**Title:** Effect of zinc gluconate on propionibacterium acnes resistance to tetracycline in patients with inflammatory acne: in vitro and in vivo study.

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**Abstract:**
**Background and objective:**
Tetracycline and macrolid have been used to treat acne for over 20 years and are still widely prescribed. Their efficacy is due partly to their inhibitory effect on cutaneous propionibacteria, the micro-organisms implicated in the pathogenesis of the acne vulgarise. Systemic and topical antimicrobial treatment for acne vulgaris remains the mainstay method of therapy in world. Unfortunately, a significant and worrying increase in the number of antibiotic resistant strains of P. acnes has been reported in the last decade. Zinc salts have demonstrated their efficacy in inflammatory acne treatment as well as their bacteriostatic activity against Propionibacterium acnes. The objective of our work was firstly to determine whether the clinical anti-inflammatory efficacy of zinc salts was altered in the presence of tetracyclines resistant strains in vivo, and secondly to study the in vitro and in vivo effect of zinc on the sensitivity of Propionibacterium acnes strains to tetracycline.

**Method and material:**
Thirty patients with inflammatory acne were treated by zinc gluconate with a daily dose of 30 mg for two months and bacteriologic samples were taken at D0, D30 and D60. In vivo, this study displayed a reduction in the number of inflammatory lesions after a 2-month treatment whether or not Propionibacterium acnes carriage was present.

**Results:**
In vitro addition of zinc salts in the culture media of Propionibacterium acnes reduced resistance of Propionibacterium acnes strains to tetracycline. Thus, association of zinc salts via a systemic route and topical tetracycline treatment seems an interesting option in the light of an increasing number of patients carrying tetracycline resistant Propionibacterium acnes strains.

**Key words:** acne, bacterial resistance, tetracycline, P. acnes, zinc gluconate

**Presentation:** Poster