Topical Imiquimod Before Intradermal Hepatitis B Vaccination Overcome Hyporesponsiveness in Chronic Renal Failure Patients on Dialysis, a Double Blind Randomised Controlled Trial

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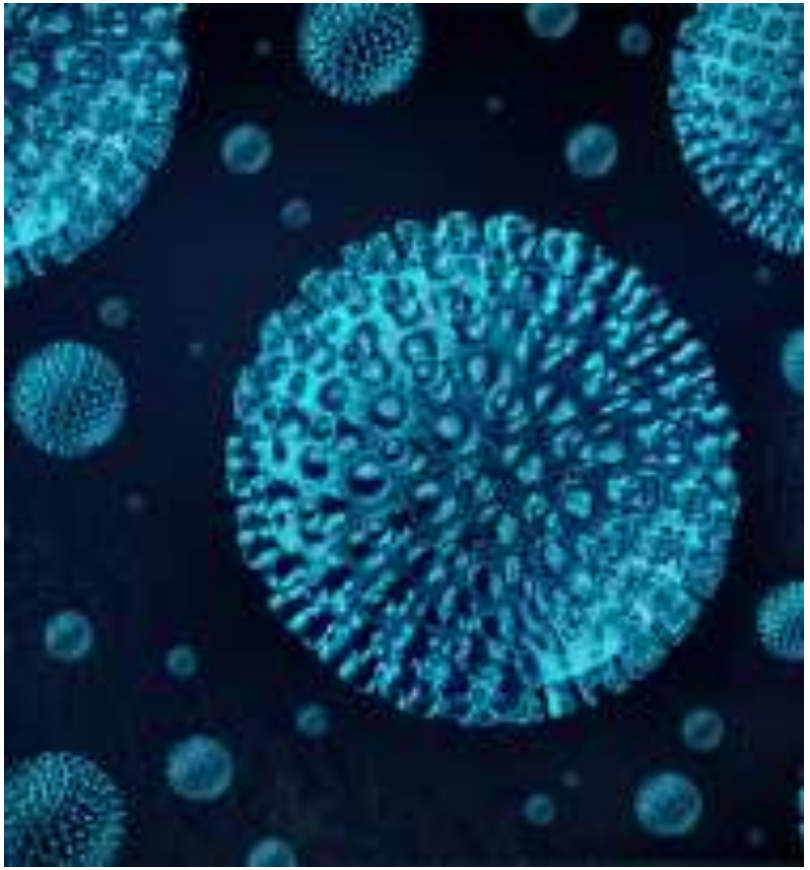
Disclosure

- Member of advisory board for Pfizer and Gilead
- Received travel grant from Pfizer, Gilead and MSD
- No other conflict of interests

Introduction

- Chronic HBV: 2 billions people worldwide
- High prevalence in Hong Kong >8%
- HBV remains an important virus infection on RRT patients
- Suboptimal response towards IM HBV vaccination
- Seroconversion rate: 40-50%
- Similar HD and CAPD
- Strategies: multiple doses, adjuvants, GM-CSF, ID vaccine, Pre-S2 antigens



http://www.info.gov.hk/hepatitis
Gilbert CL et al Vaccine 2014;32:6521-6
Fabrizi F et al. Aliment Pharmacol Ther 2006;24

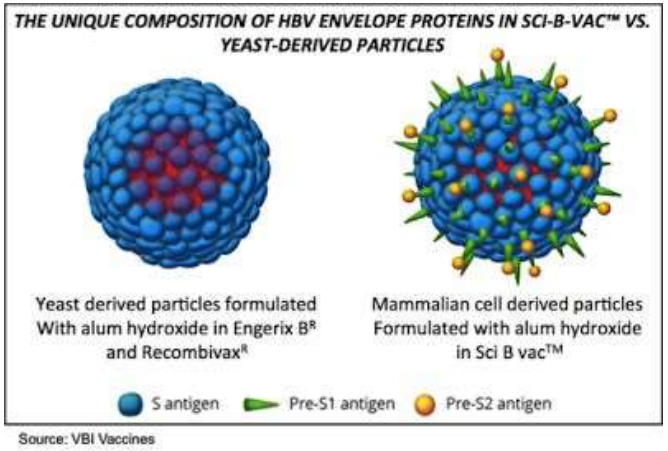
Introduction

- Our team has demonstrated topical imiquimod (TLR-7 agonist) pretreatment expedite and improve influenza vaccine immunogenicity
- Young population and elderly with comorbidity
- Heterologous protection against not vaccine strains
- Prospective double-blind RCT to evaluate effect and safety of topical imiquimod before ID HBVv in RRT patients

Hung IF et al. Clin Infect Dis 2014;59:1246-55
Hung IF et al. Lancet Infect Dis 2016;16:209-18

Material/ Methods

- Adult patients on RRT
- CAPD or HD
- Prospective double blind RCT
- Nov 2015 – Feb 2017
- Inclusion:
  - HBsAg-ve
  - Anti-HBs -ve; anti-HBc -ve
- Vaccine
  - Sci-B-Vac™; 3 antigens
  - 10µg/ 1mL
- Needle
  - MicronJet600™ needle (Nanopass)



https://www.vbivaccines.com/sci-b-vac/
Levin Y et al. Hum Vaccin Immunother 2015;11:991-7

Methods

- Randomized into 3 groups by research nurse
- 3 doses Sci-B-Vac™ regime at 0, 1 and 6 months

- Group IQ: 10μg ID HBVv (0.5mL at two separate sites, same arm) + topical imiquimod pretreatment to deltoid 5 mins before vaccination

- Group ID:10μg ID HBVv (0.5mL at two separate sites, same arm) + topical placebo aqueous cream pretreatment before vaccination

- Group IM:10μg IM HBVv + topical placebo aqueous cream pretreatment

- All enrolled patients and investigators blinded to the topical treatment they received

- Anti-HBs titre measured at baseline, 1, 3, 6 and 12 months

- Primary outcome: Seroprotection rate at 1 month = % with anti-HBs ≥10 mIU/mL

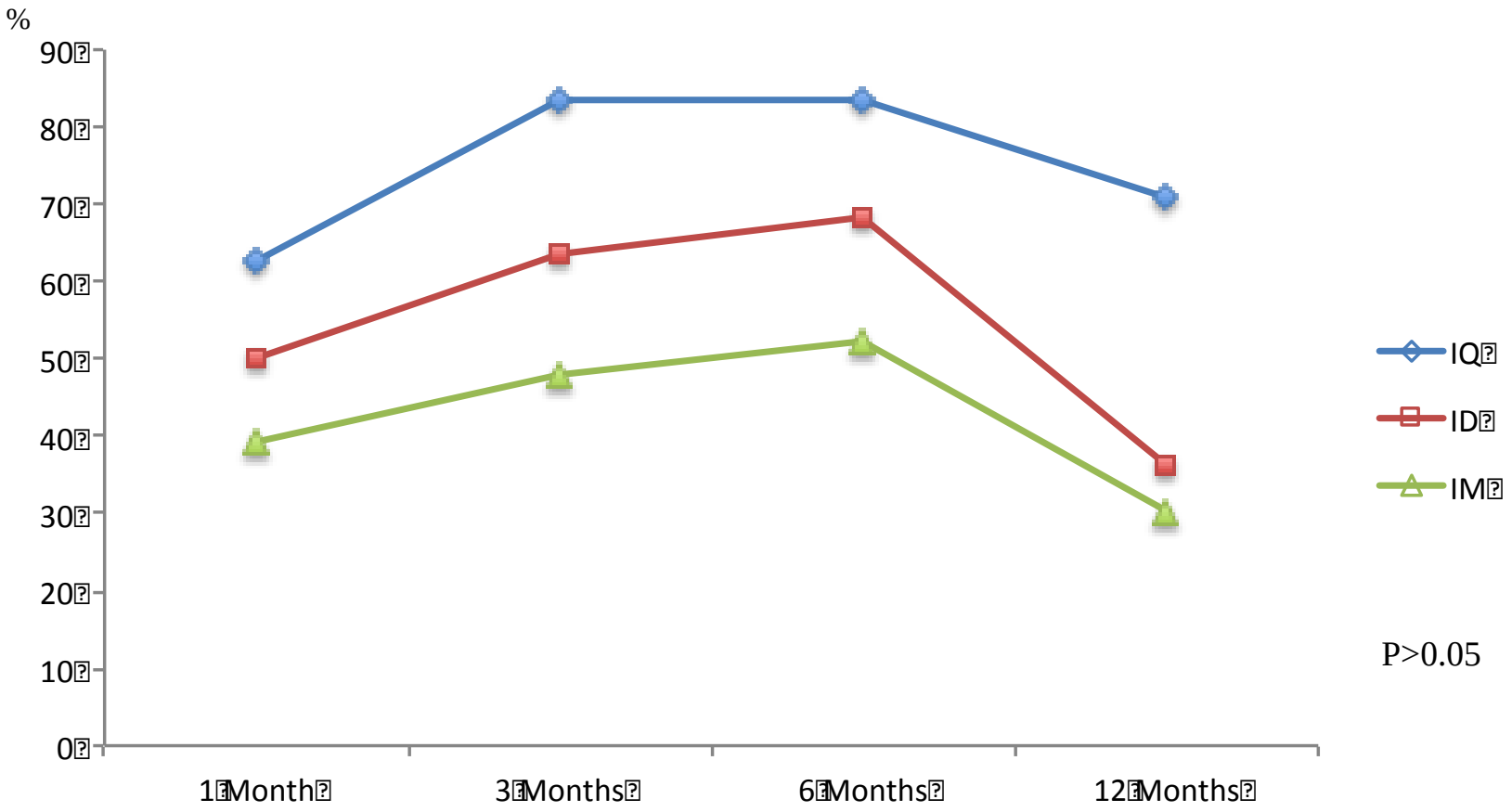
- Secondary outcome: Seroprotection rate (3,6,12); median anti-HBs titre; safety

Results

- Interim analysis
- Nov 2015 to Feb 2017
- 69 patients recruited with anti-HBs level up to 6 months
- 24, 22 and 23 patients randomized to group IQ, ID and IM

- 41 male
- 51 CAPD and 18 HD
- Median 65.5 years

Results: Seroprotection Rate



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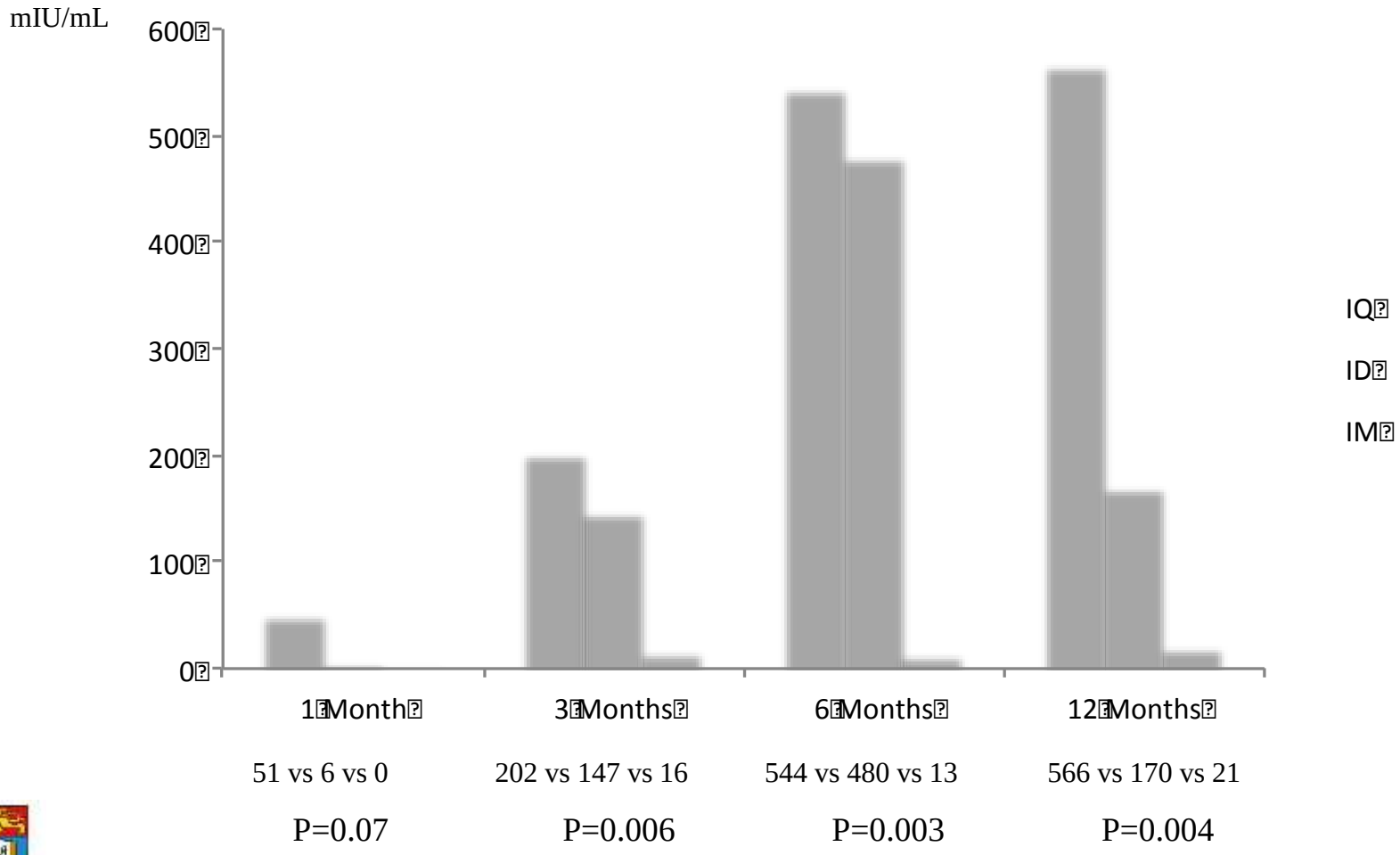
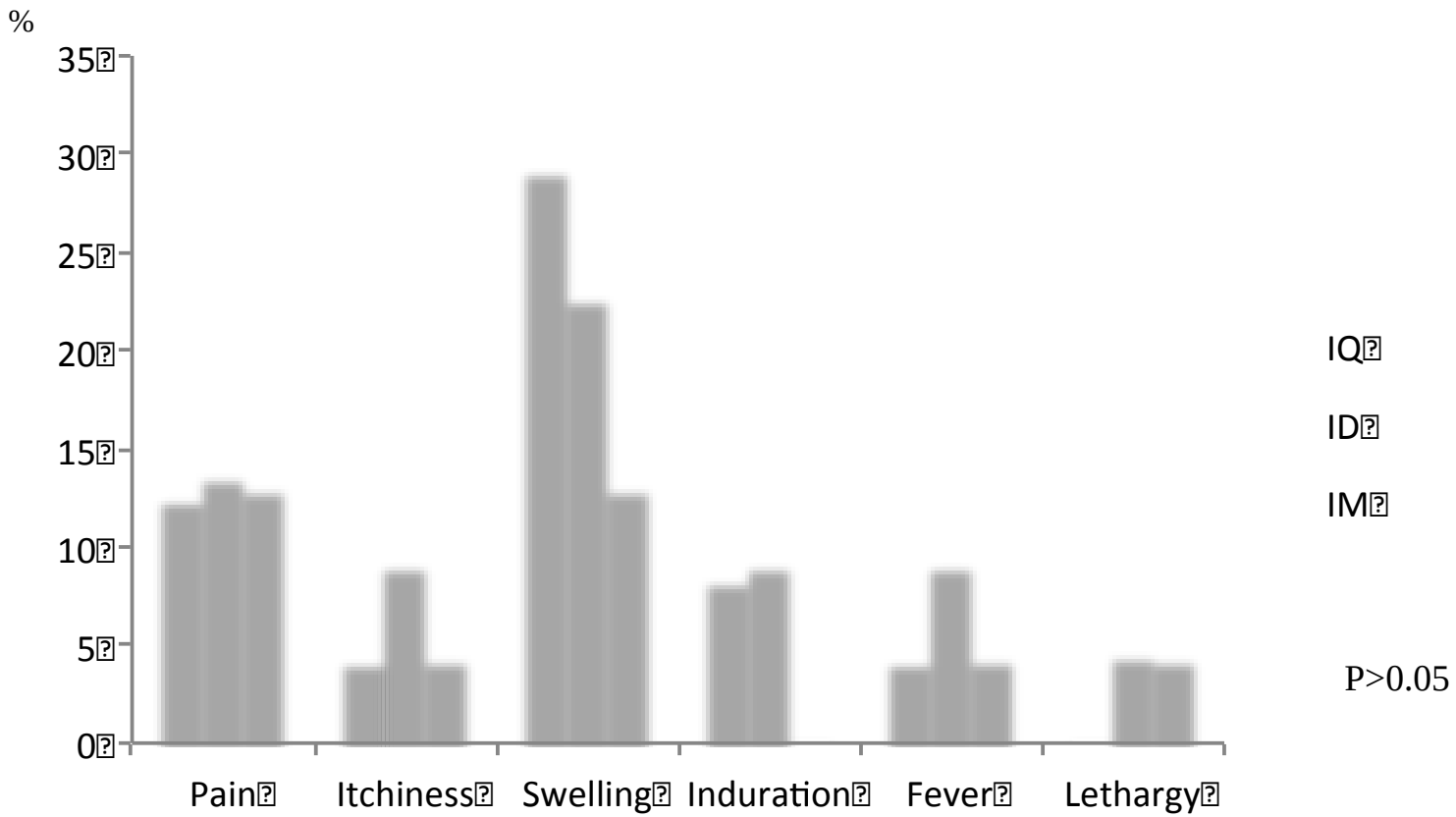
Results: Anti-HBs titre



Adverse Events



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Limitations

- Interim analysis
- Need longer follow-up
- Dose sparing for ID vaccination + imiquimod pretreatment

Conclusions

- Procedure is safe
- Topical imiquimod before ID HBVv was highly effective
- Significantly overcome hyporesponsiveness in patients on RRT
- Consider in immunocompromised patients


Thank you !