CLOMIPHENE CITRATE AND HUMAN CHORIONIC GONADOTROPINS ARE GOOD ALTERNATIVE THERAPY FOR HYPOGONADAL MEN IN RESTORING SERUM TESTOSTERONE AND IMPROVING PATIENT SYMPTOMS

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INTRODUCTION

Low serum testosterone (T), also known as hypogonadism, is very common and considered by some as a health epidemic. It is linked to serious health comorbidities like metabolic syndrome and cardiovascular disease.
The standard therapy for hypogonadism is testosterone supplementation therapy (TST), but alternative therapies such as clomiphene citrate (CC) and human chorionic gonadotropins (HCG) have been successfully used by many urologists for decades.
AIM

To compare the objective markers of therapy and patient satisfaction across several groups:

standard TST; clomiphene citrate; HCG; and combination clomiphene citrate plus HCG.
Patients and methods

A prospective study included 324 patients diagnosed with hypogonadism. Patients were randomly enrolled into four groups: group A (n=80) took TST as testosterone undecanoate (Nebido) 1000 mg injection; group B (n=90) took clomiphene citrate 50 mg tablets daily; group C (n=78) HCG 5000 international units twice weekly; group D (n=76) combination therapy of CC and HCG.
All patients had thorough physical examination, body mass index (BMI) calculated, and laboratory tests including testosterone, glycosylated hemoglobin (HbA1c) before therapy, at 1 month and at 3 months from starting therapy. Patient demographics, comorbidities and quantitative ADAM questionnaire (qADAM) scores were recorded.
Results

Mean age of the study population was 43. Before therapy the mean BMI was 31.23, mean HbA1c was 6.59%, mean testosterone was 2.28 and qADAM score was 19.96. Testosterone increased in all groups. Testosterone increase from 0-1 month was biggest in the Nebido group and smallest in the HCG group. Testosterone increase from 0-3 months was biggest in the HCG+Clomid combination group and smallest in HCG group.
Results

There was no statistically significant difference between groups (using ANOVA). HbA1c reduced in all groups from 0-3 months; this reduction was biggest in the Nebido group (-0.55) and least in the Clomid therapy group (-0.25). BMI reduced in all groups from 0-3 months. Of these changes there were no statistically significant differences between groups (using ANOVA). qADAM score increased in all groups from 0-1 month. The biggest increase was in the Nebido group and smallest in the HCG group. qADAM increased in all groups from 0-3 months, the biggest increase being in group D and smallest in group C.
Table 1: Summary of results of therapy in different groups

<table>
<thead>
<tr>
<th></th>
<th>Testosterone increase 0-3 months (ng/ml)</th>
<th>qADAM increase 0-3 months</th>
<th>BMI reduction 0-3 months (kg/m²)</th>
<th>HbA1c reduction 0-3 months (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All patients (n = 324)</td>
<td>2.8</td>
<td>13.61</td>
<td>0.54</td>
<td>0.41</td>
</tr>
<tr>
<td>Nebido (n = 80)</td>
<td>2.5</td>
<td>14.89</td>
<td>0.75</td>
<td>0.55</td>
</tr>
<tr>
<td>Clomiphene (n = 90)</td>
<td>3.0</td>
<td>12.73</td>
<td>0.51</td>
<td>0.25</td>
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<tr>
<td>HCG (n = 78)</td>
<td>2.4</td>
<td>11.82</td>
<td>0.36</td>
<td>0.37</td>
</tr>
<tr>
<td>Clomiphene + HCG (n = 76)</td>
<td>3.0</td>
<td>15.13</td>
<td>0.55</td>
<td>0.50</td>
</tr>
</tbody>
</table>
Conclusion

Therapy with clomiphene citrate or HCG are feasible options in hypogonadal men as alternatives to testosterone supplementation therapy. Combination dose not add much benefit but more costly. They are as effective as TST in restoring serum T and improving patient quality of life.
Thank You