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ÖNSÖZ

Dünya Sağlık Örgütüne göre probiyotikler; uygun miktarlarda kullanıldığında, kullanıcının sağlığını olumlu yönde etkileyen mikroorganizmalardır. Prebiyotikler ise konağın sağlığı üzerinde etkili olan, cansız gıda komponentleri olarak tanımlamıştır. Prebiyotikler tek başına kullanılabileceği gibi, probiyotiklerle takviye şekilde de kullanıma uygundur. Probiyotikler ve prebiyotikler, vücuttaki mikrobiyotayı değiştirerek faydalı ve patojen bakteriler arasında dengeli bir ortam sağlarlar. Probiyotikler ve prebiyotikler, en sık antibiyotik tedavisi sırasında mikrobiyotayı korumak veya bozulmuşsa tekrar düzenlemek amacıyla kullanılsalar da, günümüzde tıbbın hemen hemen her alanında kullanılmaktadır.

Kitabımızda yer alan bilgiler ışığında okurların probiyotikler, prebiyotikler ve vücudumuzu paylaştığımız mikrobiyota kavramları hakkında bilgi sahibi olacakları; bununla birlikte probiyotikler ve prebiyotiklerin tıpta güncel kullanım alanları bilgi edinecekleri kanaatindeyiz.

Yüce Türk Milletine hayırlı olması temennisiyle.

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Selma GÜLER

1. BÖLÜM

PROBİYOTİKLER, PREBİYOTİKLER, SİMBİYOTİKLER

Nesrin GAREAYAGHİ[1]

1. PROBİYOTİKLER

Probiyotik kelimesi tarihte ilk defa Ferdinand Vergin tarafından 1954'te kullanılmıştır. Kelime Yunancadan gelir ve "yaşam için" anlamını taşımaktadır. Günümüzde Birleşmiş Milletler Gıda ve Tarım Örgütü (FAO) ve Dünya Sağlık sÖrgütü (WHO) tarafından 2002 yılındaki tanımıyla probiyotikler yeterli miktarda tüketildiğinde konakçının sağlığı üzerine olumlu etkiler yapan, özenle seçilmiş canlı mikroorganizmalar olarak kabul edilmektedirler.

İdeal bir probiyotik patojen etki yapmamalı, safra tuzlarına ve aside karşı dirençli olmalı, bağırsak florasına tutunması iyi olmalı, çoğalma periyodu kısa olmalı, işlenme süreçlerinden etkilenmemeli, genetik olarak kararlı olmalı ve laktik asit üretmelidir.

Probiyotik kullanımının sağlığımız üzerinde saymakla bitmeyecek kadar fazla etkisi bulunmaktadır. Probiyotikler vücudumuzdaki mikrobiyotayı değiştirerek faydalı ve patojen bakteriler arasında dengeli bir ortam sağlarlar. Probiyotik özelliği taşıyan canlı mikroorganizmalar gıda üretiminde ve gıdaların korunmasında

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2. BÖLÜM

PROBİYOTİKLER ve ANTİBİYOTİK KULLANIMI

Çiğdem TEKER[1]

GİRİŞ

Yaklaşık olarak insan vücudunun 2 m2'si deri, 300 m2'si mukoza ile kaplıdır. Deri ve mukozal yüzeylerde yaşayan bakteri sayısı (10^{14}) insanın kendi hücre sayısından (10^{13}) daha fazladır (1). Gastrointestinal sistem geniş mukozal yüzey alanı ile besinsel antijenler, patojen mikroorganizmalar ve çevresel ajanlarla karşı karşıya kalmaktadır (2). Karşılaşılan bu ajanlara karşı intestinal epitel bariyeri, mukozal immun sistem ve intestinal mikroflora yardımı ile gelişmiş bir savunma sistemi kurulmuştur (3-4).

İnsan fetüsü mikrobiyolojik olarak sterildir ve doğum anında anneden ve çevreden kaynaklanan bakterilerce kolonize olur. Bu mikrobiyata sabit değildir ve anne sütü kesilip normal gıdalara geçilinceye kadar çeşitli değişiklikler ortaya çıkar (5-6). Vajinal yolla doğan bebekler erkenden kolonize olurken sezaryenle doğan bebeklerde gaitada bakteri sayısı ve bifidobakteri içeriği 1. ayda bile vajinal doğanlardan daha az bulunmaktadır (7). Sezeryanla doğan bebeklerde gastroenterit ve uzun dönemde allerjik hastalıklarda artış bildirilmektedir (8). Doğum

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3. BÖLÜM

BİLİŞ, STRES, ANKSİYETE, DEPRESYON, BİPOLAR DUYGUDURUM BOZUKLUĞU ve ŞİZOFRENİDE PROBİYOTİKLER

Alperen KILIÇ[1]

MİKROBİYOTA

Mikrobiyota, bir ortamda bulunan bir mikroorganizma grubunu karakterize etmek için kullanılan bir terimdir (1). İnsanlarda cilt, ağız, vajina ve bağırsak veya gastrointestinal (GI) kanal gibi vücudun birçok yerinde bakteri grupları bulunur (2,3). GI kanaldaki mikrobiyota yaklaşık 3 milyondan fazla gen eksprese eden en az 1000 farklı soy ve 40000 ayrı tür içermektedir (3,4). Bağırsak mikrobiyotası 10 trilyondan fazla bakteriden oluşan yoğun ve çeşitli bir yapıdır (6). Bağırsaktaki en belirgin 2 bakteri filotipi, mikrobiyomun % 7 ile 75'ini oluşturan Bacteroidetes (örn., Bacteroides) ve Firmicutes (Lactobacillus gibi)'dir. Ayrıca proteobacteria, actinobacteria (örn. Bifidobacterium) ve cynobacteria da mevcuttur. (7,8) Çalışmalar, kommensal bağırsak mikroorganizmalarının insan anatomisi ve fizyolojisinin gelişimi ve olgunlaşması için hayati olduğunu göstermiştir.

GI mikrobiyotadaki dengesizlikler, alerji, obezite ve diyabet gibi çeşitli sağlık problemleriyle ilişkilendirilmiş disbiosis olarak adlandırılmıştır (9,10).

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4. BÖLÜM

ATOPIK DERMATIT, MIKROBIYATA ve PROBIYOTIKLER

Hilal Kaya ERDOĞAN[1]

Atopik dermatit (AD) (atopik ekzema), sık görülen bir dermatolojik hastalıktır. Kitabın bu bölümünde AD, mikrobiyata ve probiyotikler konusu incelenecektir. Giriş kısmında AD hakkında (tanım, tanı, klinik bulgular vb) kısa bilgi verildikten sonra, AD patogenezinde mikrobiyatanın önemi ve tedavisisinde probiyotiklerin kullanımı güncel literatür ışığında tartışılacaktır.

Giriş

AD, atopik diyatezi olan bireylerde görülen, alevlenme ve remisyonlar ile karakterize, kronik, kaşıntılı inflamatuar bir dermatozdur. Sıklıkla serum immünoglobülin (IgE) yüksekliği, kişisel veya ailesel tip I allerji öyküsü, alerjik rinit ve astım ile ilişkilidir (1,2). Hastaları sosyal, ekonomik, akademik ve mesleki yönlerden olumsuz etkileyebilmekte; hem hastaların, hem de ailelerinin yaşam kalitesinde bozulmaya neden olmaktadır. Çocuklarda daha sık olmakla birlikte, yetişkinleri de etkileyebilmektedir. Prevalansının Amerika Birleşik Devletleri'nde çocuklarda % 12.98 ve yetişkinlerde % 7.2-10.2 olduğu; eyaletler arasında deği-

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5. BÖLÜM

PROBİYOTİKLER ve KANSER

Fatih TEKER[1]

GİRİŞ

Probiyotikler yeterli miktarda aktif durumda olduğunda sağlık açısından olumlu etkiler gösteren canlı mikroorganizmalardır. Pek çok probiyotik mikroorganizma (örneğin Lactobacillus rhamnosus GG, L. reuteri, bifidobakteriler ve bazı L. casei veya L. acidophilus grubunun türleri, Escherichia gibi Colli suşu Nissle 1917, belirli enterokoklar [Enterococcus faecium SF68] ve probiyotik maya Saccharomyces boulardii) tıbbi olarak kullanılmıştır (1). Prebiyotikler ise konakçı gastrointestinal mikroflora üzerinde yararlı etkileri olan özel fermente edilmiş bileşenlerdir. Bunlar, çeşitli maddeleri içerir; en iyi çalışılmış olanları sindirilmeyen oligosakaritler olan frukto oligosakarit (soğan ve sarımsakta bulunur) ve galakto-oligosakarittir (sütte bulunur) (2). Prebiyotiklerin probiyotiklerle kombinasyonuna simbiyotik denir. Günümüzde sadece bifidogenik, sindirilmeyen oligosakaritler (özellikle inulin, hidroliz ürünü oligofruktoz ve trans-galaktooligosakaritler), prebiyotik sınıflandırma için tüm kriterleri yerine getirmektedir (1). Prebiyotikler dışkı kalitesini iyileştirir (pH, kısa zincirli yağ asitleri [SCFA], sıklık ve tutarlılık), gastroenterit, atopik egzama ve enfeksiyon riskini azaltır (3).

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6. BÖLÜM

VAJİNAL MİKROBİYOTA

Alev ÖZER[1]

İnsan mikrobiyomu insan vücudunu kolonize eden trilyonlarca mikroorganizmadan oluşmaktadır. Vajen, ağız, cilt, gastrointestinal kanal, burun, üretra ve vücudun diğer kısımları farklı mikrobiyal komunitelere ev sahipliği yapmaktadır. İnsan vücudundaki hücrelerinin yaklaşık % 43.5'i gerçekten insana aittir, %56.5'i ise mikroorganizmalardan oluşmaktadır. İnsan mikrobiyotası, bakterileri, mantarları ve virüsleri içine alan komensal, simbiyotik ve patojenik mikroorganizmalardan oluşmaktadır. İnsan mikrobiyomu ise mikrobiyal topluluklar tarafından üretilen genleri ve gen ürünlerini (RNA, proteinler, metabolitler) kapsamaktadır. İncelenen bir mikrobiyomun tüm genetik bilgisi (bakterilerin, mantarların ve virüslerin tüm genomu) metagenom olarak adlandırılmaktadır[1].

Vajen her mililitrede 10^9 CFU'ya (colony-forming units) ulaşan miktarda aerob ve anaerob bakterilerden oluşan kompleks bir popülasyona ev sahipliği yapmaktadır [2].

Vajinal ekosistemdeki mikroorganizmalar oksijen gereksinimlerine göre (aerobik veya anerobik) veya patojenitelerine göre (patojenik, şartlı patojenik veya patojenik potansiyeli olmayan) olarak sınıflandırılırlar. Vajendeki mikroorganizmaların bazıları endojen iken bazıları ise ekzojen türler olup dış kaynaklardan başlıca cinsel yolla edinilmektedirler [3].

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7. BÖLÜM

DERİ HASTALIKLARINDA MİKROBİYATANIN ÖNEMİ

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Son yıllarda mikrobiyomun insan sağlığındaki rolü, ilgi çeken bir araştırma alanı haline gelmiştir. Çalışmaların çoğu bağırsak mikrobiyomuna odaklanmış olmakla birlikte son zamanlarda deri dâhil diğer mikrobiyomlar da ilgi görmüştür. Bağırsak ve deri mikrobiyomlarına yönelik çalışmalar sonucunda birçok deri hastalığının tedavisi, yeni tedavi stratejileri ve prebiyotik-probiyotik ürünlerin geliştirilmesini sağlayacak verimli sonuçlar elde edilmiştir (1).

''Hijyen hipotezi" yani erken yaşta tam bir mikrobiyotaya sahip olunmaması, yetersiz bağışıklık sistemi, bakteri ve virüsler ile savaşta zayıflık, enfeksiyon ve diğer hastalıklara karşı hassasiyet ile ilişkilendirilmiştir. Küçük yaşta mikroplara maruz kalmanın azaltılması, derinin atopik hastalıklarından atopik dermatit gibi birçok hastalığa yol açabilir (2).

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8. BÖLÜM

PROBİYOTİKLER ve İSHAL

Selçuk NAZİK[1]

İshal (Diyare), günde üç ya da daha fazla, yumuşak ya da sıvı dışkı ya da birey için normalden daha sık dışkılamadır. Bakteri, virüs ve parazit gibi çeşitli mikroorganizmaların neden olduğu gastrointestinal bir enfeksiyon hastalığıdır (1).

Dünya sağlık örgütü (DSÖ) verilerine göre beş yaş altı çocuklarda ölümün ikinci en sık nedeni ishaldir ve yılda yaklaşık olarak 525000 çocuğun ölümünden sorumlu tutulmaktadır. İshal birkaç gün sürebileceği gibi daha uzun da sürebilir. Sürenin uzaması, su ve tuz kaybı olması hastalığın mortalitesini arttırmaktadır (1).

İshal çeşitli nedenlerle ortaya çıkabilir. Enfeksiyon en sık nedendir. Bakteriyel, viral ya da paraziter nedenlere bağlı olarak ortaya çıkabilir. İkinci sıklıkta malnütrisyon gelmektedir. bu durumda kişilerin ishale yatkınlıkları artmaktadır. Üçüncü sıklıkta su kaynaklarının kontamine olması yer almaktadır. Ayrıca antibiyotik ilişkili ishal de bir diğer neden olarak karşımıza çıkmaktadır.

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9. BÖLÜM

GEBELİK DÖNEMİNDE KULLANILAN PROBİYOTİK, PREBİYOTİK ve SİMBİYOTİKLERE TERATOJENİTE AÇISINDAN KESİTSEL BİR BAKIŞ

Duygun ALTINTAŞ AYKAN[1]

Gebelik öncesinde kronik hastalıklar nedeniyle veya gebelik döneminde ortaya çıkan hastalıkların tedavisinde gebelerde ilaç kullanımına sıklıkla rastlanmaktadır. Gebelikte ilaç kullanımı, çevresel teratojenler kavramının içerisine dâhil edilmektedir. Çevresel teratojenler maternal hastalıklar, infeksiyonlar, fiziksel ajanlar, kimyasal ajanlar ve belirli ilaçlardan oluşan geniş bir kitleyi ele almaktadır. Genel olarak doğum defektlerinin % 4-6'sı çevresel teratojenlerden kaynaklanmaktadır. Teratojenite potansiyeli kanıtlanmış olan belli başlı ajanlar hücre ölümü, dokuların büyümesinde bozulma ve hücrenin anormal diferansiyasyonuna yol açarak fetal advers etki gösterebilmektedirler (1).

Gebelik döneminde maruz kalınan bir ajanın teratojenik açıdan risk analizini yaparken önemli bir husus; ajanın dozu, anneye uygulama yolu ve gestasyonel

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10. BÖLÜM

OKÜLER MİKROBİATANIN KARAKTERİZASYONU ve OFTALMİK HASTALIKLARLA OLAN İLİŞKİSİ

Ayşegül ÇÖMEZ[1]

Normal olarak insan vücudunda bulunan komensal mikroorganizmalar ve onların genetik materyali topluca insan mikrobiyomu olarak bilinmesine rağmen 'mikrobiyota' terimi mikroorganizmaların kendisini ifade eder (1). İnsan Mikrobiyomu Projesi, normalde sağlıklı insan vücudunda bulunan mikroorganizmaları tanımlamak ve nihayetinde hastalık durumlarıyla ilişkili değişiklikleri karakterize etmek için Ulusal Sağlık Enstitüleri tarafından 2007 yılında başlatılmıştır. Mikrobiyom Projesi, insan vücudunda yaşayan çok sayıda ve çeşitli mikrobiyal tür topluluklarını ortaya çıkardı (2,3). İnsan Mikrobiyom Projesi başlangıçta beş ana vücut bölgesini incelerken (gastrointestinal sistem, cilt, ürogenital sistem, oral mukoza ve nazal mukoza) ortaya çıkan bir araştırma alanı da, göz ve oküler yüzey mikrobiyotasına odaklanıyor (2,4,5). İnsan mikrobiyotasının ve onun fizyoloji ve patogenezdeki rolünün keşfi, bazı hastalıkları inceleme ve yeni tedavi yöntemlerinin geliştirilmesi konusunda bize çok önemli katkılar sunmuştur.

Yapısal olarak göz, anterior ve posterior kamara, iris, lens, vitreus kavitesi, retina, siliyer cisim, kororid ve intrinsik kaslardan oluşan bir iç bölmeden ve

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11. BÖLÜM

ANESTEZİ UYGULAMALARI ve MİKROBİYOTA

Muhittin TAŞDOĞAN[1]

Mikrobiyota

Mikrobiyota olarak da bilinen vücut organizmaları başlıca bağırsak, diğer muköz membranlar ve ciltte bulunur. Bağırsak, mikrobiyotanın büyümesi ve gelişimi için canlı bir ortam sağlar. Yetişkin insan bağırsağı 10^{12} – 10^{14} mikrop içermekte olup, bu sayı insan cildindeki mikroorganizmalardan daha büyüktür ve vücuttaki hücre sayısından 10 kat daha fazladır (1). Bu nedenle insan bağırsağı mikrobiyal topluluğu insan vücudunda fonksiyonel bir organ veya ikinci insan genomu olarak düşünülebilir (2). Bağırsak ve beyin arasında kompleks bir iki yönlü sinyal sistemi olan bağırsak-beyin ekseni beyin fonksiyonunda kritik bir rol oynar (3). Giderek artan kanıtlar bağırsak mikrobiyotasının beyin fonksiyonlarını uzaktan regüle ettiğini düşündürmektedir.

Genel olarak mikrobiyotanın doğumdan sonra geliştiği düşünülmektedir. Ancak ilk mikrobiyal çekirdek fetüs yaşamında maternal mikrobiyotadan köken alır ve 3-5 yıl içinde bağırsak, hızlı bir şekilde yetişkinlik mikroflorasına kolonize olur (4). Mikrobiyotanın fizyolojik fonksiyonları patojenlere karşı savunma, B12 vitamini, folat ve K vitamini gibi besinleri sağlama, immün sistem fonksiyonunu

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12. BÖLÜM

ALERJİK RİNİT ve PROBİYOTİKLER

Nagihan BİLAL[1]
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GENEL BİLGİLER

Alerjik rinit (AR) , duyarlı kişilerde alerjenle maruziyet sonrasında gelişen Ig-E aracılı tip 1 hipersensitivite reaksiyonuna bağlı burun mukozasının inflamatuar hastalığıdır. Klinikte en sık karşılaşılan belirtiler burun tıkanıklığı, burun akıntısı, burun kaşıntısı ve hapşırmadır. Bu şikayetlere ek olarak, genizakıntısı, öksürük , gözlerde kaşıntı ve sulanma, damakta kaşıntı gibi şikayetlerde görülebilir (1).AR, sıklıkla üst solunum yollarını ve konjuktivayı etkilemekle birlikte, alt solunum yollarını da etkileyerek astım gibi hastalıklar ile birliktelik göstermektedir. Prevalansı ülkelere ve yaş gruplarına göre değişmekle birlikte,gelişmiş ülkelerde ve çocuklarda görülme sıklığı daha yüksektir. Amerika birleşik devletleri gibi gelişmiş ülkelerde çocukluk çağının en sık kronik hastalığıdır(2). Ülkemizde 6-7 yaş arası prevalansının %3-44 arasında olduğu bildirilmektedir (3).

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13. BÖLÜM

MİKROBİYOTA ve YOĞUN BAKIM UYGULAMALARI

Mahmut ARSLAN[1]

Yıllar boyunca modern tıp uygulamaları ile insanlardaki bakterileri eradike etmek üzerinde çokça çaba harcandı. Ancak, vücudumuzdaki komensal mikroorganizmaların insan fizyolojisinde anahtar rol oynadığının anlaşılması ile bu faydalı mikroorganizmaların korunması ile ilgili stratejiler ve bunların hastalıkların tedavisinde kullanılması ile ilgili çalışmalar yaygınlaşmaktadır.

Bir organ sisteminde yerleşen tüm organizmalara mikrobiyom; bu organizmaların genomlarının tamamına mikrobiyota denir (1). Bu iki terim medikal literatürde bazen bir biri yerine kullanılabilmektedir. İnsan mikrobiyomu bakteri, virüs, mantar, arkea ve tek hücreli ökaryotlardan oluşur. İnsan vücudundaki insan hücresi sayısı ile bakteri hücre sayısı hemen hemen eşittir (2). İnsan geni sayısı yaklaşık 20 000 (yirmi bin) iken vücudumuzdaki mikrobiyal gen sayısı 2-20 milyondur. Bir başka deyişle genetik temel olarak %1 insan, %99 ise bakteriyel kökenliyiz (3). İnsan mikrobiyotasının büyük kısmı sindirim sistemi, solunum sistemi, genitoüriner sistem ve deride kolonize olmuştur. Mikrobiyotamızın %70'inden fazlası kolonda bulunur (4).

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14. BÖLÜM

MULTİPL SKLEROZ ve MİKROBİOTA

Yılmaz İNANÇ[1]

,

Multipl skleroz (MS), santral sinir sistemini (SSS) etkileyen kronik inflamatuar bir demiyelinizan hastalıktır. Hastalık yaklaşık olarak 20-40 yaşları arasında ve genellikle kadınlarda görülmektedir. Dünyada 2.1 milyondan fazla kişiyi etkilediği bilinmektedir. Hastalığın nedeni tam olarak anlaşılmamıştır ve hem genetik hem de çevresel faktörlerin hastalığın gelişiminde önemli roller oynadığı görülmektedir. Görülme sıklığı açısından dünyada yüksek, orta ve düşük görülme bölgeleri tanımlanmıştır. Yüksek sıklıkla görülen yerler Kuzey Avrupa, İsrail, Kanada, Kuzey Amerika, Yeni Zelanda, Güneydoğu Avustralya olup prevalans 30/100000 üzerindedir. Orta grupta Avustralya, Güney Amerika, Güneybatı Norveç, Kuzey İskandinavya, Ukrayna, Güney Afrika olup prevelans 15–25/100000'dir. Düşük sıklıkta görülen yerler ise Asya, Afrika, Güney Amerika'nın kuzeyi olup prevelansı 5/100000 altındadır. Aynı coğrafyada yaşayan farklı ırk ve etnik gruplarda belirgin prevalans farklılıkları bildirilmiştir. MS prevalansının düşük olduğu ülkelerden, MS prevalansının yüksek olduğu ülkelere göç eden topluluklarda yapılan epidemiyolojik çalışmalarda yaş faktörü-

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15. BÖLÜM

BAĞIRSAK MİKROBİYOTASI ve PSİKİYATRİK HASTALIKLAR

Ebru FINDIKLI[1]

A.BAĞIRSAK MİKROBİYOTASI VE PSİKİYATRİK HASTALIKLAR

Beyin-bağırsak-mikrobiyota ekseni, bağırsak mikropları ile beynin karşılıklı iletişim kurmasını sağlayan bir iletişim sistemidir. Her ne kadar beyin-bağırsak iletişimi onlarca yıldır bir araştırma konusu olmuş olsa da, aracı olan bağırsak mikroplarının bu bağlamdaki keşfi son zamanlarda olmuştur. Sinyal iletim mekanizmaları karmaşıktır ve tam olarak açıklanamamıştır, ancak bu yolların sinirsel, endokrinolojik, bağışıklık ve metabolik yollar olduğu açıktır. Preklinik çalışmalar, vagus sinirinin periferdeki bağırsak mikropları ile merkezdeki davranışsal etkiler arasındaki iletişimin temel sinir yolağı olduğunu göstermiştir. Bir çalışmada tam trunkal vagotomi sonrası Lactobacillus rhamnosus'un beyindeki etkilerinin ortadan kalktığı gösterilmiştir [1]. Bu bireylere peptik ülser tedavisi için tam bir trunkal vagotomi yapıldığında yaşlılıkta Parkinson hastalığı gibi bazı nörolojik bozuklukların da riskinin azaldığı gözlenmiştir [2]. Bağırsak mikrobiyotası aynı zamanda serotonin (5-HT); gibi merkezi nörotransmiterlerin seviyelerini onların prekürsor seviyelerini değiştirerek düzenler. Örneğin, Bifidobacterium infantis'in

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16. BÖLÜM

ÇOCUKLUK ÇAĞI SOLUNUM YOLU ALERJİK HASTALIKLARINDA PROBİYOTİKLERİN YERİ

Selçuk VAROL[1]

Solunum yolu alerjik hastalıkları temelde alerjik rinit ve atopik astım olmak üzere iki hastalık şeklinde karşımıza çıkmaktadır. Tüm popülasyonda görülmekle birlikte özellikle çocukluk çağında bu iki hastalığın birlikteliğine oldukça sık rastlanmaktadır. Ortak hava yolunu ilgilendiren her iki klinik antitenin de solunum sistemi içinde sistemik bir inflamatuar sürecin klinik belirtileri olduğu düşünülmektedir. Öyle ki, bu iki hastalığın yüksek oranda birlikte görülmesi birçok klinik çalışmada 'tek havayolu tek hastalık' tanımıyla da anılmalarına neden olmuştur.

Atopik astım, CD4+ Th2 tip hücrelerin sensitizasyonu ile başlar. Th2 hücrelerinden salınan interlökin (IL) 4, 5 ve 13 gibi sitokinler IgE sentezini, mast hücreleriyle eozinofillerin gelişimi ve aktivasyonunu sağlar. Benzer şekilde alerjik rinitte de olaylar alerjenin nazal mukozaya erişmesi ve alerjen sunan hücreler tarafından T hücresine yönlendirilmesiyle başlar. Th2 yönünde farklılaşan T hücreleri yine IL-3, IL-5 ve IL-13 sitokinleri aracılığla B hücrelerinden IgE sentezine yol açar.

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17. BÖLÜM

KRONIK İNFLAMATUAR ROMATIZMAL HASTALIK PATOGENEZINDE BAĞIRSAK MIKROBIYOTASININ ROLÜ

Tuba Tülay KOCA[1]

Giriş

Uzun yıllar bakterileri uzak durulması gereken organizmalar olarak düşünürdük. Vücudumuz trilyonlarca bakteri barındırmaktadır. Besinlerin sindirilmesine yardım ederler ve iyilik halinin sürdürülmesinde önemli rol oynarlar. Parmak izi gibi her bireyin mikrobiyotası da farklıdır. Kişinin mikrobiyotası öncelikle annesinin mikrobiyotası ile belirlenir ve diyet, yaşam stili ile değişime uğrar. İnsan bağırsağı konakla faydalı olacak şekilde kompleks bir ekosisteme ev sahipliği yapar. Gastrointestinal sistemin farklı bölgelerinde floranın sayı ve kompozisyonu farklılık gösterir. Az miktarda tür midede ve proksimal ince bağırsakta yaşar. Distal ince bağırsak ve kolonda daha yoğun mikroorganizma barınır. Normal flora bakteriler, arkera alemi ve mantarlardan oluşur. Günümüze kadar 500 farklı bakteri

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18. BÖLÜM

AĞRI ve AĞRI TEDAVİSİNDE PROBİYOTİKLERİN ROLÜ

Bora BİLAL[1]
Feyza ÇALIŞIR[2]

Ağrının Tanımı

Uluslararası Ağrı Araştırmaları Derneği (IASP) ağrıyı, vücudun herhangi bir yerinden başlayan, organik bir nedene bağlı olan veya olmayan, kişinin geçmişteki deneyimleri ile ilgili, sensoryal, emosyonel, hoş olmayan bir duygu olarak tariflemiştir (1).

Ağrının iki çeşidi vardır;

Fizyolojik Ağrı: Periferde ağrılı uyaranların (doku hasarı, nöropati, inflamasyon vb.) nosiseptörleri uyarmasıyla başlayan ve ağrının giderilmesi için kişinin zararlı uyarandan haberdar olmasına yardım eden vücut koruma mekanizmalarından biridir. (43)

Patolojik Ağrı: Periferik veya santral nöronların direkt hasarından kaynaklı bir ağrı türüdür, bu durum sinir yolaklarındaki nöronların aktivitesini arttırır ve

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19. BÖLÜM

VENTİLATÖR İLİŞKİLİ PNOMONİ ve PROBİYOTİKLER

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Maruf BORAN[2]

Ventilatör ilişkili pnomoni mekanik ventilasyonun 48. saatinden sonra gelişen pnomoni tablosudur. Gelişiminde endotrakeal tüpün orofarinks ve trakeanın doğal yapısında meydana getirdiği bozulmaya bağlı olarak, oral veya gastrik sekresyonların alt hava yoluna ulaşması rol oynar. Ventilatör ilişki pnomoni yoğun bakımda takip edilen entübe hastalarda sık görülen, hayatı tehdit eden, mekanik ventilatörde kalış süresini ve hastanede yatış süresi ve mortalitede artışa sebep olan bir klinik durumdur. (1,2) Mortalitede 2 kat artmaya sebep olan ventilatör ilişkili pnomoni hasta başına 10000 – 13000 amerikan doları ek maliyete sebep olmaktadır. (22) Görülme sıklığı %6 – 50 arasında değişmektedir. (3,4) Mekanik ventilasyonun ilk 5 günü günlük %2, 6 ila 10. Günleri arasında günlük %2 ve 10. Günden sonra günlük %1 oranında gelişme riski mevcuttur. (5)

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20. BÖLÜM

KARDİYOVASKÜLER HASTALIKLARDA BARSAK MİKROBİYOTASININ ROLÜ

İbrahim Çağrı KAYA[1]

Giriş

Günümüzde kalp-damar hastalıkları orta ve ileri yaş grubunda en önemli mortalite nedenidir. Bu oran küresel ölümlerin %30'unu oluşturmaktadır (1). Dünyanın birçok ülkesinde olduğu gibi ülkemizde de koroner kalp hastalığı prevalansı %4-%5, insidansı ise %0,3-%0,4 arasında değişmektedir. Bu verilere göre tanı metodlarındaki ilerleme, yeni açılan merkez sayısı da göz önüne alındığında ülkemizde, her yıl yaklaşık olarak 250-300 bin yeni koroner arter hastasının olması beklenir (2). Kardiyovasküler hastalıklara etki eden faktörler genetik kaynaklardan, çevresel kaynaklardan veya genetik ve çevresel kaynakların kombinasyonundan oluşmaktadır. Nedensel genetik varyantları araştırmaya yönelik GWAS gibi büyük ölçekli ve kapsamlı araştırmalara rağmen, atfedilebilen kardiyovasküler riskin beşte birinden azının genetik belirleyicilerden kaynaklandığı gösterilebilmiştir (3, 4). Aynı zamanda, aterosklerozun tedavisinde yüksek etkili

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21. BÖLÜM

PROBİYOTİKLERİN ÇOCUK CERRAHİSİNDEKİ YERİ

Dilan ALTINTAŞ URAL[1]

Hipokrat (MÖ 370-460) 'Bütün hastalıklar barsakta başlar' sözüyle barsak ve hastalıklar arasındaki ilişkiye dikkat çekmiştir.

Modern araştırmalar, 1886 yılında Theodor Escherich'in infantlarda sindirim fizyolojisinin intestinal bakterilerle ilişkisini göstermesiyle başlamış; 1892 yılında Ludwig Doderlein vajinal enfeksiyonlarda Laktobasillerin kullanılabileceğini önermiş,Birinci Dünya Savaşında, Alfred Nissle, askerlerin gaitasından Escherichia Coli'nin non-patojenik suşunu izole etmiş, bu şuş gastrointestinal shigella ve salmonella tedavisinde kullanılmıştır (1).

Probiyotiklerin tarihçesi son yüzyılın başlarında Nobel ödüllü Metchnikoff'un Bulgar köylülerinin uzun yaşamı ile yoğurt tüketimi ve laktik asit bakterileri arasında ilişki kurmasına dayanmaktadır. 1907 yılında Eli Metchnnikoff kolonik bakterilerin yaşlanmada ve sağlıkta önemli bir rol oynadığını, ekşi sütün ve laktik asit üreten bakterilerin tüketimiyle yararlı mikroorganizmaların sağlanabileceği ve barsak florasının değiştirilebileceği görüşünü yayınladığı bir kitapta belirtmiş

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22. BÖLÜM

ÜRİNER SİSTEM ENFEKSİYONLARINDA PROBİYOTİKLERİN YERİ

Mevlüt KELEŞ[1]

İdrar yolu enfeksiyonları (İYE) gerek polikliniğe başvuran gerekse serviste yatan hastalarda en sık görülen bakteriyel enfeksiyonlardır. Amerika Birleşik Devletleri'nde 18 yaş üzerindeki bayanların %11'i yılda bir kez İYE geçirmektedir. İYE çoğunlukla 18-24 yaş arası sık görülmektedir. Bayanlarda İYE'nun en önemli özelliği ise nüks etme eğiliminde oluşudur. 18-29 yaş arası bayanlarda ilk İYE sonrası rekürrens oranı %24 olarak bildirilmiştir. İYE böbrekler, üreterler, üretra ve mesanede ortaya çıkabilmektedir. İYE striktür, fistül, abse formasyonu , bakteriyemi, sepsis, piyelonefrit ve böbrek disfonksiyonu gibi komorbiditelere neden olabilir. Piyelonefrit gelişimine bağlı mortalite oranlarının erkeklerde %1 bayanlarda ise %3 gibi yüksek değerlerde olduğu bildirilmiştir. İYE'nin sağlık sistemine maliyeti ve gittikçe artan antinikrobiyal ajan dirençleri de gözönüne alındığında İYE'nin önlenmesi ciddi önem arzetmektedir. Bu nedenle son yıllarda ÜSE için antibiyotik-dışı koruyu önlemler giderek daha popüler hale gelmektedir. Bu yak-

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23. BÖLÜM

MİKROBİYOTA, PROBİYOTİKLER VE YARA İYİLEŞMESİ ÜZERİNDEKİ ETKİLERİ

Alper URAL[1]

Bozulmuş yara iyileşmesi, güncel ve multidisipliner çeşitli tedavi yöntemlerine rağmen hala önemli bir tıbbi sorundur. Amerika Birleşik Devletler' inde kronik iyileşmeyen yaraların yılda 25 milyar dolara mal olduğu tahmin edilmektedir. Bu yaralar, özellikle hastaların yaşam kaliteleri üzerinde büyük bir yük oluşturur. Standart yara tedavisi sık pansuman değişimleri yapmayı, yaraları temiz tutmayı ve bazen enfeksiyon gibi komplikasyonlar durumunda da antibiyotik kullanımı gerektirmektedir(1). 2007 yılında, ABD Ulusal Sağlık Enstitüleri insan mikrobiyomunu daha iyi karakterize etmek, hastalıklarla ve tedavileri ile ilgisini saptamak amacı ile İnsan Mikrobiyomları projesini başlatmıştır(2). Bu süreçte çeşitli araştırmalar ile mikribiyomların ve probiyotiklerin yara iyileşmesi üzerindeki olumlu etkileri gözlenmiş ve bu yöndeki araştırmalar ivme kazanmıştır. Dolayısı ile deri mikrobiyomlarının yara iyileşmesinde doğrudan ilgili olduğu artık literatürde kabul görmüştür.

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24. BÖLÜM

ÇOCUK GELIŞIMI ve PROBIYOTIKLER

Murat YÜCE[1]

Çocuk gelişimi günümüzde Dünya Sağlık Örgütü gibi uluslararası sağlık kuruluşları ve pek çok araştırmacının ilgi odağında bulunan bir konudur. Anne karnındaki gelişim, beslenme, çevresel faktörler ve genetik çocuk gelişiminde etkisi olduğu bilinen temel faktörler olarak sayılabilir. Dünya Sağlık Örgütü tarafından 2011 yılında yapılan bir araştırmada dünya çapında beş yaş altındaki çocukların %18'inin düşük kilolu, %28'inin ise kısa boylu olduğu ortaya konulmuştur. (1) Çocuklarda gelişebilecek olan ishal ve enfeksiyon riskini artırması nedeniyle özellikle beş yaş altı çocuklarda yetersiz beslenme mortalite ve morbiditeyi önemli düzeyde artırmaktadır (2). Çocukların gelişim sürecinde ortaya çıkabilecek her türlü olumsuz durum, gelişimi minör veya majör düzeyde etkileyebilmektedir; bu nedenle büyüme gelişme sürecinin temelini oluşturan özellikle beslenme ilişkili problemlerin önlenmesi ve beslenmenin en iyileştirilmesi çocuk gelişiminin temel taşlarından biri haline gelmektedir.

Mikroplarla olan ilişkimiz doğumdan önce başlar; bunlar doğum sonrası gelişimin potansiyel olarak değiştirilebilir özelliklerini temsil ederler ve muhtemelen

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25. BÖLÜM

PROBİYOTİKLER ve ENFEKSİYON

Bahar KANDEMİR[1]
Selma GÜLER[2]

Tarihçe ve Tanım

Bir asırdan fazla bir zaman önce, Elie Metchnikoff (Nobel ödüllü bir Rus bilimci, Paris'teki Pasteur Enstitüsünde profesör) laktik asit bakterilerinin uzun ömürlülüğü destekleyebilecek sağlık yararları sunduğunu belirterek "Bulgar basili" olarak adlandırdığı bir bakteri ile fermente edilmiş sütle bir diyet geliştirdi. Zaman içinde bu konuyla ilgili farklı gelişmeler ortaya çıktı. Bağırsak sisteminin bozuklukları, bağırsak mikrobiyotasını değiştirmek amacıyla kullanılan canlı patojenik olmayan bakterilerle tedavi edildi. 1917'de, Sir Alexander Fleming'in penisilin keşfinden önce, Alman bilim adamı Alfred Nissle, şiddetli bir shigelloz salgını sırasında enterokolit geliştirmeyen bir Birinci Dünya Savaşı askerinin dışkısından, patojenik olmayan bir *Escherichia coli* suşu izole etti. Elde edilen *Escherichia coli* suşu Nissle 1917, laktik asit bakterisi olmayan bir probiyotiğin birkaç örneğinden

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