ALLERGY

A BAD STUDY IS WORSE THAN NO STUDY

24.10.2018

"Direct infant UV light exposure is associated with eczema and immune development". Kristina Rueter, Anderson P. Jones, Aris Siafarikas, Ee-Mun Lim, Natasha Bear, Paul S. Noakes, Susan L. Prescott and Debra J. Palmer.

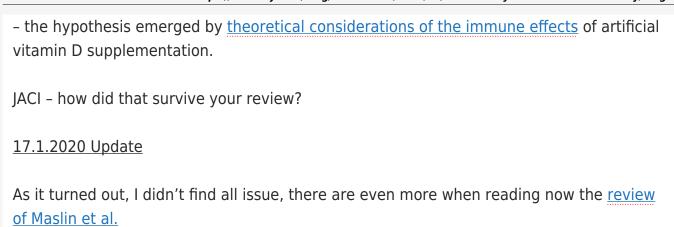
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These graphical abstracts look a bit strange like "science for dummies". Isn't there a major discrepancy of title and abstract?

IMHO this is a RCT of vitamin D supplementation of newborns and not a study of UV light exposure. Maybe the authors needed a selling point for a poorly designed study?

The (only) allergy outcome is shown in table. 6 of 90 in the placebo group and 9 of 90 in the vitamin group develop eczema. This translates into an OR of 1.6 (0.5-4.6, P = 0.4214). I read this as a non significant association of exposure and outcome which is quite understandable given

- 1. the low power of the study. My result of a <u>post hoc power calculation</u> is around 12%.
- 2. the ignorance of the main eczema risk factor (filaggrin mutation!). Allocation by a "history of maternal allergic disease" does not allocate <u>filaggrin</u> mutations equally between groups.
- 3. the ignorance of maternal vitamin D levels. Restricting to maternal levels >50 nmol/L introduced as a bias toward supplemented fetuses.
- 4. the ignorance of vitamin D fed by formula. So clearly this is more a dose-finding study and not a RCT of vitamin D supplementation as also the controls are (heavily) exposed.
- 5. the ignorance of the most relevant outcome in this age group (which is sensitization against food allergens).
- 6. the trial registration number is wrong.
- 7. the flowchart numbers have errors, for example the size of the vitamin D group at 3 months need to be N=91 and not N=90.
- 8. the "vitamin D hypothesis" did not emerge to explain associations found between regions of higher latitudes and increased risk of development of allergic diseases in children



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