

# Letter to the Editor

## Use of alpha-lactalbumin for the management of PCOS in inositols resistant women

*Dear Editor,*

Polycystic ovary syndrome (PCOS) is a medical condition that involves irregular menstrual cycle, chronic oligo- or anovulation usually manifested as oligo-amenorrhea, androgen excess, insulin resistance, and the typical polycystic ovarian morphology on ultrasound examination.

It is the most common cause of ovulatory disorders and female infertility and it affects approximately 6-15% of women in childbearing age.

Although inositols supplementation is an effective treatment for a large proportion of PCOS patients<sup>1-2</sup>, there is increasing evidence that some PCOS women (about 35%) are inositols non-responsive (inositols resistant)<sup>3</sup>.

Inositols (Myo-inositol and D-chiro-inositol) resistance can be due to different causes: first, it may be determined a low bioavailability. After oral intake, inositols absorption occurs at duodenum and jejunum level: inositols are taken into the enterocyte using the same transporters than other sugars (i.e., glucose, galactose, etc.).

Specifically, there are several transporters involved in the intestinal absorption of inositols: among these, the SGLT-1 (Sodium-Glucose Transporter), through which inositols are cotransported with sodium from the intestinal lumen to the enterocyte, and the GLUT-2 (Glucose transporter) by which inositols are released into the bloodstream.

Inositols intake during meals may result in the intestinal compresence of different sugars that may compete for the same transporters, causing a marked decrease in inositol absorption. Similarly, in inositol-based drugs or food supplements, the combined presence of sugary excipients such as maltodextrin, sucrose, galactose, etc. may be responsible for a reduction of inositol absorption due to the competition for the same transporters.

Besides these limitations, there is a high percentage of patients that show inositol resistance even after a correct intake of inositols (i.e., inositol administered alone, excluding the interference with meal or other excipients).

Alpha-lactalbumin is a globular protein that may offer a novel approach to treat inositols non-responsive PCOS patients.

In fact, alpha-lactalbumin can stimulate the secretion of GLP-2 (glucagon-like peptide)<sup>4</sup> which in turn upregulates the gene expression of SGLT-1 and GLUT-2 transporters<sup>5-7</sup>.

Inositols supplementation has proven to be a safe and effective treatment for PCOS women and based on these observations it is possible to speculate that the co-administration of inositols plus alpha-lactalbumin may be more effective than inositols alone, providing a clinical efficacy even in the so-called inositols resistant patients.

Based on this evidence, the clinical use of inositols administered in combination with alpha-lactalbumin should be further evaluated and encouraged as primary treatment of PCOS women.

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### Conflict of interest

Vittorio Unfer is employee at LO.LI. Pharma Srl, Rome, Italy

## References

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