

**253P Use of red clover in premenopausal breast cancer patients receiving hormonal adjuvant treatment: Biological and clinical implications from a randomized clinical trial**

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**Background:** Premenopausal women with breast cancer (BC) experience early onset of treatment-induced menopausal syndrome with adjuvant hormone therapy (HT). Isoflavones in the red clover (RC) are biologically active agents providing a source of rapidly available phytoestrogens acting as natural selective estrogen receptor modulators. Aims of the study are: to improve quality of life reducing menopausal symptoms from HT in BC premenopausal women and preventing weight gain and metabolic syndrome with personal lifestyle intervention; to evaluate in vitro safety profile of RC used in combination with adjuvant anti-estrogenic HT.

**Methods:** Eighty-eight premenopausal BC women (DCIS, T1/T2N0-N1M0) receiving adjuvant HT were randomly assigned to have 80 mg/die of RC dry extract (MCE-11) (verum group) or a tablet without active principle (placebo group) for 2 years. Menopausal Rating Score (MRS) questionnaire was given every three months during the first year then biannually. Diet program was personalized with the WCRF/AICR recommendations and Mediterranean diet. Body Mass Index (BMI), hip and waist circumference, homeostatic model assessment index (HOMA) and lipid profile (total LDL, HDL cholesterol, triglycerides) were recorded. Pool serum of women from the two groups was run for in vitro evaluation of the safety profile using specific cell lines selected to be representative of hormone-sensitive BC with high expression of estrogen receptor  $\alpha$  (MCF7, T47D) and  $\beta$  (BT20).

**Results:** Menopausal symptoms significantly decreased in both groups over time ( $p < 0.0001$ ). In the verum group BMI, hip and waist circumference were more reduced than in placebo group ( $P < 0.0001$ ). HDL cholesterol significantly improved over time ( $p < 0.01$ ). There was no significant difference in endometrial rhyme, while mammary density significantly decreased in both arms ( $p < 0.0001$ ). In vitro, no significant differences were observed in cell growth and induction of estrogen regulated/related genes in the cell lines treated with serum from women of the two arms.

**Conclusions:** Isoflavones can be safely used in premenopausal BC women under HT to contrast symptoms related to treatment.

**Clinical trial identification:** Protocol number INT 101/11 release date 25/06/2012 - EudraCT: 2011-005518-12 2-2-24-01-2012.

**Legal entity responsible for the study:** Cristina Ferraris.

**Funding:** Named S.p.A.

**Disclosure:** All authors have declared no conflicts of interest.