cases where these factors are not present, harmony between couples can be achieved in a way where one party is dominant and the other party submits (10). This situation should also be described as submission or compromise. Ideal marital harmony refers to unions where the balance of power between the parties is achieved and no party is in a position to limit or obstruct the will of the other party.

The term of having a baby in spouses can be described as the highest level of future and togetherness, in other words, harmony, as long as there are no cultural, social and external pressures. Every individual has a tendency to continue their lineage and have children. However, this desire can be prevented due to some social and psychological problems or other reasons. However, it is possible to say that the desire for marriage and togetherness between the parties is at the highest level when the harmony is high enough to cause the desire to have a baby.

On the other hand, couple harmony and marital harmony are concepts that are difficult to measure and present. For this reason, they are less emphasized than other disease parameters, especially in

medical sciences where evaluations are made based on clinics and parameters. In the in vitro fertilization treatment processes of expectant mothers and fathers before pregnancy, marriage and couple harmony also play an important role. In this section, it was aimed to reveal the effects of the level of togetherness and harmony of the spouses on the treatment process in in vitro fertilization treatment.

The Concept of Spouse and Harmony

Although there are many different definitions of marital harmony, the common definition generally refers to a relationship in which the spouses mutually respect each other, their personal rights and identities are minimally affected, and the desire and desire to be together is at the highest level (11). In the literature, in addition to marital harmony, there are concepts such as marital harmony and couple harmony, and measurement and evaluation scales for these concepts. However, the basic point that is important in each different concept is that harmony is based on the wishes and consent of both parties, and that one party does not submit to the wishes and desires of the other party, and harmony is at the highest level of compromise.

The difference between marital harmony and other similar concepts is the people with whom harmony is in question. Unlike couple or marital harmony, marital harmony includes people who are together, whether married or unmarried (12,13). In this respect, marital harmony includes not only individuals who come together for social or cultural reasons and later establish a family and home, but also every individual who has the desire and will to live together.

The level of harmony between spouses may not always be at the highest and ideal levels. Sometimes the man may be more dominant, sometimes the woman may be more dominant, and sometimes the opposite may be true (14). Therefore, harmony can be defined not only as a harmony within the framework of uniform and always similar rules and regulations, but also as a desire to be together despite minor changes, ups and downs.

The source of harmony between spouses, whether it comes from within or from without, is one of the most debated topics on marital harmony. While in the romantic approach, marital harmony is a super-concept that comes from within and has love and passion at its root, according to the pragmatic approach, marital harmony refers to unions in which the interests of the parties are mutually provided at the highest level (15,16). However, the basic concept common to almost every approach is the respect and mutual trust between spouses or couples.

In order for couple harmony or for the unions to emerge in a harmonious manner with a maximum level of understanding, external rules and requirements are needed as much as internal rules and requirements. Every individual wants to integrate with the social society in which they live and experience an identity and a sense of belonging within the social structure (17,18). As a result, social rules, cultural values and norms come into play. As long as individuals comply with these values, norms and rules, they are accepted within the society, while at the same time their social identities are formed. The individual's lack of a certain social identity also brings psychological problems, and even the lack of socialization is considered a psychiatric disease.

In spousal harmony or in all identity and existence processes of individuals within society, any damage or disregard of social identity can cause individuals to feel excluded from that society and subsequently lead to some basic psychological problems (19, 20). In spousal harmony, especially when one party damages or disregards the identity of the other party and partially restricts their freedom and rights, this triggers a process that reduces harmony and even leads to separation in couples.

Marital harmony refers to the process of mutual respect and identity between spouses in a relationship, and of recognizing and respecting their rights and freedoms. Although social and cultural elements play a fundamental role in the establishment of a family, they are also of vital importance in the continuation of the couples' union and in the establishment of a family environment by taking it

to further stages. In IVF applications, although there are usually couples with high marital harmony and mutual personality and social status harmony with each other, it is also possible to talk about couples where harmony is not an issue due to the social pressure of having a baby. Therefore, the effect and role of marital harmony on IVF treatment must be well understood.

Partner Compatibility in IVF Treatment

In fact, individuals and couples having babies is based on both instinctive and social and cultural reasons. Every individual who has no problems theoretically and psychologically has a desire to reproduce and continue their lineage. However, for this desire and wish, it is necessary to first find the right partner, then to provide the right environment and opportunity. Therefore, in order to have a baby, it is not enough to just want it, but also to meet certain requirements and conditions.

Since IVF treatment is generally a process of fertilization of eggs and sperm outside the body in couples who cannot conceive naturally, there are already significant biological and physiological obstacles to couples having a baby. Most of the time, these obstacles go beyond concrete reasons such as physiological or pathological reasons and can also arise from psychogenic factors. At this point, the extent to which the mother-to-be is ready for IVF is especially important in terms of egg quality and the ability to carry the fertilized egg in the uterus (21,22).

The process of becoming a mother essentially represents a process in which many changes are experienced, and individuals, in a sense, give up many important rights and freedoms in their lives. The change in body image, physical and anatomical changes in motherhood, the anxiety of taking responsibility for another living being until the end of life, and being able to properly mother that living being are at the highest level for expectant mothers (23). In this process, marital harmony plays an important role in terms of the expectant father providing the expectant mother with the necessary support and trust.

Although the relationship between marital harmony and the desire to have a baby is very high, it is not possible to attribute the desire to have a baby to marital harmony alone. Having children is considered important in terms of being a part of the social structure socially and culturally (24). Therefore, individuals may have babies in order to adapt to the society they live in. In some cases, many reasons such as not wasting the wealth of the family business, continuing the lineage, and fear of being alone in later life and old age may be among the reasons why one or both parties in the couple want a baby.

Whatever the reason, wanting to have a baby represents a highly emotional process. The main reason for this is the way individuals view the concepts of mother and father. This view again derives its origin from social and cultural norms (25). In almost every society, although the degree and type are different, the concepts of mother and father are considered sacred. Especially motherhood is seen as a symbol of productivity and fertility in every period and is considered sacred. The concept of fatherhood, like motherhood, is a social concept that gives security and peace to the family, protects the family from external evil and dangers, and means being a man and having power.

The fact that motherhood and fatherhood are valued and important within the social community does not mean that the desire to have a baby is only for the purpose of having these beauties or social status. In fact, the situation is more than that. Individuals can take part in the social structure through these superordinate concepts as mothers and fathers, and if they do not receive these statuses, they feel excluded from society. Although there is no direct negative and unintentional perspective against couples who cannot have a baby in societies, it can generally be accepted that marriage has not turned into a family concept in couples who do not have children. In other words, children have a function that turns marriage and relationships into a family as a social structure.

Another important reason for having a baby, especially in patriarchal structures, is to give a child to a man. Generally, in rural

and patriarchal areas, brides or women who do not have a baby are excluded from the marriage union either by being brought as a second wife or by getting divorced and taking another wife. In this case, women who do not have children are excluded not only from society because of this, but also as widows. Therefore, having a child is seen as a significant pressure and necessity for both spouses and women in patriarchal societies.

In more modern societies, infertility of women can still lead to divorce or having children outside of marriage. Although not as dominant as in patriarchal societies, in modern societies, women feel the responsibility of giving their husbands children and continuing the lineage. For this reason, a woman who cannot have children thinks that her husband is preventing her from having children, and even if both harmony and love are at the highest level between the spouses, not having children can lead to serious problems between the spouses and even lead to divorce.

In couples who are unable to conceive through normal means and therefore try in vitro fertilization, all these social, cultural and psychological pressures are in question. In addition, there is also the fear of failure of treatment methods in couples. In the past, since there were no adequate diagnosis and diagnostic methods for the concept of infertility, it was relatively less clear which of the parties was preventing them from having a baby, but today, all variables, from the level of compatibility of couples to their obstacles to having a baby, can be effectively revealed.

Although medical and medical interventions in IVF treatment generally proceed based on concrete and technical data, it is possible to state that other variables are also important in the IVF process. In the same conditions and variables, very different results can be obtained in the same methods in the mother candidates or couples. Despite the monitoring and management of all control and fertilization parameters, the treatment does not give positive results in some couples and the couples cannot have a baby. While this situation is reported as unknown variables or factors, today, new

studies are also examining the variables related to psychogenic factors in IVF treatment.

There have been many studies reporting the effects of the mother's excitement, anxiety, fear or psychometric status on egg quality and pregnancy during IVF treatment. In these studies, the changes in the anatomical and physiological structure, especially during pregnancy, and the differences in the hormonal system affect the physiological adaptation processes of the mothers. There are also studies that reveal the relationship between the father's sperm quality and number and psychological factors. However, these studies generally focus on the effects of psychological illnesses such as anxiety, depression, hostility, somatization or symptoms and emotional states. In all these studies, the psychological support of the mothers and fathers during IVF treatment has a serious importance on the success of the treatment.

Conclusion

IVF treatment is a medical practice that is developing every day thanks to new methods and techniques and scientific research, and whose success rates are constantly increasing compared to the past. In terms of the response it provides to both the social, cultural and psychological needs of having a baby, IVF treatment can actually be seen as a health service that also provides social benefit. For this reason, in order to achieve the highest possible success in IVF treatment, all variables affecting the treatment process must be closely examined and included in the system.

While studies on IVF focus more on the medical and relatively quantitative data of the treatment process, the issue of having a baby is studied more in the fields of family, sociology and psychology. However, the limited studies conducted on the psychological state of mind in IVF treatment focus on the adaptation level of expectant mothers to the treatment process and some basic indicators reflecting their psychological state. It can be stated that the role of the expectant mother's spouse, who is the most important and constant supporter of the expectant mother, has not been sufficiently examined in the literature in these studies. For this,

further studies and research are needed. At least, the lack of content in the form of measurement, support and advice on couple therapy or spouse adaptation in routine IVF practices also supports this situation. However, when approaches from different branches of science are brought together, it may be possible for the expectant mother's adaptation level to increase in IVF treatment and for her to respond to the treatment more quickly and effectively.

The most important elements of IVF treatment are egg and sperm quality. In order for the quality of eggs and sperm to be high, first of all, the prospective parents must fully believe in the treatment, be compatible and volunteer. Although applying for IVF is an indication of voluntariness, it does not mean complete volunteering. One of the couples may have wanted to be involved in the process due to pressure from the other or for different reasons. In this case, the anxiety and worry levels will be high on the side that is involved in IVF treatment for different reasons. This situation can affect the hormone levels of the individuals and reduce the quality of the egg and sperm. High anxiety and stress in the prospective mother will also closely affect the process of the egg settling in the uterus after fertilization and the continuation of the pregnancy. Therefore, more research and practice should be done on couple compatibility, which is one of the most important key components for couples to be involved in the process sincerely and not just for certain social, cultural or conjuncture reasons.

In many countries, a father is also necessary for the in vitro fertilization application and for the baby to later acquires an identity, to become a mother socially and socially, and for this reason, mostly married couples apply for in vitro fertilization. Although this situation is gradually changing in Western countries towards applications from unmarried couples, it is possible to say that mostly married couples apply for in vitro fertilization.

However, although married couples are in the majority, it can be stated that couple compatibility is more important in IVF treatment than marriage compatibility. The most important reason for this is the fact that every marriage is also a couple and that there

is an understanding and expectation above marriage compatibility in couple compatibility. Marriages may not always be based on love and mutual desire. Couples may get married for different reasons, social, cultural, economic or other reasons. In patriarchal societies, marriages are mostly made based on social norms and values, and in most arranged marriages, marriage is in question before becoming a couple. In such a case, couple compatibility may be extremely low, while marriage compatibility may be high. Marital compatibility is related to the degree to which couples fulfill the duties assigned to them by the institution of marriage within a family or marriage. However, these duties and responsibilities may not always be carried out with sincere feelings and thoughts. Couples may also show successful marital compatibility in order to comply with external impositions or norms brought by the social structure. However, in such couples, it may not always be the case that marital harmony and couple harmony are close to each other.

Social and societal norms and cultural experiences give the individual the importance and value of being a family. Within this concept, the social identity of mother and father plays an important role in the existence of individuals within the cultural and social structure. For this reason, in most eastern societies, due to the pressure of the social structure, and in western societies, due to emotional pressure, the parties may want to have children. For this reason, providing a couple harmony where the harmony between the couples is at the highest level can minimize these pressures and allow couples to adapt more to the in vitro fertilization application they apply to have a baby.

Changing social life standards and women increasingly taking part in working life have led to changes in the role and duties of women in childcare in the past, and some sharing between the father and mother regarding the baby's care process has become mandatory. Therefore, in in vitro fertilization, not only the harmony between the couples in the current situation, but also their views and thoughts regarding harmony after having a baby in the future are important. For this reason, couples need to come together and make joint and rational decisions regarding the post-baby period. All these

processes are important both for the mother and father candidate to feel ready for the baby and for them to participate in the treatment process at the highest level.

As a result, the adaptation of prospective mothers and fathers to IVF treatment and their efforts to achieve positive results in the treatment are closely and directly related to the level of harmony between the couple. In candidates with high couple compatibility, their psychological preparation levels will also be higher, which will allow individuals to be more hormonally suitable. However, low couple compatibility and high anxiety levels can negatively affect both egg and sperm quality and the mother's ability to carry the baby after fertilization.

With more studies on couple compatibility and IVF treatment in the literature, quantitative and qualitative data in this area can be increased. In field applications, measuring the compatibility levels of couples before IVF treatment, providing support in this regard, and supporting individuals both during and after the treatment process can allow for more effective and successful treatment results.

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KADIN HASTALIKLARI VE DOĞUM ÖZELİNDE

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