PART XVI

POSTERS
THE HYPOTHALAMIC-HYPOPHYSEAL-GONADAL AXIS
IN PATIENTS UNDERGOING CHRONIC HAEMODIALYSIS

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The purpose of this study is to evaluate the possible correlations between the
hypothalamic-hypophyseal-gonadal axis and sexual function in patients under-
going dialysis.

Methods

Investigations were carried out on 25 males and 30 females treated by chronic
dialysis from 3 months to 7 years.
Males were aged between 19 and 63 years (mean age 39.5).
19 premenopausal females were considered. Criteria for selection were based
on presence of menses and age (between 20 and 48 years. Mean age 36.6).
11 menopausal females were investigated as control group for amenorrhea.
Plasma levels of the following hormones were determined by double anti-
body radioimmunoassay technique.

1 LH and FSH under basal conditions and after 50 µg LH/FSH-RH (hypo-
thalamic releasing hormone). Normal ranges: LH 6.2 - 10.8 mUI/ml for males.
5.5 - 16.9 mUI/ml for females. FSH 1.7 - 7.8 mUI/ml for males. 4.5 - 11.5
mUI/ml for females. 2 TESTOSTERONE Normal range 377 - 748 ng/100 ml.
3 PROLACTIN Normal ranges: 4 - 10 ng/100 ml for males. 7.5 - 14 ng/100 ml
for females. SPERM COUNTS were made only in 4 patients.

Results

Males

A. Testosterone Mean levels 355 ± 145.6 ng/100 ml. Among 10 patients with
reduced potency and libido (group I), 8 had low testosterone. Among 9 patients
without decrease in sexual activity (group II), only 2 had low testosterone.
Mean levels in group I: 271.6 ng/100 ml; Mean levels in group II: 428.6 ng/100
ml (Ts 3.4; p<0.005).
B. Gonadotropins  LH basal mean levels 62.0 mUI/ml (SE 16.8) FSH basal mean levels 7.3 mUI/ml (SE 2.3). The LH response to the administration of LH/FSH-RH was normal in 4 cases, reduced in 2, above normal range in 9.

8 of these patients had normal testosterone. FSH levels after stimulation are difficult to evaluate because of the poor sensitivity of our method for low levels.

C. Prolactin  Basal mean levels are slightly above normal range: 13.2 ± 4.5 ng/100 ml.

We did not find statistically significant differences between patients of group I and II (see above).

Sperm counts were less than 1 million/ml in 3 patients (sperm population with a very low degree of motility).

It was normal (53 million/ml) but with slightly reduced motility of spermatozoa in the fourth. All these patients had normal testosterone and FSH levels.

Females

We considered 10 patients with amenorrhoea (group I), 6 with regular menses (group II), 3 with irregular menses (group III).

Group I

Basal LH: Mean value 68.5 mUI/ml (SE34.68) Basal FSH: Mean value 4.9 mUI/ml (SE 1.6) FSH levels above normal in only one patient, decreased in one. LH/FSH-RH test: LH levels were normal in 2 patients, increased in 4, decreased in one.

Prolactin: increased in all cases (30.8 ± 4.62 ng/100 ml).

Group II

Basal LH: Mean value 40.5 mUI/ml (SE 10.2) Basal FSH: Mean value 6.1 mUI/ml (SE 2.2)

An ovulatory peak was found in 2 of 4 cases evaluated.

LH/FSH-RH test: increased LH levels in 3 patients, normal in the other 3. FSH was in the normal range.

In both groups, when LH/FSH-RH test shows LH levels above normal range, the peak is usually late (120^0 min.).

Prolactin: normal values in all cases.

Group III

FSH was normal, LH normal or slightly increased. Finally 11 females over 50
years were studied for FSH and LH.

No difference was found with regard to normal controls of the same age.

Conclusions

1 Gonadal failure is usually primary, but we can also find cases of hypothalamic-hypophyseal insufficiency (very low levels of gonadotropins after administration of LH/FSH-RH).

2 The spermatogenesis is damaged early (see cases with normal testosterone and FSH).

3 There is a partial correlation between plasma levels of testosterone and impotence, although other possible causes must be taken into consideration.

   We did not find any important correlation between impotence and other clinical and laboratory conditions related to uraemia (anaemia, the degree of neuropathy, osteopathy). In our experience psychological factors are very important but difficult to analyse correctly.

4 Prolactin is probably more important in determining amenorrhoea than gonadotropins which were found to be in the same range in the females of both groups.

5 Pathological amenorrhoea can be easily differentiated from precocious menopause on the basis of the different levels of FSH.