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### Severe acne treated with isotretinoin is associated with dysbiosis and its consequences

**Background & Aim:** Acne is caused by *Propionibacterium acnes* and is sometime treated with isotretinoin. *Propionibacteria* may adhere to intestinal mucosa. Isotretinoin may induce mucosal side-effects. We investigated whether severe acne is associated with dysbiosis and its consequences.

**Methods:** All female patients consulting for the first time the same gastroenterologist were included into a prospective cohort study. Those with a medical history of severe acne were compared to a control group. The study stopped when 1,000 patients were included into the control group. Male patients were not included because gender influences small gut absorption, dysbiosis, immunity and body mass index. Age, body weight, body mass index, exhaled hydrogen or methyl acetate after fasting (measured by the MX6 of GazDetect France), medical history of allergy or auto-immune disease, oral herpes simplex 1/2 replication (medical history confirmed by qPCR run into a central laboratory, material: Amplix® from Alldiag®, reagents: Bioneer®) were collected. Normal level of fecal elastase excluded exocrine pancreatic insufficiency. Pre-albumin level was checked for all patients with a history of severe acne and was within the normal range.

**Results:** 1,054 patients were enrolled: 1,000 control, 54 with a medical history of severe acne, including 26 with isotretinoin received more than 6 months. Patients with severe acne treated with isotretinoin have a lower body weight (56.9+/-9.9 versus 61.1+/-15 kg;  $p<0.05$ ) and Body Mass Index (20.84+/-3.8 versus 22.85+/-5.2;  $p<0.05$ ) than the control group (despite being younger (40+/-10 years versus 50+/-16). Patients with severe acne treated with isotretinoin present with dysbiosis: higher levels of H2 (7.3ppm+/-7 versus 4.6+/-6.9;  $p<0.05$ ) and methylacetate (5.4+/-2.6 versus 3.9+/-4.4;  $p<0.05$ ). They present more frequently with oral herpes simplex (30.4% versus 21.4%;  $p<0.05$ ) or allergy (34.6% versus 15.7%) which suggests dysimmunity.

**Conclusion:** Isotretinoin is associated with dysbiosis (perhaps malabsorption) and signs of dysimmunity. A facilitating role of *Propionibacterium* cannot be excluded.

### Biography

Bruno Donatini graduated in gastroenterology and immunology in 1991. He graduated in anti-aging in 2009. He developed expertise in small gut dysbioses by breath testing, sonography and detection of herpes-virus-DNA. He investigated the consequences of excessive destruction of HA by infectious agents on aging, dysimmunity or even malignant transformation of stem-cells.

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