ESTROGEN REPLACEMENT THERAPY CAN IMPROVE DIABETIC NEUROPATHY AND PREVENTE AMPUTATIONS IN POSTMENOPAUSAL WOMEN

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Objectives: Diabetic sensorimotor and autonomic neuropathy are both involved in diabetic foot damages. Early detecting and treatment the neuropathy alteration could avoid and reduce the number of foot amputations. Estrogen replacement therapy (ERT) in postmenopausal diabetic women is appeared to result in weight loss and other health benefits, such as better lipid and blood glucose control. The estrogens play an impotent role in non-reproductive physiological processes and have some neuroprotective action. Thus, the estrogen deficiency in postmenopausal women with diabetes can deteriorate nerve dysfunction. We hypothesized that ERT in postmenopausal women with type 2 diabetes would prevent of metabolic disorders and progression of diabetic complications.

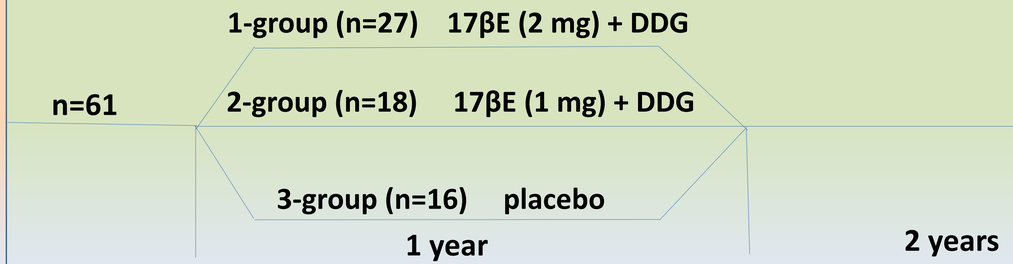
Conclusion criteria:

postmenopausal women,
type 2 diabetes,
history of diabetic foot minor amputations,
menopause age < 10 years,
DPN +/- CAN

Exclusion criteria:

contraindications to ERT,
HbA1c> 10 %,
GFR < 60 ml/min,
proliferative diabetic retinopathy,
macroangiopathy

Design of the study



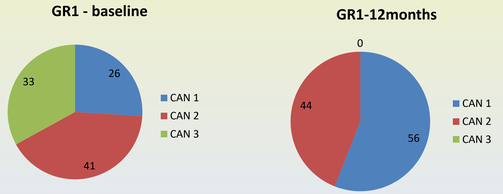
Parameters of assessment

1st yr – NDS, ENMG
CVRTs

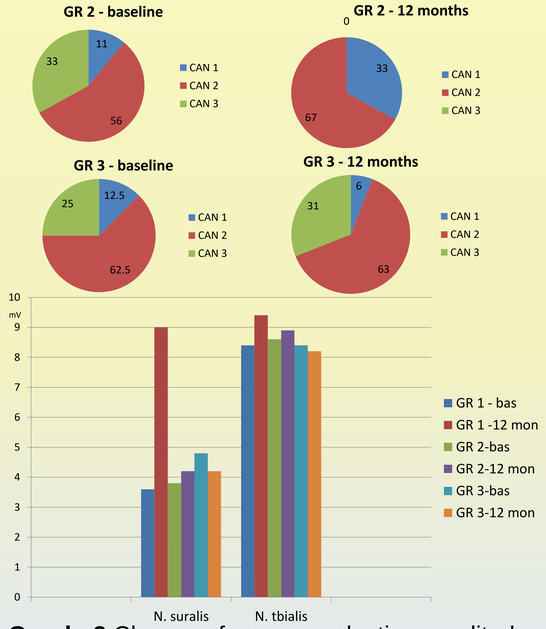
2nd yr – new cases of diabetic foot ulcers, amputations, orthostatic hypotension

parameters	Group 1(n=27)	Group 2 (n=18)	Group 3 (n=16)
Age, ys	52.6± 0.71	59.4±1.02	52.7±1.52
Duration of diabetes, ys	11.8±1.80	10.0±2.36	9.8±1.96
Duration of postmenopause, ys	3.2±0.48	8.6±1.86*	2.7±0.71
BMI, kg/m²	30.3±1.51	31.9±1.70	30.0±1.09
Climacteric symptoms, u	40.3±1.90	18.0±2.73	36.4±2.77
NDS, score	10.4±1.22	10.7±1.30	9.5±1.34
Orthostatic hypotension (CAN 3), n %	9 33%	6 33%	4 25%
HbA1c%	8.2±0.38	8.3±0.69	8.1±0.67

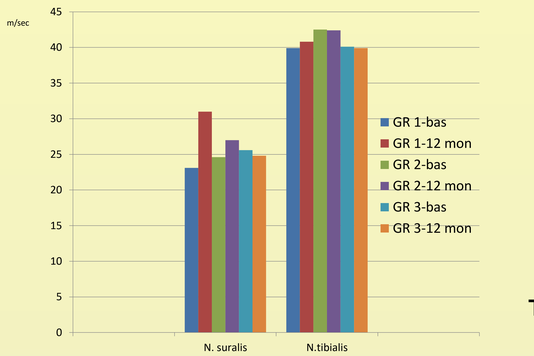
Table 1. Characteristics groups of the patients
NDS-neuropathic disability score, BMI – body mass index, CAN – cardiac autonomic neuropathy



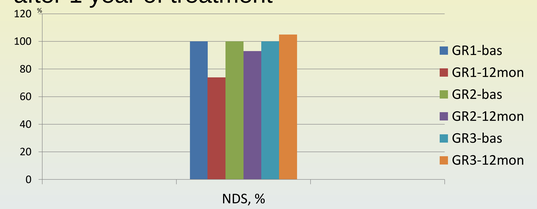
Graph. 1 Change of CAN stages after 1 year of treatment



Graph. 2 Change of nerve conduction amplitudes after 1 year of treatment



Graph. 3 Change of nerve conduction velocity after 1 year of treatment



Graph. 4 Change of NDS score after 1 year of treatment

New adverse cases	Group 1 (n=27)	Group 2 (n=18)	Group 3 (n=16)
New cases of orthostatic hypotension, n %	0	0	6 **37.5%**
New cases of foot ulcers, n %	21 81.5%	14 78%	13 81%
New cases of foot amputations, n %	0	0	3 **18.7%**

Table 2. New adverse cases after 2 years of treatment

Conclusions: ERT improves quality of life but doesn't influence significantly on metabolic profiles.
The great find that the ERT were followed by restoration of DPN parameters and regression of CAN stages.
The effect of ERT depends on the dose of estrogen.
The ERT may delay new cases of diabetic foot amputations
This preventive effect of ERT should be profoundly investigated.