

RELATIONSHIP OF HIGH ESTROGEN AFTER TRT TO AGE & LOSS OF LIBIDO

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BACKGROUND

- We describe our experience screening 34,016 men in the Low T Centers, of which about 50% were treated with TRT from 2009-2014
- Our goal was to study the characteristics of estrogen that was aromatized from injectable testosterone
- Our aim was to find estrogen correlations to age as well as to determine if it was associated with symptoms of low libido
- Treatment of high estrogen was also studied

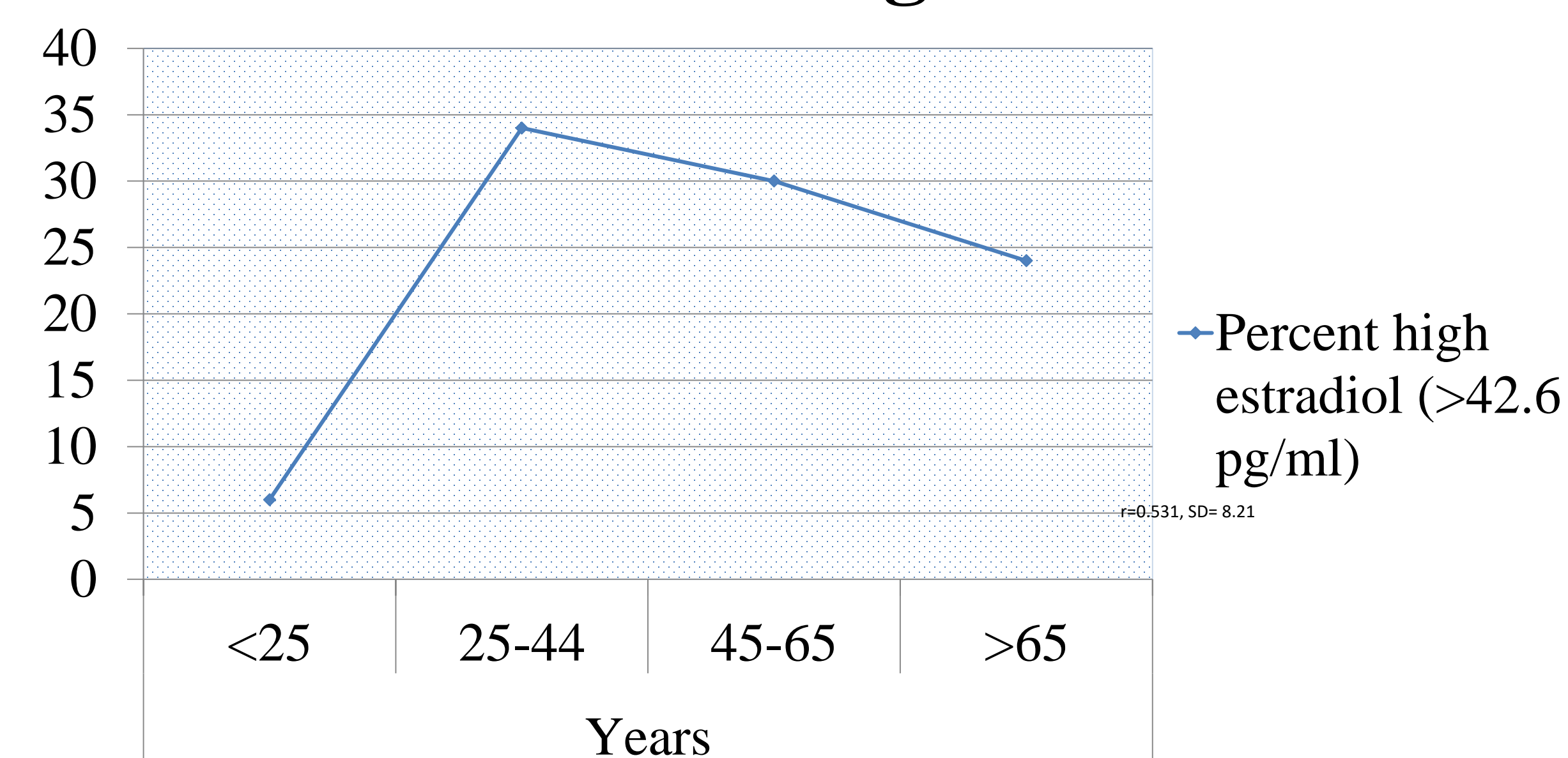
MATERIALS & METHODS

- Retrospective multicenter, medical chart review at 35 geographically diverse sites in the United States; with a concentration in Texas
- Access of electronic health record (EHR) called Advance MD Low T Centers from October 1, 2009, and January 15th, 2014
- For inclusion in the study, full demographic information must have been available, were males ≥ 20 years of age and had visited one of the 35 Low T Centers at least once, whether they received treatment or not. Each patient must have had an initial total testosterone and E2 level. There were no exclusion criteria.
- Total testosterone and estradiol levels were drawn during a morning clinic, generally between 9 a.m. and 12 p.m..
- The testosterone was performed primarily by the Qualigen FastPack IP Testo Immunoassay, which is a chemiluminiscent immunoassay. E2 levels were measured using Electro-chemiluminescence immunoassay (ECLIA) through Lab Corp. The free testosterone was calculated with a direct radioimmunoassay.
- The statistical significance of between-cohort differences in categorical variables was tested using the chi-square test and in continuous variables using the two-sample t-test. All tests were two-tailed with a significance level of $p < 0.05$.

RESULTS

- Of the 34,016 patients, the distribution of age groups as: < 25 years (1%), 25-44 years (47%), 45-65 years (49%) and above 65 years (3%) respectively.
- 132/989 (13.4%) were above 65 years, 3753/16955 (22.1%) were between 45-65 years; 2,968/15,857 (18.7%) were between 25-44 years, 7/215 (3.3%) were less than 25 years. The difference between extreme age groups (< 25 and ≥ 65) was statistically significant using a chi square test ($p=0.013$) The correlation coefficient of serum estradiol to age was 0.53, S.D. = 8.21.
- Patients with higher estradiol levels above 42.6 pg/ml, had less sexual dysfunction problems identified by their providers. Of those that providers had identified low libido, 2,726 of 7,332 patients (31%) had higher estradiol levels and 4,606 patients (69%) had normal estradiol levels. In contrast of those that did *not* complain of low libido, 4,811 patients (28%) had high estradiol and 12,360 patients (72%) had normal estradiol levels. When the chi square test was applied, the difference was found to be statistically significant $P < 0.05$.

Percent of high estradiol levels with age



	High Estradiol	Normal Estradiol	
Low Libido	2726.00	4606.00	7332.00
No complaints	4811.00	12360.00	17171.00
	7537.00	16966.00	
		$p < 0.05$	

DISCUSSIONS

- We suggest that leveling of estradiol levels after 45 years to be due to the lower therapeutic level of testosterone achieved in older patients because of safety concerns.
- Currently, there are no national guidelines that are evidenced based for treatment of high E2 after TRT. However, we do note a high treatment rate for our group of patients at 30%.
- We found that in our population, anastrozole (Arimidex) was found to be the most prescribed AI. It does not appear that the preference is based on pricing alone. Of the AIs, the most expensive is Femera (letrozole), followed by Arimidex (anastrozole) and then Novaldex (tamoxifen).
- In this study, we make the presumption that serum estradiol reflects brain estradiol levels or activity. It may be possible that if serum estradiol level is low that more estradiol is then more is available for the brain.

CONCLUSIONS

- Our work in a large data base of 34,016 patients represents one of the first attempts to understand the characteristics of exogenous & aromatized estrogens
- Age may be a determinant of the conversion of testosterone to estrogens, except for later years in life after 65 years old.
- We did not find that high estrogen after TRT necessarily associated with low libido.
- However, we found that AIs were prescribed frequently (30% of cases).
- There are challenges in setting up a guideline for the threshold beyond which AIs are to be used, as there are no evidence based studies at this time to guide the practice.
- More work such as a longitudinal, controlled study is needed to assess the role of exogenous estrogens from TRT and the need to treat this condition.