İnfektif Endokarditin Önlenmesi

Başka Neler Yapılabilir?

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Klinik Mikrobiyoloji ve İnfeksiyon Hastalıkları ABD

Genel Önlemler

Herkese önerilmeli, yüksek riskli hastalarda vurgulanmalı…

Thomas J and et al.
Do patients at risk of infective endocarditis need antibiotics before dental procedures?
BMJ2017;358:j3942doi:10.1136/bmj.j3942

Benito N and et al.
Health Care-Associated Infective Endocarditis: a Growing Entity that Can Be Prevented
Curr Infect Dis Rep (2014) 16:439

- Ağız ve deri hijyeni

- Yüksek riskli hastalarda yılda iki kez ve diğerlerinde ise yıllık dental takip yapılmalı

Thomas J and et al.
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- Yaraların dezenfeksiyonu
- Kronik bakteriyel taşıyıcılığın yok edilmesi veya azaltılması; deri, idrar
- Vücutta var olan herhangi bir infeksiyon odağının tedavisi
- Kendi kendine antibiyotik kullanmama

Thomas J and et al.
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- Piercing ve dövme yaptırılmaması
- Mümkün olduğunca infüzyon kateteri kullanımı ve invaziv işlemlerden kaçınılmalı
- Riskli işlemlerde sıkı infeksiyon kontrol önlemlerinin uygulanması
- Santral kateter yerine periferik damar yolu kullanılması
- 3-4 günde bir periferik kateterin sistematik olarak değiştirilmesi
- Santral ve periferik kanüller için bakım demetlerine sıkı sıkıya bağlılık

Thomas J and et al.
Do patients at risk of infective endocarditis need antibiotics before dental procedures?
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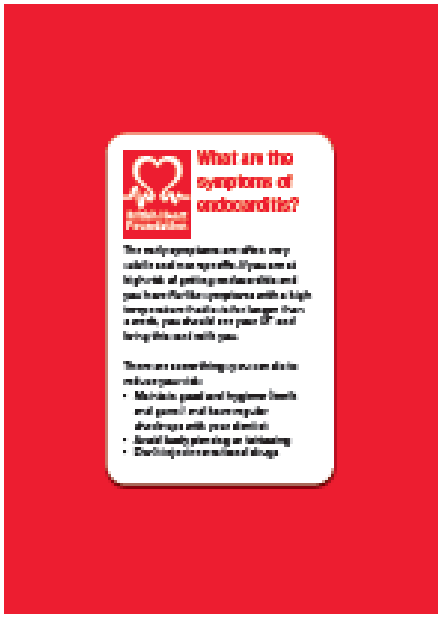


Thornhill M. And et al.
A change in the NICE guidelines on antibiotic prophylaxis.
Brıtısh Dental Journal ,Volume 221 No. 3, August 12 2016

Patogenez

- Bakteriyemi
- Endotel hasarı
- Trombüs oluşumu: platelet-fibrin

J. Cahill and et al.
Challenges in infective endocarditis
Journal of the American College of Cardiology Vol. 69, No. 3, 2017

- 38 periodontitli hasta
- Su ve %10 povidon-iyot ile subgingival durulamanın bakteriyemi üzerine etkisi
- İşlemden 2 dakika sonra kan kültürleri
- Su→ 10 bakteriyemi
- Povidon-iyot → 2 bakteriyemi, anaerob üreme yok
- Povidon-iyot grubunda koloni sayısı olarak daha az bakteri üremesi ve bakteriyemi ($p = 0.003$)

- Povidon-iyot ile yoğun durulama bakteriyemi riskini azaltmak için alternatif bir yaklaşım olabilir.

Sharmann P and et al.
Effect of application of a PVP-iodine solution before and during subgingival ultrasonic instrumentation on post-treatment bacteremia: A randomized single-center placebo-controlled clinical trial.
Journal of Clinical Periodontology, 2015, 42(7):632639.

- *Streptococcus gordonii*
- *Streptococcus intermedius*
- *Streptococcus mutans*
- *Streptococcus oralis*
- *Streptococcus pneumoniae*
- *Streptococcus salivarius*

- 1 dakikalık maruz kalmanın ardından kültürde hiçbir organizma üretilemedi.

- % 0,8 maya ekstratı ile desteklenmiş Beyin Kalp İnfüzyon besiyeri içindeki inkübasyonla seçici olmayan zenginleştirme sonrasında da üretilebilen hiçbir mikroorganizma yok

Elshibly A and et al.
Effective oral health in infective endocarditis:
efficacy of high-street mouthwashes against the viridans group streptococci.
J Investig Clin Dent. 2014 May;5(2):151-3.

- Hemodiyaliz - Periodontal tedavi
- 1 Ocak 1998-31 Aralık 2010; 4451 hasta
- Retrospektif
- Kontrol grubu

- Herhangi bir infeksiyondan dolayı hospitalizasyon (HR=0.72 (% 95 CI = 0.66-0.78, $p<0.001$)

- Akut ve subakut infektif endokardit (HR = 0.54,% 95 CI = 0.35-0.84, $p<0.01$)

- Pnömoni (HR = 0.71,% 95 CI = 0.65-0.78, $p<0.001$)

- Osteomyelit (HR = 0.77,% 95 CI = 0.62-0.96, $p<0.05$)

Huang S-T and et al.
Intensive periodontal treatment reduces risk of infection-related hospitalization in hemodialysis population.
Medicine ,Volume 94, Number 34, August 2015

- Farelerde deneysel infektif endokardit
- *Enterococcus faecalis*
- *Streptococcus gallolyticus*

- Aspirin (8 mg/kg) ve tiklopidin (10 mg/kg)

- Vejetasyon ağırlığını anlamlı ölçüde azalttığı ($p<0.005$)
- %73 oranında *E.faecalis*
- %64 *S. gallolyticus*

Rafael Feloso T and et al.
Aspirin plus ticlopidine prevented experimmental endocarditis due to *Enterococcus faecalis and Streptococcus gallolyticus .*
FEMS Pathogens and Disease, 73, 2015.

- Farelerde deneysel infektif endokardit
- *Streptococcus gordonii*
- *Staphylococcus aureus*

- Aspirin (8 mg/kg) ve tiklopidin (10 mg/kg)
- Abciximab
- Dabigatran eteksilat (antikoagülan)

- %45
- %88
- %75

Veloso TR, Que YA, Chaouch A, et al.
Prophylaxis of experimental endocarditis with antiplatelet and antithrombin agents: a role for long-term prevention of infective endocarditis in humans?
J Infect Dis 2015;211:72–9.

- *E. faecium*
- Çok ilaca dirençli, kandan izole edilen suşlar

- Koruyucu yüzey polisakkaritleri;
  - Pf1 (fruktoz)
  - Pf2 (altruranik asit)
  - Pf3 (glikolize lipoteikoik asit)
  - Pf4 (lejionaminik asit)
- Teikoik asit

- Glikokonjuge aşı

Kodali S and et al.
A Vaccine Approach for the Prevention of Infections by Multidrug-resistant *Enterococcus faecium*.
The Journal Of Bıologıcal Chemıstry Vol. 290, No. 32, Pp. 19512–19526, August 7, 2015

- *Streptococcus gordonii*
- Hsa ve PadA yüzey proteinleri
- Platelet adhezyonu ve aggregasyonu

- *Lactobacillus casei*
- L. lactis Hsa-LysA2, L. lactis PadA-LysA2

- Farelerde deneysel *S. gordonii* infektif endokarditi

- 6/11 (55%), 6/11 (55%), 11/12 (91%) ($p<0.05$)

Mancini S and et al.
Antibodies Targeting Hsa and PadA Prevent Platelet Aggregation and Protect Rats against Experimental Endocarditis Induced by Streptococcus gordonii
Infection and Immunity, December 2016, Volume 84, Number 12

- EfbA ; fibronektin bağlayan protein
- *Enterococcus faecalis*

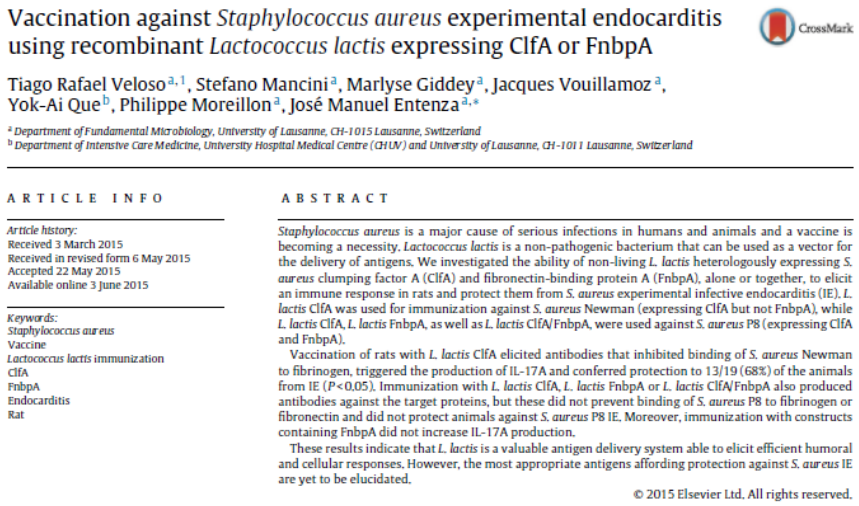
- Deneysel üriner sistem infeksiyonu

- İmmobil fibronektin, kollajen 1 ve 5'e bağlanma

- Efb A delesyonu
- Deneysel infektif endokardit
- Purifiye rekombinan EfbA proteini ($p<0.008$)

Kavindra V and et al.
The Fibronectin-Binding Protein EfbA Contributes to Pathogenesis and Protects against Infective Endocarditis Caused by *Enterococcus faecalis.* Infection and Immunity. December 2015 Volume 83 Number 12

- *S. aureus*
- ClfA ve FnbpA
- *S. aureus* infektif endokardit karşı koruma sağlayan en uygun antijenler henüz aydınlatılamamıştır.



Vaccination against *Staphylococcus aureus* experimental endocarditis using recombinant *Lactococcus lactis* expressing ClfA or FnbpA

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ABSTRACT

Staphylococcus aureus is a major cause of serious infections in humans and animals and a vaccine is becoming a necessity. *Lactococcus lactis* is a non-pathogenic bacterium that can be used as a vector for the delivery of antigens. We investigated the ability of non-living *L. lactis* heterologously expressing *S. aureus* clumping factor A (ClfA) and fibronectin-binding protein A (FnbpA), alone or together, to elicit an immune response in rats and protect them from *S. aureus* experimental infective endocarditis (IE). *L. lactis* ClfA was used for immunization against *S. aureus* Newman (expressing ClfA but not FnbpA), while *L. lactis* ClfA, *L. lactis* FnbpA, as well as *L. lactis* ClfA/FnbpA, were used against *S. aureus* P8 (expressing ClfA and FnbpA).

Vaccination of rats with *L. lactis* ClfA elicited antibodies that inhibited binding of *S. aureus* Newman to fibrinogen, triggered the production of IL-17A and conferred protection to 13/19 (68%) of the animals from IE ($P<0.05$). Immunization with *L. lactis* ClfA, *L. lactis* FnbpA or *L. lactis* ClfA/FnbpA also produced antibodies against the target proteins, but these did not prevent binding of *S. aureus* P8 to fibrinogen or fibronectin and did not protect animals against *S. aureus* P8 IE. Moreover, immunization with constructs containing FnbpA did not increase IL-17A production.

These results indicate that *L. lactis* is a valuable antigen delivery system able to elicit efficient humoral and cellular responses. However, the most appropriate antigens affording protection against *S. aureus* IE are yet to be elucidated.

Teşekkür ederim…