P-0559 Prevalence of low serum testosterone levels among men with type 2 diabetes mellitus attending two outpatient diabetes clinics in Durban, South Africa

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Introduction:

- Data on the prevalence of low serum testosterone in men with type 2 diabetes mellitus (T2DM) from sub-Saharan Africa are scant

Aim:

- To determine the prevalence and associated risk factors of low serum testosterone in South African men with T2DM
- To determine the prevalence of androgen deficiency symptoms

Methods:

- Cross-sectional study in men with T2DM attending two diabetes clinics in Durban.
- Androgen deficiency symptoms (ADS) were assessed using Ageing Male’s Symptom Scale (AMS) questionnaire and direct enquiry
- Serum total testosterone (TT), sex-hormone binding globulin (SHBG), luteinising hormone (LH), HbA1c, fructosamine and serum lipids were measured; free-testosterone (fT) was calculated with a standard formula.
- Control group included men without a history of diabetes
- Low serum fT (LSFT) was defined as <180 pmol/l and low TT (LSTT) as < 12nmol/l/.

Results:

A. Characteristics

- The Study Group included 148 men with T2DM [African (Black) (58.7%); Indians (39.2%); Whites (2.1%)] and Control Group included 50 men without a history of diabetes

	Study group	Control group	p
Clinical characteristics			
Age (years)	57.7 ± 11.1	43.9 ± 10.7	<0.001
BMI (kg/m²)	29.82 ± 6.0	27.11 ± 4.2	0.011
Diabetes duration (years)	11.4 ± 8.9	-	-
Laboratory results			
Total testosterone (nmol/l)	14.5 ± 5.8	18.83 ± 7.2	<0.001
SHBG (nmol/l)	40.7 ± 20.3	42.0 ± 20.0	0.685
Free testosterone (pmol/l)	265.9 ± 90.4	351.7 ± 127.3	<0.001
LH (IU/L)	5.8 ± 3.1	4.5 ± 2.3	0.006

	Study group (n=148)	
Symptoms on Enquiry	n	%
Any symptom	102	68.9
Erectile dysfunction	87	58.8
Low libido	83	56.1
Decrease in beard growth	4	2.7
Infertility	3	2.0
AMS questionnaire score ≥ 27	111	75.0

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Results (continued)

B. Prevalence of low serum testosterone

	Study Group(n:148)	Control Group (n:50)	p*
LSTT % (n)	35.8 (53)	16.0 (8)	0.0087
LSFT % (n)	16.2 (24)	2.0 (1)	0.0088

- In patients with LSFT (n=24), 20.8% had elevated LH values, 70.8% had normal levels and 8.3% had low LH levels.

C. Multivariate and Correlation Analysis

- LSFT was significantly associated with age [OR 1.05 (95%CI 1.02-1.218), p=0.043]] and waist circumference [OR 1.033 (95%CI 0.999-1.068, p=0.059)] whilst LSTT was associated with BMI [OR 1.138 (95%CI 1.063-1.218), p<0.0001]]
- - Inverse correlation between TT and BMI (r -0.34, p<0.001) and between TT and waist circumference (r -0.35, p<0.001).
 - fT correlated inversely with BMI, waist circumference and WHR (r -0.27, p<0.001; r -0.33, p<0.00;1 r -0.22, p<0.05).
 - Low correlation between AMS score and LSTT or LSFT.

Conclusion:

- There is a high prevalence of low serum testosterone and ADS in this group of South African men with T2DM, similar to that reported in other countries.
- Serum Testosterone was lower in men with T2DM compared to controls
- There was a poor association and correlation between ADS and low testosterone.
- More data is required from South Africa and sub-Saharan Africa before routine screening can be recommended.