RESULTS

I. Effect of i.p. administeration of 10 µg prolactin on plasma levels of metabolic Hormones in Immature male, female and virgin mices.

A. Immature male mice:

Table (1) revealed the following:

* The growth hormone (GH) increased significantly after 30 minuts and continued to increase untill 72 hr ($P < 0.001$).

* The thyrotropic hormone (TSH) level in blood droped significantly after 30 minuts, then increased significantly after 24 and 72 hrs.

* Cortisol level in plasma decreased significantly after 30 minuts ($P < 0.05$) followed by a significant increase after 24 hrs. ($P < 0.001$) and also increased, but to a lesser extent after 72 hrs. ($P < 0.001$).

* Glucagon level decreased markedly 30 minuts after the application of 10 µg prolactin ($P < 0.001$), then increased significantly after 24 hrs. ($P < 0.001$) to return to the normal level 72 hr after the administeration of prolactin.

* Insulin level in male immature mice showed no significant changes following the i.p. administeration of 10 µg ovin prolactin.

B. Immature female mices:

Table (2) showed that:

* GH level in blood decreased significantly after 30 minuts and 24 hr ($P < 0.001$), while, after 72 hr from the administeration of 10 µg prolactin revealed a highaly significant elevation in comparison with the control ($P < 0.001$).

* TSH droped markedly after 30 minuts ($P < 0.001$) and stayed, but to a lesser extents lower than the control level ($P < 0.001$).

* Cortisol increased significantly after 30 minuts ($P < 0.05$) and increased more with the time (24, 72 hr) after the application with 10 µg prolactin ($P < 0.001$).

* Glucagon revealed no significant changes after 30 minuts and 24 hr. but decreased significantly after 72 hr. ($P < 0.05$).

* Insulin level in plasma showed a significant increase after 30 minuts ($P < 0.01$) and increased more ($P < 0.001$) with the time (24 and 72 hr).

C. Virgin:

Table (3) revealed the following:

* GH decreased significantly 30 minut following the application of 10 µg prolactin, but showed no significant changes after 24 and 72 hr.

* TSH level revealed a biphasis reaction, i.e. droped after 30 minut ($P < 0.001$) and highly elevated after 24 hr ($P < 0.001$), then decreased back after 72 hrs. ($P < 0.001$).

* Cortisol level in plasma of virgin mice elevated markedly after 30 minut ($P < 0.001$) from the i.p. application of 10 µg prolactin, In contrast, it falled markedly after 24 hr ($P < 0.01$) and 72 hr ($P < 0.001$) in comparison with the control.

* Glucagon level droped significantly all over the time point, of the experiment ($P < 0.001$) following the i.p. administeration of 10 µg of prolactin.

* Insulin level in plasma of the virgin revealed no significant changes following the application of the 10 µg prolactin.

Table (1)

Plasma hormonal levels in immature male mice following intraperitoneal administeration of 10 µg prolactin for 30 minutes, 24 hrs and 72 hrs.

Hormones	Time in hours			
	Control	30 minutes	24 hrs	72 hrs
GH (ng/ml)	10.35 ± 0.32	*** 21.2 ± 2.22	*** 22.1 ± 2.12	*** 25.3 ± 3.34
TSH (µ U/ml)	14.8 ± 1.03	*** 1.7 ± 0.11	*** 24.2 ± 2.10	*** 31.7 ± 3.16
Cortisol (ng/ml)	0.029± 0.0048	* 0.0157±0.00087	*** 0.127±0.0036	*** 0.077± 0.00634
Glucagon (pg/ml)	149 ± 3.25	*** 92.75 ± 3.30	*** 198.75±4.48	150.5± 7.32
Insulin (µ U/ml)	50.5 ± 2.95	52.3 ±3.2	55.4 ± 1.9	49.4 ± 3.2

- The values represent the mean of 12 animals ± S.E.

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$

Table (2)

Plasma hormonal levels in immature female mice following intraperitoneal administeration of 10 µg prolactin for 30 minutes, 24 hrs and 72 hrs.

Hormones	Time in hours			
	Control	30 minutes	24 hrs	72 hrs
GH (ng/ml)	13.7 ± 0.36	*** 4.1 ± 0.18	*** 7.5 ± 0.10	*** 19.5 ± 0.64
TSH (µ U/ml)	11.1 ± 0.14	*** 4.7 ± 0.33	*** 5.2 ± 0.23	*** 6.5 ± 0.19
Cortisol (ng/ml)	0.042±0.0081	* 0.07± 0.0085	*** 0.124±0.0026	*** 0.64± 0.03
Glucagon (pg/ml)	175 ± 6.45	169.75± 4.76	183.5 ±4.05	* 151.75 ± 3.83
Insulin (µ U/ml)	35.0 ± 3.6	** 55.4 ± 3.8	*** 61.5 ± 2.4	*** 63.5 ± 2.3

. The values represent the mean of 12 animals ± S.E.

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$

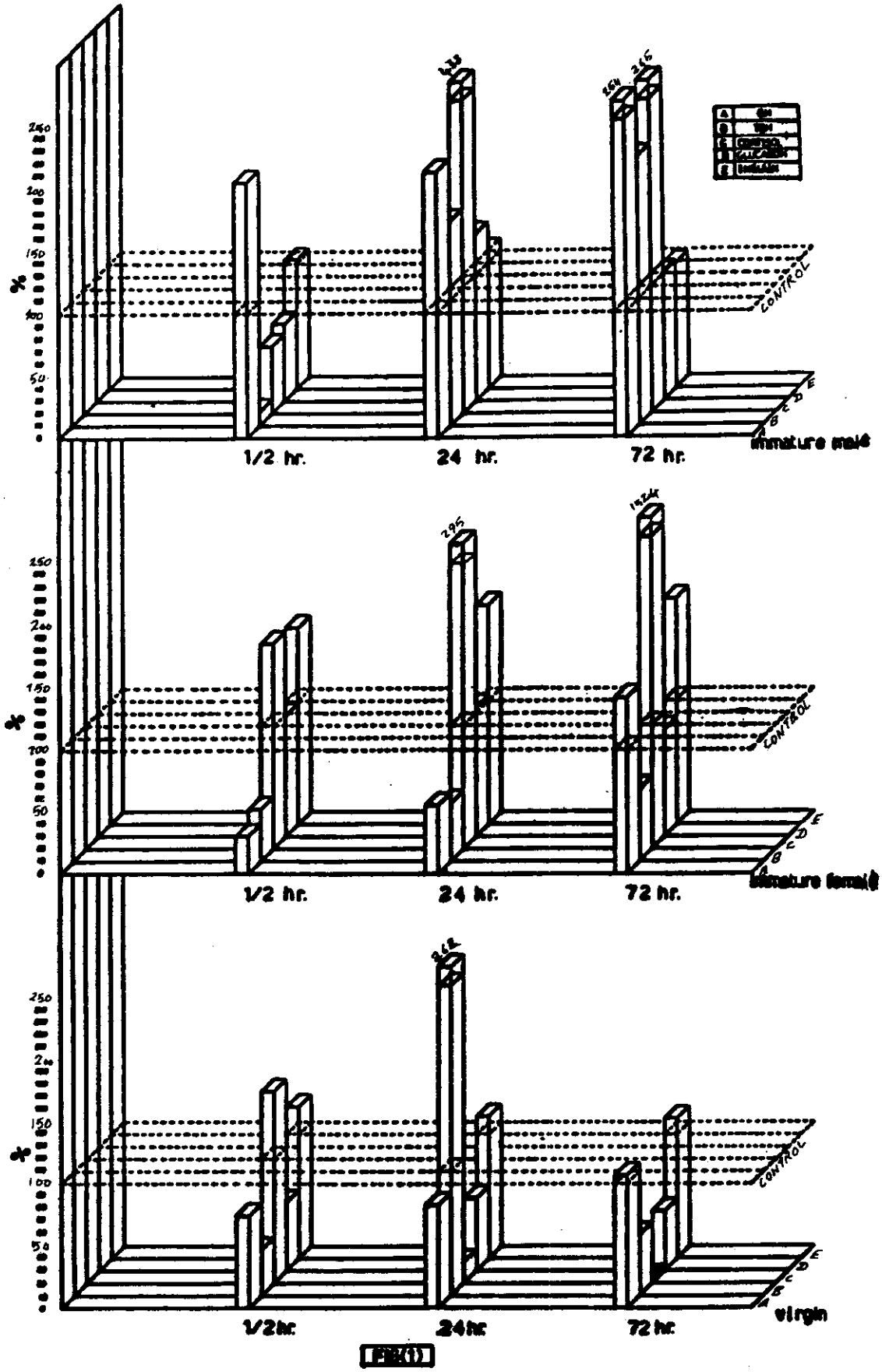
Table (3)

Plasma hormonal levels in virgin mice following intraperitoneal administeration of 10 µg prolactin for 30 minutes, 24 hrs and 72 hrs.

Hormones	Time in hours			
	Control	30 minutes	24 hrs	72 hrs
GH (ng/ml)	16.8 ± 0.63	* 12.5 ± 0.75	14.0 ± 1.9	19.6 ± 1.22
TSH (µ U/ml)	15.8 ± 1.3	*** 5.8 ± 0.6	*** 41.5 ± 0.64	*** 7.7 ± 0.29
Cortisol (ng/ml)	00.53± 0.026	*** 0.82± 0.024	** 0.093±0.019	*** 0.06± 0.0068
Glucagon (pg/ml)	255.75± 4.049	*** 141.75± 4.62	*** 150 ±10.80	*** 121.75± 3.119
Insulin (µ U/ml)	43.0 ± 4.1	52.9 ± 5.2	49.5 ± 2.8	48.8 ± 2.9

. The values represent the mean of 12 animals ± S.E.

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$



FIG(1)

Plasma hormonal levels in immature male and females mices as well virgin following i.p administration of 10/^{m}/$_{kg}$ prolactin after 1/2, 24 and 72 hrs.

II. Effect of i.p. administeration of 59 µg prolactin on plasma levels of different metabolic hormones in male and female immature mices as well virgin:

A. Immature male mices:

Table (4): showed that:

* GH level droped significantly after 30 minut, 24 hr and 72 hr from the application of 59 µg prolactin ($P < 0.001$), but with weak tendency to increase with the time factor.

* TSH decreased significantly after 30 minut ($P < 0.001$), but increased significantly after 24 and 72 hr ($P < 0.001$) in comparison with the control.

* Gortisol level in plasma increased significantly after 59 µg dose of prolactin ($P < 0.001$).

* Plasma glucagon level droped markedly after 30 minut. 24 and 72 hr ($P < 0.001$).

* Insulin level in plasma revealed an increase after 30 minut ($P < 0.01$), 24 and 72 hr ($P < 0.05$) following the i.p. application of 59 µg prolactin.

B. Immature female mices:

Table (5): revealed the following:

* GH droped significantly after 30 minut. and 24 hr following the i.p. administeration of 59 µg prolactin ($P < 0.001$) and returned to the control level after 72 hr.

* TSH level was markedly droped after 30 minut. 24 72 hr from the application of the prolactin ($P < 0.001$) with some tendency to increase with the times.

* Cortisol level in plasma elevated dromatically after 59 µg prolactin dose ($P < 0.001$) with tendency to increase with the time after the application.

* Plasma Glucagon level droped significantly after 30 minut, 24 and 72 hr from the application of the prolactin ($P < 0.001$).

* The level of Insulin in plasma showed a marked increase but only after 24 and 72 hr following the administeration of the 59 µg dose of prolactin ($P < 0.001$).

C. Virgin mice:

As given in Table (6), there were:

* GH droped markedly after 30 minut. following the i.p. administration of 59 µg prolactin ($P < 0.001$) and still lower than the control level ($P < 0.01$), then returned to the control level after 72 hr.

* TSH in plasma of virgin mice following the 59 µg prolactin dose showed a biphasic reaction manifested by a significant decrease after 30 minut. and 72 hr, while increased significantly after 24 hr in comparison to the control levels.

* Plasma cortisol level revealed a significant decrease after 30 minut from the application of the prolactin ($P < 0.01$), but increased significantly after 24 hr ($P < 0.01$) as well after 72 hr ($P < 0.05$).

* Glucagon level in plasma decreased significantly after 30 minut, 24 and 72 hr ($P < 0.001$) but with tendency to some increase in its level with the time.

* Insulin level showed a significant increase but only after 30 minut, and 24 hr.

Table (4)

Plasma hormonal levels in immature male mices following intraperitoneal administeration of 59 μg prolactin for 30 minutes, 24 hr and 72 hrs.

Hormones	Time in hours			
	Control	30 minutes	24 hrs	72 hrs
GH (ng/ml)	10.37 ± 0.44	*** 1.26 ± 0.02	*** 1.97 ± 0.04	*** 3.48 ± 0.13
TSH (μ U/ml)	14.6 ± 1.03	*** 0.97 ± 0.05	*** 23.06 ± 1.18	*** 34.8 ± 4.24
Cortisol (ng/ml)	0.023± 0.0023	*** 0.125± 0.0017	*** 0.33 ± 0.035	*** 0.39 ± 0.278
Glucagon (pg/ml)	152.5 ± 3.20	*** 60.75 ± 4.88	*** 56.75 ± 3.49	*** 64.25 ± 4.04
Insulin (μ U/ml)	50.8 ± 2.4	** 62.4 ± 1.4	* 61.4 ± 2.2	* 59.5 ± 2.6

. The values represent the mean of 12 animals ± S.E.

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$

Table (5)

Plasma hormonal levels in immature female mices following intraperitoneal administeration of 59 μg prolactin for 30 minutes, 24 hrs and 72 hrs.

Hormones	Time in hours			
	Control	30 minutes	24 hrs	72 hrs
GH (ng/ml)	16.6 ± 0.92	*** 3.5 ± 0.06	*** 4.4 ± 0.10	10.9 ± 0.50
TSH (μU/ml)	11.2 ± 0.18	*** 1.0 ± 0.15	*** 1.4 ± 0.04	*** 3.0 ± 0.3
Cortisol (ng/ml)	*** 0.041± 0.0075	*** 0.44± 0.027	*** 0.54± 0.027	*** 0.81± 0.31
Glucagon (pg/ml)	183.75 ± 5.13	*** 93.25± 6.75	*** 113.75± 5.54	*** 107.25± 5.28
Insulin (μU/ml)	37.8 ± 2.9	38.8 ± 2.2	*** 62.0 ± 2.9	*** 68.5 ± 2.5

. The values represent the mean of 12 animals ± S.E.

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$

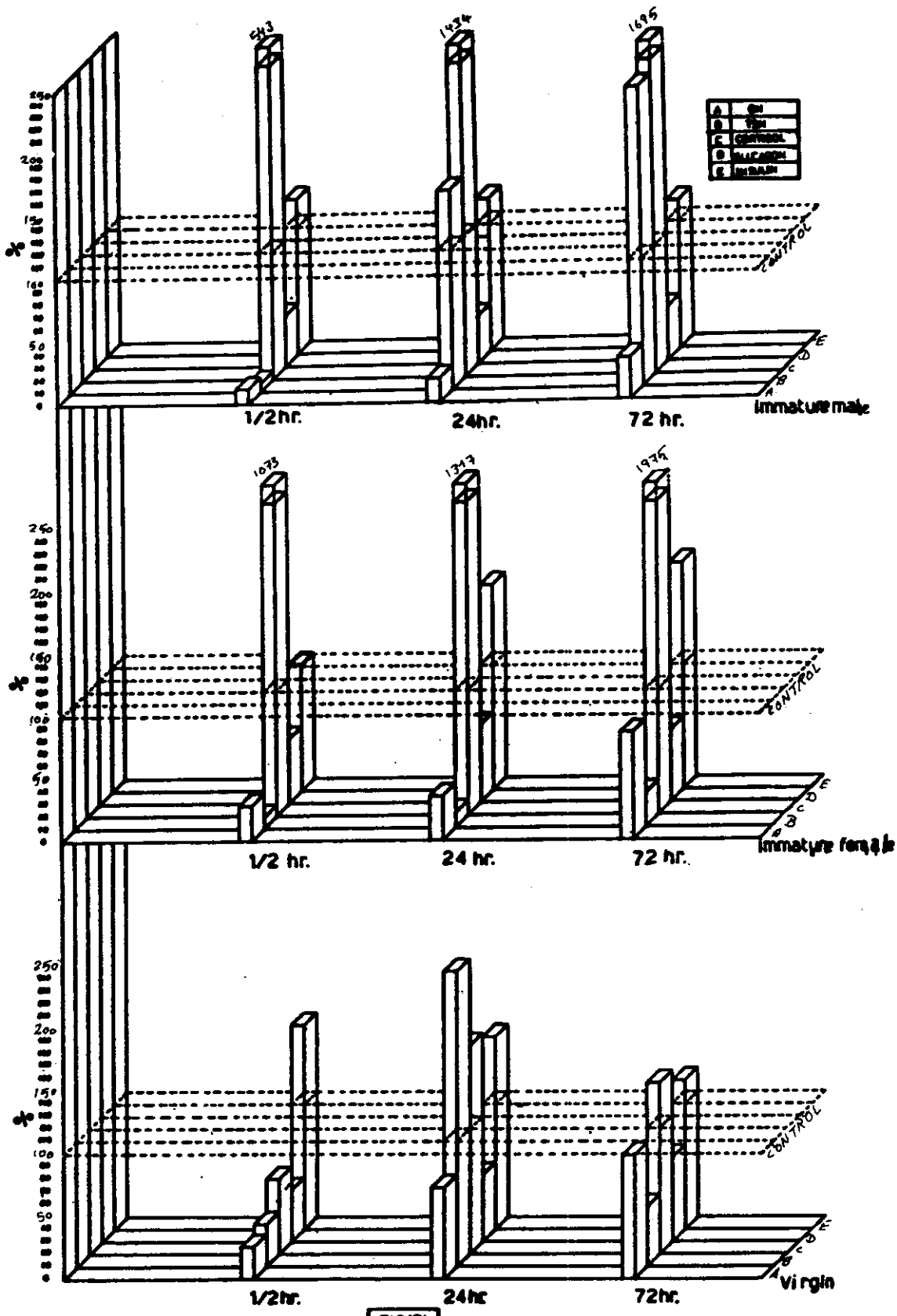
Table (6)

Plasma hormonal levels in virgin mices following intraperitoneal administeration of 59 μ g prolactin for 30 minutes, 24 hrs and 72 hrs.

Hormones	Time in hours			
	Control	30 minutes	24 hrs	72 hrs
GH (ng/ml)	16.4 ± 0.83	*** 4.25 ± 1.1	** 12.0 ± 0.83	16.21 ± 0.91
TSH (μ U/ml)	14.0 ± 1.3	*** 4.8 ± 0.34	*** 33.0 ± 2.5	*** 6.8 ± 0.43
Cortisol (ng/ml)	0.49± 0.044	** 0.295± 0.041	** 0.82± 0.042	* 0.67 ± 0.040
Glucagon (pg/ml)	249.25± 3.25	*** 103.5 ± 3.27	*** 133.25± 4.49	*** 168.25 ± 5.13
Insulin (μ U/ml)	44.5 ± 3.2	** 72.5 ± 5.2	** 68.4 ± 4.3	53.2 ± 3.2

. The values represent the mean of 12 animals ± S.E.

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$



FIG(2)

Plasma hormonal levels in immature male and females mices as well virgin following I.p. administration of 5g/g prolactin after 1/2, 24 and 72 hrs.

III. Effect of the i.p. administration of 144 µg prolactin dose on plasma levels of different metabolic hormones in immature male and female mices as well virgin:

A. Immature male:

Table (7) revealed the following:

* GH droped markedly following the i.p. administeration of 144 µg prolactin dose after 30 minut, 24 and 72 hr ($P < 0.001$).

* TSH level in plasma, while droped significantly after 30 minut ($P < 0.01$), elevated after 72 hr ($P < 0.001$) and there was no change after 24 hr in comparison to the control.

* Cortisol level in plasma elevated markedly after the 144 µg dose of prolactin ($P < 0.001$). The maximum elevation after 30 minut.

* Plasma level of glucagon increased significantly after 30 minut ($P < 0.05$) then returned to the control level after 24 hr and decreased significantly after 72 hr ($P < 0.05$).

* Insulin level in plasma elevated significantly after 30 minut ($P < 0.01$) and 24 hr ($P < 0.05$), then returned to the control level after 72 hr.

B. Immature females:

As given in Table (8):

* GH droped significantly following the 144 µg dose of prolactin after 30 minut and 24 hr ($P < 0.001$) as well after 72 hr ($P < 0.05$).

* TSH decreased drastically 30 minut, 24 and 72 hr following i.p. administeration of prolactin ($P < 0.001$) Meanwhile, there was some enhancement in the level of the hormones with the time.

* Cortisol level in plasma showed a highly significant increase after 30 minut, 24 and 72 hr from the application ($P < 0.001$) and was proportional with the time.

* Plasma level of glucagon decreased significantly after 30 minut ($P < 0.05$) as well after 24 and 72 hr ($P < 0.001$).

* Insulin, in contrast to glucagon increased in the plasma after 30 minut ($P < 0.05$) as well after 24 hr and 72 hr ($P < 0.001$).

C. In virgin:

Table (9) revealed the following:

* GH droped significantly 30 minut, 24 and 72 hr following the i.p. administeration of 144 µg prolactin ($P < 0.001$). Meanwhile, there was some enhancement in the plasma level of GH with the time after injection of prolactin.

* TSH showed with the time a biphasic reaction, i.e., droped significantly after 30 minut and 72 hr ($P < 0.001$) while increased after 24 hr ($P < 0.01$).

* Plasma level of cortisol elevated drastically after the injection of prolactin ($P < 0.001$). The increase was parallel to the time factor.

* Glucagon level in the plasma decreased significantly after 30 minut, 24 hr and 72 hr following the application of prolactin ($P < 0.01$).

* Insulin in plasma showed no significant change after 30 minut, while increased significantly after 24 and 72 hr ($P < 0.01$).

Table (7)

Plasma hormonal levels in immature male mices following intraperitoneal administeration of 144 μg prolactin for 30 minutes, 24 hrs and 72 hrs.

Hormones	Time in hours			
	Control	30 minutes	24 hrs	72 hrs
GH (ng/ml)	10.82 ± 0.56	*** 1.02 ± 0.06	*** 1.62 ± 0.09	*** 2.20 ± 0.31
TSH (μ U/ml)	13.95 ± 1.62	** 0.35 ± 0.06	14.20 ± 2.63	*** 43.5 ± 3.81
Cortisol (ng/ml)	0.025± 0.005	*** 0.29 ± 0.006	*** 0.24 ± 0.006	*** 0.11 ± 0.004
Glucagon (pg/ml)	150.5 ± 5.90	* 178.8 ± 5.1	156.4 ± 6.2	* 131 ± 4.3
Insulin (μ U/ml)	51.20 ± 2.6	** 69.45 ± 2.9	* 64.3 ± 4.2	53.2 ± 5.1

. The values represent the mean of 12 animals ± S.E.

* P < 0.05 , ** P < 0.01 , *** P < 0.001

Table (8)

Plasma hormonal levels in immature female mice following intraperitoneal administeration of 144 μg prolactin for 30 minutes, 24 hrs and 72 hrs.

Hormones	Time in hours			
	Control	30 minutes	24 hrs	72 hrs
GH (ng/ml)	12.4 ± 0.61	*** 4.3 ± 0.18	*** 6.8 ± 0.15	*** 10.1 ± 0.42
TSH (μU/ml)	11.8 ± 0.21	*** 0.92± 0.06	*** 1.0 ± 0.09	*** 2.3 ± 1.1
Cortisol (ng/ml)	0.037 ± 0.007	*** 0.45± 0.05	*** 0.68 ± 0.06	*** 0.083 ± 0.005
Glucagon (pg/ml)	177.8 ± 6.2	* 150.4 ± 3.9	*** 134.2 ± 2.7	*** 111.8 ± 3.6
Insulin (μU/ml)	36.0 ± 2.9	* 50.2 ± 3.1	*** 67.8 ± 2.9	*** 72.4 ± 2.9

. The values represent the mean of 12 animals ± S.E.

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$

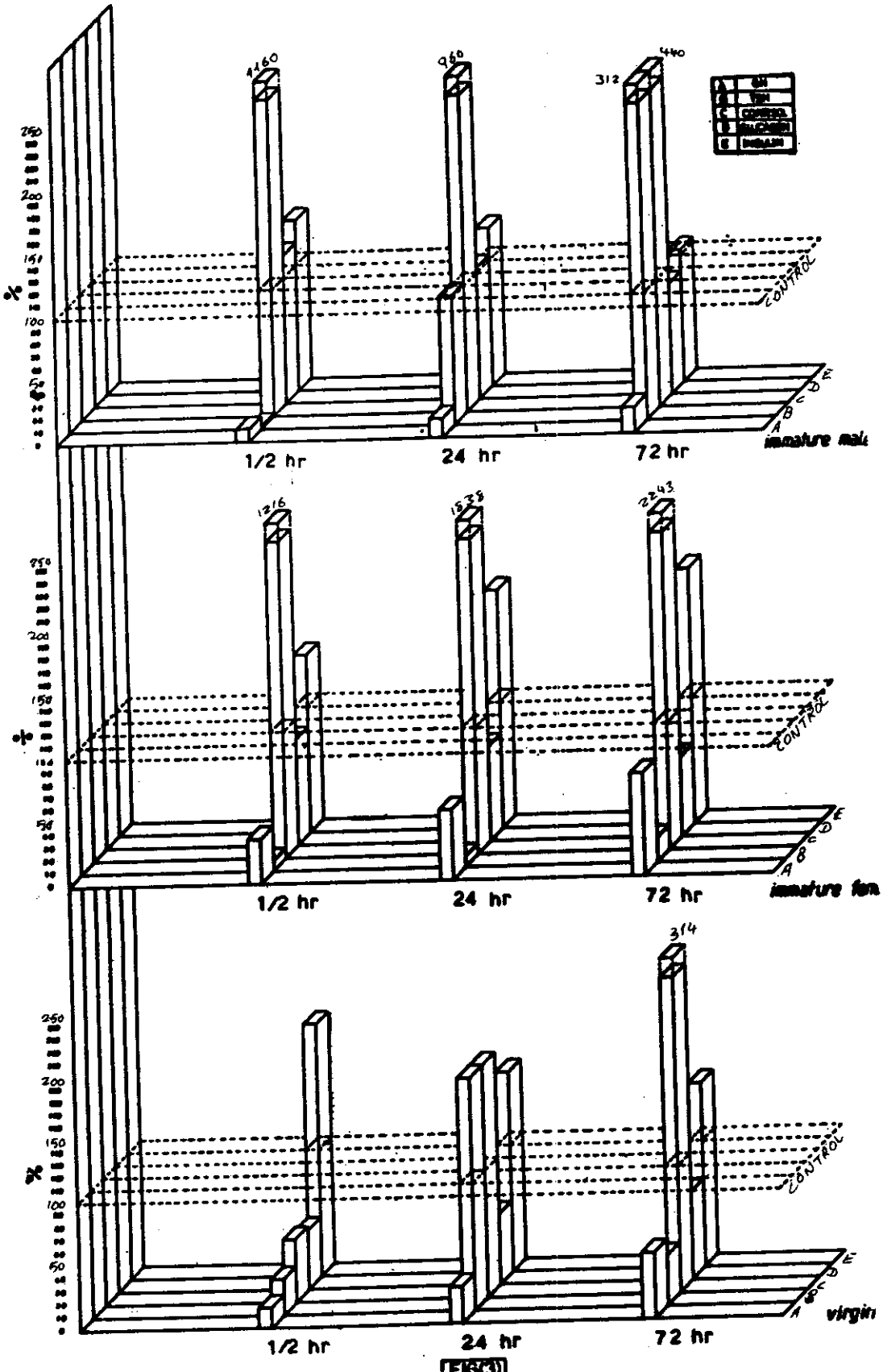
Table (9)

Plasma hormonal levels in virgin mice following intraperitoneal administeration of 144 µg prolactin for 30 minutes, 24 hrs and 72 hrs.

Hormones	Time in hours			
	Control	30 minutes	24 hrs	72 hrs
GH (ng/ml)	15.95 ± 1.15	*** 2.63 ± 0.56	*** 4.61 ± 0.42	*** 8.42 ± 0.30
TSH (µ U/ml)	14.8 ± 1.18	*** 4.1 ± 0.5	** 27.3 ± 2.4	*** 5.8 ± 0.52
Cortisol (ng/ml)	0.51 ± 0.062	* 0.25 ± 0.05	*** 0.94 ± 0.02	*** 1.6 ± 0.2
Glucagon (pg/ml)	233.8 ± 5.4	*** 108.4 ± 3.8	*** 128.0 ± 3.2	*** 162.4 ± 4.1
Insulin (µ U/ml)	45.8 ± 2.8	*** 91.8 ± 5.558	** 72.3 ± 5.00	** 66.8 ± 3.8

. The values represent the mean of 12 animals ± S.E.

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$



FIG(3)

Plasma hormonal levels in immature male and females mices as well virgin following i.p. administration of 144 µg prolactin after 1/2, 24 and 72 hrs.

IV. Effect of i.p. administeration of 350 µg prolactin on plasma levels of metabolic hormones in immature male and female mices as well virgin:

A. Immature male mices:

As given in Table (10):

* GH in plasma droped drastically 30 minut, 24 hr and 72 hr following the application of prolactin ($P < 0.001$).

* TSH level in plasma while decreased significantly after 30 minut and 24 hr following the administeration of the 350 µg dose of prolactin ($P < 0.001$), but increased, in contrast, after 72 hr ($P < 0.001$).

* Plasma level of cortisol elevated dramatically 30 minut following the administration and stayed significantly elevated also after 24 and 72 hr ($P < 0.001$).

* Glucagon level in plasma increased significantly after 30 minut. ($P < 0.001$) and after 24 hr ($P < 0.01$), but decreased significantly after 72 hr ($P < 0.05$).

* Plasma level of insulin increased significantly 30 minut, 24 and 72 hrs. following the administeration of 350 µg prolactin ($P < 0.01$).

B. <u>In immature females</u>:

Table (11) revealed the following:

* GH level droped significantly in the plasma after 30 minut ($P < 0.001$) and stayed under the control level after 24 hr ($P < 0.01$) as well after 72 hr ($P < 0.05$) following the administeration of 350 µg prolactin dose.

* TSH in plasma showed a drastic droping a large the experiment ($P < 0.001$).

* Plasma level of cortisol revealed a sever elevation manifested after 30 minut and increased more with the time ($P < 0.001$).

* Glucagon level in plasma increased significantly after 30 minut from the application of the 350 µg dose of prolactin ($P < 0.05$) and returned to the control level after 24 hr, then droped significantly after 72 hr ($P < 0.001$).

Table (10)

Plasma hormonal levels in immature male mice following intraperitoneal administeration of 350 µg prolactin for 30 minutes, 24 hrs and 72 hrs.

Hormones	Time in hours			
	Control	30 minutes	24 hrs	72 hrs
GH (ng/ml)	10.34 ± 0.55	*** 0.6 ± 0.04	*** 0.6 ± 0.04	*** 1.1 ± 0.04
TSH (µU/ml)	14.18 ± 1.07	*** 1.2 ± 0.12	*** 2.9 ± 0.52	*** 45.8 ± 4.65
Cortisol (ng/ml)	0.026± 0.0046	*** 0.37 ± 0.011	*** 0.297± 0.039	*** 0.13 ± 0.0041
Glucagon (pg/ml)	153.0 ± 5.06	*** 191.75 ± 3.83	** 179.5 ± 3.30	* 128.0 ± 5.16
Insulin (µU/ml)	49.5 ± 3.4	** 72.5 ± 3.9	** 69.4 ± 4.2	** 66.2 ± 2.9

. The values represent the mean of 12 animals ± S.E.

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$

Table (11)

Plasma hormonal levels in immature female mice following intraperitoneal administeration of 350 µg prolactin for 30 minutes, 24 hrs and 72 hrs.

Hormones	Time in hours			
	Control	30 minutes	24 hrs	72 hrs
GH (ng/ml)	12.8 ± 0.71	*** 1.5 ± 0.07	** 8.3 ± 0.24	* 9.8 ± 0.15
TSH (µ U/ml)	10.9 ± 0.23	*** 0.5 ± 0.10	*** 0.8 ± 0.02	*** 1.5 ± 0.2
Cortisol (ng/ml)	0.039± 0.0061	*** 0.465± 0.069	*** 0.97 ± 0.08	*** 0.98 ± 0.058
Glucagon (pg/ml)	178.3 ± 6.94	* 196.25 ± 3.11	189.75 ± 2.056	*** 102.0 ± 3.39
Insulin (µ U/ml)	36.3 ± 2.4	*** 62.8 ± 3.2	*** 56.5 ± 1.9	*** 19.5 ± 2.9

. The values represent the mean of 12 animals ± S.E.

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$

Table (12)

Plasma hormonal levels in virgin mice following intraperitoneal administeration of 350 µg prolactin for 30 minutes, 24 hrs and 72 hrs.

Hormones	Time in hours			
	Control	30 minutes	24 hrs	72 hrs
GH (ng/ml)	16.6 ± 0.90	** 1.25 ± 0.47	*** 0.5 ± 0.04	*** 0.2 ± 0.06
TSH (µU/ml)	13.6 ± 0.62	*** 2.7 ± 0.18	** 26.5 ± 1.7	*** 4.9 ± 0.4
Cortisol (ng/ml)	0.52 ± 0.05	*** 0.23 ± 0.031	* 0.30 ± 0.037	*** 0.109± 0.0041
Glucagon (pg/ml)	244.25 ± 4.05	*** 59.0 ± 3.63	*** 123.25 ± 2.68	*** 159 ± 4.47
Insulin (µU/ml)	43.5 ± 2.9	39.8 ± 3.2	34.8 ± 2.9	49.8 ± 3.2

. The values represent the mean of 12 animals ± S.E.

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$

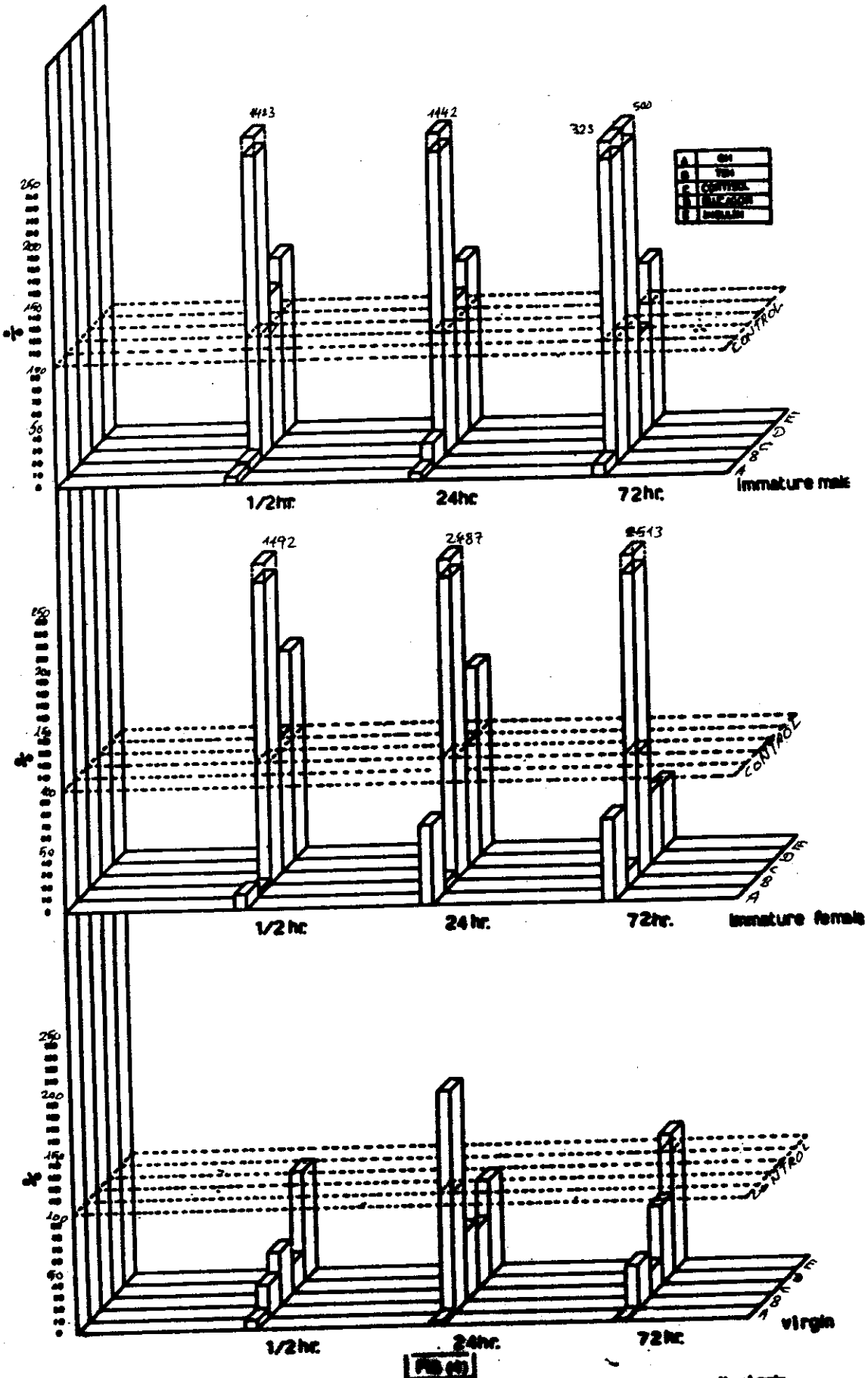


Fig (6)

Plasma hormonal levels in immature male and female mice as well virgin following i.p. administration of 350 µg prolactin after 1/2, 24 and 72 hrs.

V. Liver uptake of C^{14}-Galactose, C^{14}-Valine, and C^{14}-Arginine 24 hr following the i.p. administeration of different doses of prolactin in Immature male and female mices as well virgin.

A. In Immature male:

As given in table (13):

* The liver uptake of galactose increased significantly following the 10 µg dose of prolactin, and did not changed after the 59 µg dose, while the 144 and 350 µg doses decreased the liver uptake of Galactose ($P < 0.05$ and $P < 0.001$ respectively).

* Valine uptake by the liver increased significantly after the 10 µg prolactin ($P < 0.001$) and the 59 µg dose ($P < 0.05$), while remained in the control level following the 144 µg dose of prolactin, but droped significantly following the 350 µg dose of prolactin ($P < 0.01$).

* The liver uptake of arginine showed two physic reactions; while the low doses of prolactin 10 and 59 µg decreased the uptake ($P < 0.01$ and $P < 0.05$ respectively), the high doses, (144 and 350 µg) in contrast, increased the liver uptake of arginine ($P < 0.001$).

B. In Immature females:

Table (14) revealed the following:

* The liver uptake of galactose increased significantly after the 10 µg dose of prolactin ($P < 0.001$) and did not changed following the 59 µg dose, then droped significantly after the 144 and 350 µg dose of prolactin ($P < 0.001$).

* Valine uptake by liver elevated significantly following the low doses of prolactin (10 and 59 µg), but it droped markedly of the 144 and 350 µg ($P < 0.001$).

* Liver uptake of arginine increased markedly following the different doses of prolactin. Such elevations more doses-dependendant.

C. In Virgin:

As given in table (15):

* Galactose uptake by the liver increased significantly after 10 µg and 144 µg prolactin doses ($P < 0.001$), while droped markedly following the 59 and 350 µg doses ($P < 0.001$).

* Valine uptake by the liver increased significantly after 10 and 59 µg doses of prolactin ($P < 0.001$), while did not changed in 144 µg dose of prolactin, but droped markedly in high dose (350 µg prolactin) ($P < 0.001$).

* Liver uptake of arginine droped significantly after the 10 µg dose ($P < 0.001$) as well 59 µg prolactin ($P < 0.01$), then elevated, in contrast, following the 144 µg dose ($P < 0.01$) and the 350 µg prolactin ($P < 0.001$).

Table (13)

Liver uptake of C^{14}-Galactose, C^{14}-Valine and C^{14}-Arginine (mg/gm. tissue) in immature male mice 24hrs following the intraperitoneal administeration of different doses of prolactin.

	Doses of prolactin (µg/mice)				
	Control	**10 µg**	**59 µg**	**144 µg**	**350 µg**
Galactose-C^{14}	2.63 ± 0.21	4.38 ± 0.50***	2.6 ± 0.03	2.0 ± 0.03*	1.9 ± 0.04***
Valine-C^{14}	2.34 ± 0.46	14.4 ± 0.23***	5.1 ± 0.65	2.3 ± 0.11	1.5 ± 0.08**
Arginine-C^{14}	5.7 ± 0.64	2.4 ± 0.27	3.5 ± 0.29	11.6 ± 0.61	13.7 ± 0.91

. The values represent the mean of 12 animals ± S.E.

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$

Table (14)

Liver uptake of C^{14}-Galactose, C^{14}-Valine and C^{14}-Arginine (mg/gm. tissue) in immature female mice 24 hrs following the intraperitoneal administeration of different doses of prolactin.

	Doses of prolactin (μ g/mice)				
	Control	**10 μg**	**59 μg**	**144 μg**	**350 μg**
Galactose-C^{14}	2.4 ± 0.08	5.4^{***} ± 0.31	2.04 ± 0.11	0.7^{***} ± 0.09	0.5^{***} ± 0.05
Valine-C^{14}	3.5 ± 0.29	6.9^{**} ± 0.67	5.4^{*} ± 0.58	1.5^{***} ± 0.1	0.6^{***} ± 0.05
Arginine-C^{14}	4.9 ± 0.24	6.5^{**} ± 0.33	6.8^{**} ± 0.32	15.4^{*} ± 1.12	17.5^{***} ± 1.31

. The values represent the mean of 12 animals ± S.E.

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$

Table (15)

Liver uptake of C^{14}-Galactose, C^{14}-Valine and C^{14}-Arginine (mg/gm. tissue) in virgin mice 24 hrs following the intraperitoneal administeration of different doses of prolactin.

	Doses of prolactin (µg/mice)				
	Control	**10 µg**	**59 µg**	**144 µg**	**350 µg**
Galactose-C^{14}	1.6 ± 0.10	4.4 ± 0.12 ***	0.32 ± 0.06 ***	4.3 ± 0.16 ***	0.3 ± 0.03 ***
Valine-C^{14}	2.08 ± 0.13	4.3 ± 0.11 ***	6.57 ± 0.15 ***	1.9 ± 0.12	0.48 ± 0.07 ***
Arginine-C^{14}	4.3 ± 0.49	0.86 ± 0.04 ***	1.17 ± 0.32 **	9.22 ± 0.81 **	10.88 ± 1.28 ***

. The values represent the mean of 12 animals ± S.E.

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$

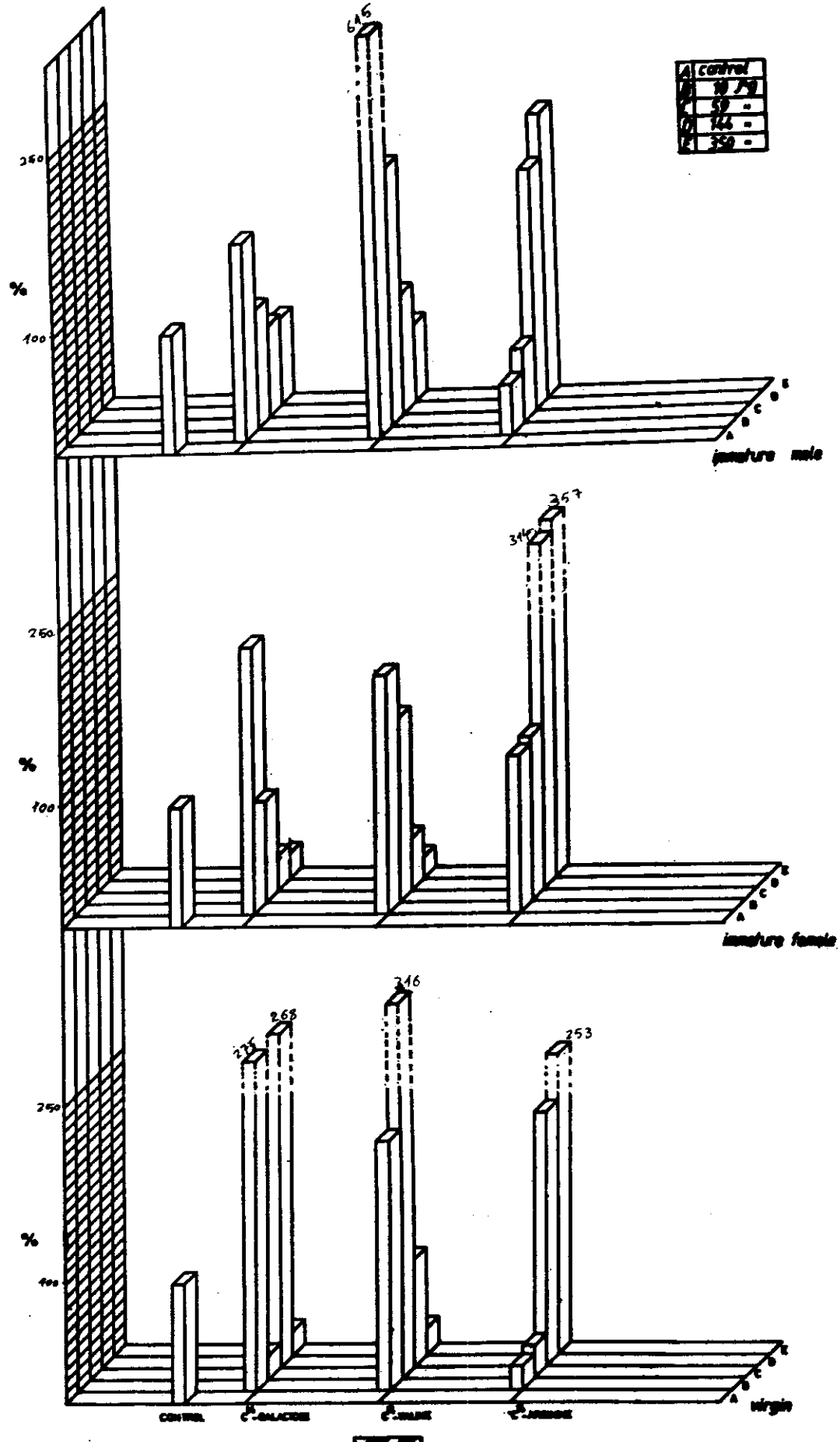


FIG (5)

Liver uptake of ^{3H}Galactose, ^{3H}Lysine and ^{3H}Arginine in immature male and female mice as well virgin 24 hrs following i.p administeration of different doses (19, 59, 144, 350 µg) of prolactin.

VI. Kidney uptake of C^{14}-Galactose, C^{14}-Valine, and C^{14}-Arginine 24 hr following the i.p. administeration of different doses of prolactin in Immature male and female mices as well virgin:

A. In Immature male mices:

Table (16) showed the following:

* Galactose uptake kidney did not changed after 10 µg prolactin dose, while the other higher doses (59, 144, 350 µg) elevated the uptake significantly ($P < 0.05$) and the increase with proportional to the dose.

* The kidney uptake of valine increased significantly following the different doses of prolactin. This elevation was doses dependant.

* Kidney uptake of arginine elevated significantly and proportionaly following the different doses of prolactin.

B. In Immature female

As given in table (17):

* Galactose uptake by kidney did not affected by 10 µg prolactin dose, while elevated markedly after 59 and 144 µg ($P < 0.001$), then droped significantly following the 350 µg dose ($P < 0.001$).

* Uptake of valine by the kidney tissue increased significantly and proportionally following the different doses of prolactin ($P < 0.001$).

* Kidney uptake of arginine elevated also proportionally with the dose of prolactin ($P < 0.001$).

C. In virgin mices:

Table (18) Showed the following:

* Galactose uptake in kidney revealed no significant changes after the 10 µg prolactin dose, while 59 µg, 144 and 350 µg doses elevated it markedly ($P < 0.001$).

* Uptake of valine in kidney increased significantly following with 10 µg, 59 and 144 µg doses, while the largest one (350 µg) decreased it significantly ($P < 0.001$).

* Uptake of arginine by the kidney increased markedly and proportionally following the different doses of prolactin ($P < 0.001$).

Table (16)

Kidney uptake of C^{14}-Galactose, C^{14}-Valine and C^{14}-Arginine (mg/gm. tissue) in immature male mice 24 hrs following the intraperitoneal administeration of different doses of prolactin.

	Doses of prolactin (μg/mice)				
	Control	**10 μg**	**59 μg**	**144 μg**	**350 μg**
Galactose-C^{14}	2.28 ± 0.28	2.32 ± 0.16	* 3.07 ± 0.12	* 4.3 ± 0.57	* 5.5 ± 0.98
Valine-C^{14}	2.8 ± 0.25	** 4.56 ± 0.06	** 4.1 ± 0.21	*** 6.3 ± 0.22	*** 7.0 ± 0.65
Arginine-C^{14}	4.15 ± 0.41	** 8.01 ± 0.91	8.3 ± 0.83	*** 14.4 ± 1.3	15.2 ± 1.26

. The values represent the mean of 12 animals ± S.E.

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$

Table (17)

Kidney uptake of C^{14}-Galactose, C^{14}-Valine and C^{14}-Arginine (mg/gm. tissue) in immature female mice 24 hrs following the intraperitoneal administeration of different doses of prolactin.

	Doses of prolactin (µg/mice)				
	Control	**10 µg**	**59 µg**	**144 µg**	**350 µg**
Galactose-C^{14}	2.46 ± 0.05	2.3 ± 0.11	137*** ± 1.4	10.5*** ± 0.9	3.08*** ± 0.08
Valine-C^{14}	2.3 ± 0.16	5.8*** ± 0.31	6.27*** ± 0.49	8.42*** ± 0.42	9.75*** ± 0.24
Arginine-C^{14}	2.3 ± 0.22	8.4*** ± 1.57	8.9*** ± 0.54	12.3*** ± 1.14	15.2*** ± 1.18

- The values represent the mean of 12 animals ± S.E.

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$

Table (18)

Kidney uptake of C^{14}-Galactose, C^{14}-Valine and C^{14}-Arginine (mg/gm. tissue) in virgin mice 24 hrs following the intraperitoneal administeration of different doses of prolactin.

	Doses of prolactin (µg/mice)				
	Control	10 µg	59 µg	144 µg	350 µg
Galactose-C^{14}	2.6 ± 0.11	2.4 ± 0.12	8.6 ± 0.68	12.8 ± 0.5	15.3 ± 0.51
Valine-C^{14}	2.8 ± 0.19	***9.8 ± 0.05	***10.6 ± 0.33	***10.7 ± 0.44	***1.0 ± 0.26
Arginine-C^{14}	4.12 ± 0.38	*6.15 ± 0.42	***7.36 ± 0.23	**11.79± 1.42	***15.4 ± 0.62

. The values represent the mean of 12 animals ± S.E.

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$

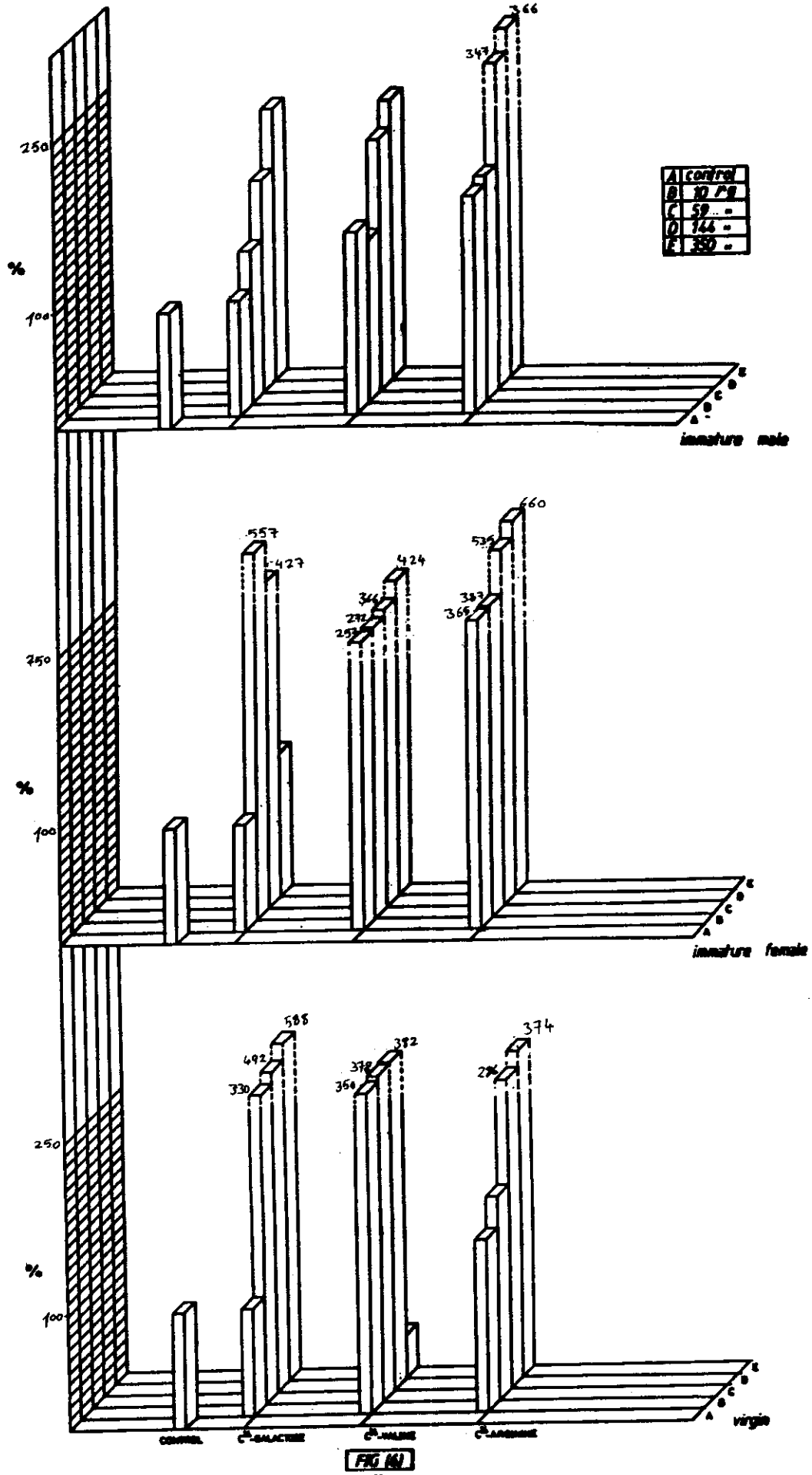


FIG (6)

Kidney uptake of ^{14}C-Galactose, ^{14}C-Valine and ^{14}C-Arginine in immature male and female mices as well virgin 24 hrs following i.p. administeration of different doses (10, 59, 144, 350 µg) of prolactin.

VII. Muscle uptake of C^{14}-Galactose, C^{14}-Valine, and C^{14}-Arginine 24 hr following the i.p. administeration of different doses of prolactin in Immature male and female mices as well virgin:

A. In Immature male micés

Table (19): Revealed the following

* Galactose uptake by the muscle elevated only following the smallest dose of prolactin ($P < 0.001$), while the other higher doses (59, 144 and 350 µg prolactin) induced no significant changes.

* Uptake of valine by muscle decreased significantly following the different doses of prolactin ($P < 0.001$). The higher dose of prolactin, the more droping of valine uptake.

* The only significant change in Arginine followed the 10 µg of prolactin while the other doses did not affect the uptake.

B. In Immature female mices:

As given in table (20):

* Galactose uptake in muscle increased significantly following the 10 and 59 µg doses of prolactin ($P < 0.001$),

while droped, in contrast, after 144 and 350 µg doses ($P < 0.05$).

* The uptake of valine by muscles showed no significant change following the smallest dose of prolactin (10 µg), but the other doses (59, 144 and 350 µg) induced a significant decrease in the muscle uptake of valine ($P < 0.001$).

* Muscle uptake of Arginine droped only after the 144 and 350 µg doses of prolactin ($P < 0.001$), while the smaller doses (10 and 59 µg) induced no significant changes.

C. <u>In virgin</u>:

Table (21) revealed the following:

* Galactose uptake by muscle is changed only after the smallest (10 µg) and the largest dose (350 µg); the first decreased the uptake significantly ($P < 0.001$), while the 350 µg dose elevated the uptake significantly ($P < 0.001$).

* The valine uptake increased significantly following the 10 and 59 µg doses of prolactin ($P < 0.001$), the

144 µg dose induced no significant changes, but the 350 µg prolactin decreased the uptake significantly ($P < 0.001$).

* Muscle uptake of Arginine increased significantly after the 10 and 350 µg prolactin doses ($P < 0.001$) while the other two doses (59 and 144 µg) induced no significant changes in muscle uptake of Arginine.

Table (19)

Muscle uptake of C^{14}-Galactose, C^{14}-Valine and C^{14}-Arginine (mg/gm. tissue) in immature male mice 24 hrs following the intraperitoneal administeration of different doses of prolactin.

	Doses of prolactin (µg/mice)				
	Control	**10 µ g**	**59 µ g**	**144 µ g**	**350 µ g**
Galactose-C^{14}	0.69 ± 0.06	***1.35 ± 0.06	0.9 ± 0.23	0.85 ± 0.11	0.8 ± 0.14
Valine-C^{14}	3.18 ± 0.14	***1.99 ± 0.18	***1.12 ± 0.03	***0.95 ± 0.06	***0.8 ± 0.09
Arginine-C^{14}	2.9 ± 0.47	*1.53 ± 0.03	2.34 ± 0.23	2.8 ± 0.45	2.8 ± 0.30

. The values represent the mean of 12 animals ± S.E.

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$

Table (20)

Muscle uptake of C^{14}-Galactose, C^{14}-Valine and C^{14}-Arginine (mg/gm tissue) in immature female mice 24 hrs following the intraperitoneal administeration of different doses of prolactin.

	Doses of prolactin (µg/mice)				
	Control	**10 µg**	**59 µg**	**144 µg**	**350 µg**
Galactose-C^{14}	2.4 ± 0.09	***6.4 ± 0.14	***6.3 ± 0.09	*1.9 ± 0.09	*1.8 ± 0.14
Valine-C^{14}	1.97 ± 0.06	2.8 ± 0.40	***0.9 ± 0.06	***0.6 ± 0.05	***0.3 ± 0.03
Arginine-C^{14}	2.3 ± 0.18	2.3 ± 0.39	2.6 ± 0.02	***1.1 ± 0.12	***0.9 ± 0.09

. The values represent the mean of 12 animals ± S.E.

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$

Table (21)

Muscle uptake of C^{14}-Galactose, C^{14}-Valine and C^{14}-Arginine, (mg/gm. tissue) in virgin mice 24 hrs following the intraperitoneal administeration of different doses of prolactin.

	Doses of prolactin (µg/mice)				
	Control	**10 µg**	**59 µg**	**144 µg**	**350 µg**
Galactose-C^{14}	2.39 ± 0.08	1.4^{***} ± 0.06	2.2 ± 0.16	2.3 ± 0.21	3.3^{***} ± 0.07
Valine-C^{14}	1.6 ± 0.17	3.6^{***} ± 0.08	8.2^{***} ± 0.43	1.4 ± 0.15	0.6^{***} ± 0.02
Arginine-C^{14}	2.4 ± 0.18	5.38^{***} ± 0.27	2.6 ± 0.03	2.4 ± 0.38	6.2^{***} ± 0.47

. The values represent the mean of 12 animals ± S.E.

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$

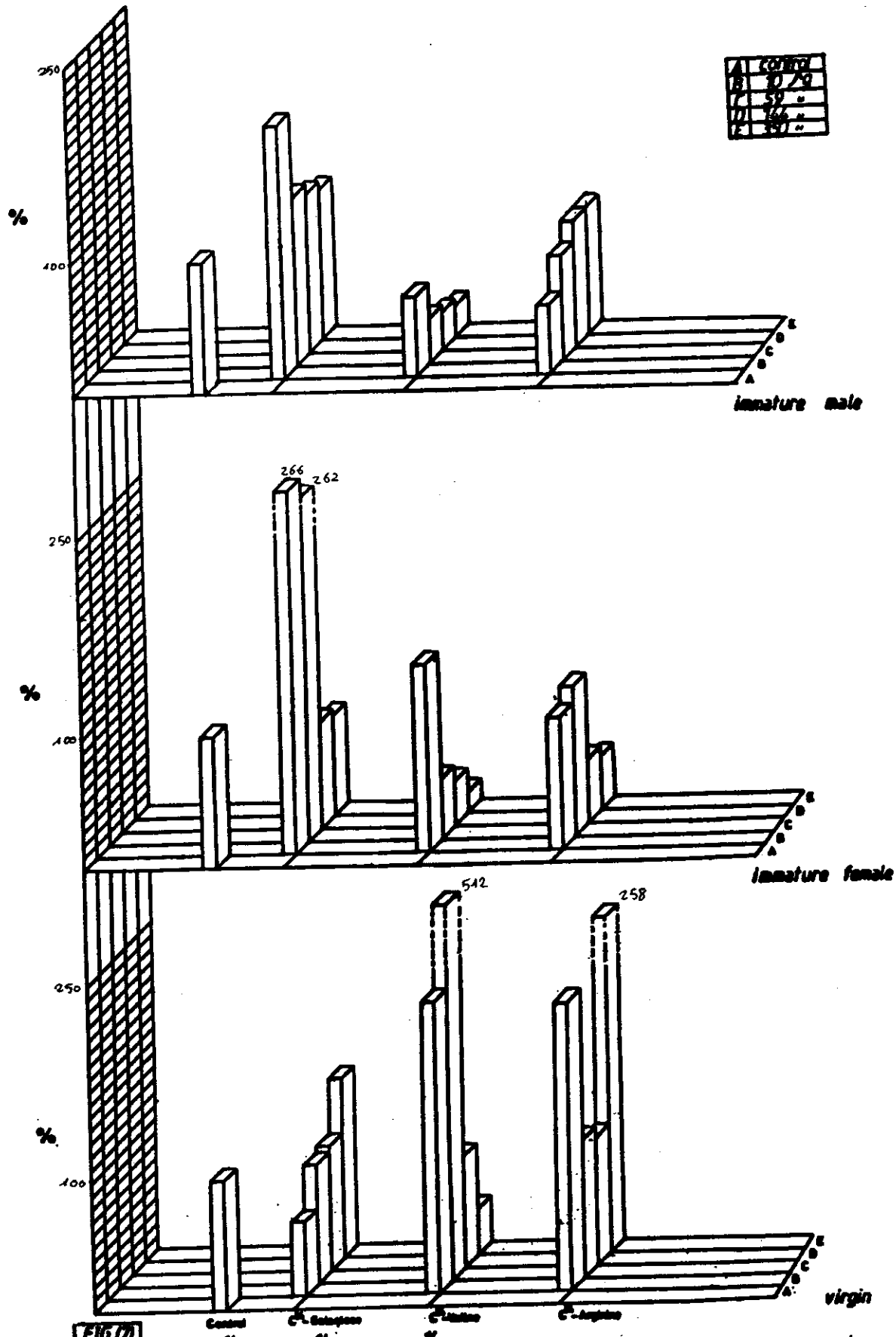


FIG (7)

Muscle uptake of ^{3H}Galactose ^{3H}Valine and ^{3H}Arginine in immature male and female mice as will virgin 24 hrs. following i.p. administeration of different doses (10, 59, 144, 350 µg) of prolactin.

VIII. Gonadal uptake of C^{14}-Galactose, C^{14}-Valine, and C^{14}-Arginine 24 hr following the i.p. administeration of different doses of prolactin in Immature male and female mices as well virgin:

A. In Immature males:

As given in table (22):

* Galactose uptake by testis increased significantly following the 10 µg dose of prolactin ($P < 0.001$), while decreased significantly, in contrast, following the higher doses ($P < 0.001$).

* Valine uptake by testis increased also after 10 µg of prolactin, but the 59 , 144, and 350 µg doses droped it significantly ($P < 0.001$).

* Arginine uptake by testis droped significantly following the 10 µg dose ($P < 0.01$) and the 350 µg prolactin dose ($P < 0.001$), but the other doses (59, 144 µg) induced no significant changes.

B. In Immature females:

Table (23) revealed the following:

* Ovary uptake of Galactose elevated significantly after 10 µg dose, while the other doses (59, 144, and 350 µg) droped the uptake significantly.

* Valine uptake by ovary droped markedly following different doses of prolactin ($P < 0.001$).

* The uptake of arginine decreased significantly after the 10 µg and 350 µg doses of prolactin ($P < 0.001$) while the 59 and 144 µg doses induced, in contrast, a sharp elevation ($P < 0.001$).

C. In virgin mices:

As given in table (24):

* Overy uptake of Galactose decreased significantly after the 10 and 350 µg doses ($P < 0.001$), but increased significantly following the 59 and 144 µg prolactin doses ($P < 0.001$).

* Valine uptake by the ovary elevated significantly following the 10 and 59 µg prolactin doses ($P < 0.001$),

while the other higher doses (144 and 350 µg) droped it significantly ($P < 0.001$).

The only dose which affect significantly the arginine uptake by the ovary is the 350 µg dose. It induced a significant elevation in the arginine uptake by the kidney ($P < 0.001$).

Table (22)

Gonads uptake of C^{14}-Galactose, C^{14}-Valine and C^{14}-Arginine (mg/gm. tissue) in immature male mice 24 hrs following the intraperitoneal administerating of different doses of prolactin.

	Doses of prolactin (µ g/mice)				
	Control	**10 µg**	**59 µg**	**144 µg**	**350 µg**
Galactose-C^{14}	2.51 ± 0.23	4.7^{***} ± 0.38	0.93^{***} ± 0.16	0.92^{***} ± 0.07	0.9^{***} ± 0.08
Valine-C^{14}	3.58 ± 0.22	13.6^{***} ± 0.12	0.95^{***} ± 0.22	0.92^{***} ± 0.11	0.9^{***} ± 0.05
Arginine-C^{14}	2.18 ± 0.31	0.79^{**} ± 0.06	2.7 ± 0.25	3.1 ± 0.32	0.9^{***} ± 0.09

. The values represent the mean of 12 animals ± S.E.

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$

Table (23)

Gonads uptake of C^{14}-Galactose, C^{14}-Valine and C^{14}-Arginine (mg/gm. tissue) in immature female mice 24 hrs following the intraperitoneal administeration of different doses of prolactin.

	Doses of prolactin (µg/mice)				
	Control	**10 µg**	**59 µg**	**144 µg**	**350 µg**
Galactose-C^{14}	3.3 ± 0.08	5.9^{***} ± 0.24	1.7^{***} ± 0.02	1.0^{***} ± 0.05	0.712^{***} ± 0.04
Valine-C^{14}	2.3 ± 0.06	1.6^{***} ± 0.08	0.74^{***} ± 0.06	0.7^{***} ± 0.06	0.7^{***} ± 0.04
Arginine-C^{14}	2.4 ± 0.15	1.0^{***} ± 0.11	12.6^{***} ± 0.75	10.1^{***} ± 1.3	0.6^{***} ± 0.02

The values represent the mean of 12 animals ± S.E.

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$

Table (24)

Gonads uptake of C^{14}-Galactose, C^{14}-Valine and C^{14}-Arginine (mg/gm. tissue) in virgin mice 24 hrs following the intraperitoneal administeration of different doses of prolactin.

	Doses of prolactin (µ g/mice)				
	Control	**10 µg**	**59 µg**	**144 µg**	**350 µg**
Galactose-C^{14}	4.9 ± 0.25	1.6^{***} ± 0.04	8.4^{***} ± 0.27	9.9^{***} ± 0.26	1.4^{***} ± 0.02
Valine-C^{14}	4.6 ± 0.05	6.8^{***} ± 0.25	6.9^{***} ± 0.36	1.9^{***} ± 0.11	1.25^{***} ± 0.38
Arginine-C^{14}	3.0 ± 0.09	3.2 ± 0.22	2.8 ± 0.17	2.5 ± 0.35	7.1^{***} ± 0.26

. The values represent the mean of 12 animals ± S.E.

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$

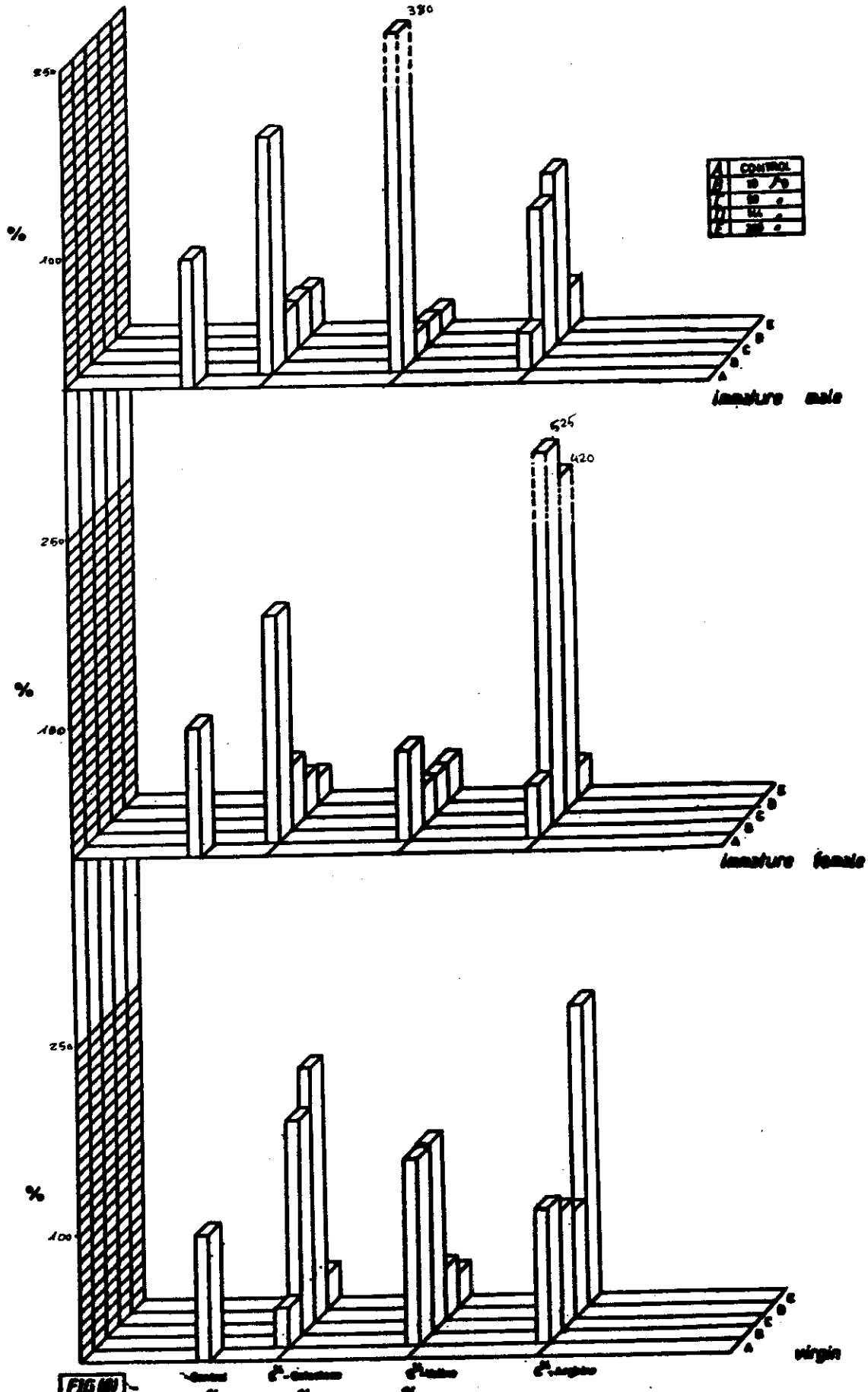


FIG (6)

Gonads uptake of ^{125}I-Galactose ^{125}I-Maltose and ^{125}I-Arginine in immature male and female mices as will virgin 24 hrs following i.p administeration of different doses (10, 59, 144, 350 µg) of prolactin.

IX. Brain uptake of C^{14}-Galactose, C^{14}-Valine and C^{14}-Arginine 24 hr following the i.p. administeration of different doses of prolactin in Immature male and female mices as well virgin:

A. In immature male mices:

Table (25) revealed the following:

* A significant droping in the brain uptake of Galactose following different doses of prolactin ($P < 0.001$).

* Valine uptake droped also significantly following the different tested doses of prolactin.

* Arginine uptake in brain showed a significant decrease after the 10 µg prolactin dose ($P < 0.001$), and the 59 and 144 µg doses induced, in contrast, a significant elevation in the arginine uptake ($P < 0.001$), while the 350 µg dose induced no significant changes.

B. In Immature female mices:

Table (26): Showed that:

* While the 10 µg and 350 µg doses of prolactin decreased significantly the galactose uptake in brain, the 59 and 144 µg doses induced,in contrast a sever elevation in this uptake.

* Valine uptake by the brain droped significantly and proportionally following the different doses of prolactin ($P < 0.001$).

* A significant elevation in the uptake of arginine by the brain follow the different doses of prolactin has been detected ($P < 0.001$).

C. <u>In Virgin</u>:

Table (27) revealed the following:

* While the smallest dose of prolactin (10 µg) did not affect the galactose uptake by the brain, the other higher doses (59, 144, 350 µg) in contrast, resulted in significant droping of it.

* All tested doses of prolactin induced a significant decrease in the brain uptake of valine.

* Arginine uptake showed sever and significant droping following the i.p. application of different doses of prolactin ($P < 0.001$).

Table (25)

Brain uptake of C^{14}-Galactose, C^{14}-Valine and C^{14}-Arginine (mg/gm. tissue) in immature male mice 24 hrs following the intraperitoneal administeration of different doses of prolactin.

	Doses of prolactin (µg/mice)				
	Control	**10 µg**	**59 µg**	**144 µg**	**350 µg**
Galactose-C^{14}	7.32 ± 0.12	0.97^{***} ± 0.05	2.2^{***} ± 0.23	4.8^{***} ± 0.35	5.57^{***} ± 0.21
Valine-C^{14}	2.3 ± 0.14	1.08^{***} ± 0.05	1.23^{**} ± 0.22	1.1^{***} ± 0.05	1.06^{***} ± 0.06
Arginine-C^{14}	1.48 ± 0.03	0.54^{***} ± 0.05	4.6^{***} ± 0.39	5.2^{***} ± 0.45	1.3 ± 0.15

. The values represent the mean of 12 animals ± S.E.

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$

Table (26)

Brain uptake of C^{14}-Galactose, C^{14}-Valine and C^{14}-Arginine (mg/gm. tissue) in immature female mice 24 hrs following the intraperitoneal administeration of different doses of prolactin.

	Doses of prolactin (µg/mice)				
	Control	10 µg	59 µg	144 µg	350 µg
Galactose-C^{14}	9.2 ± 0.38	*5.01 ± 1.03	**22.6 ± 2.99	**18.4 ± 1.9	**6.54 ± 0.44
Valine-C^{14}	2.05 ± 0.06	***0.98 ± 0.06	***0.8 ± 0.04	***0.8 ± 0.02	***0.5 ± 0.06
Arginine-C^{14}	1.18 ± 0.04	***6.4 ± 0.19	***4.7 ± 0.39	***3.2 ± 0.24	***3.1 ± 0.21

. The values represent the mean of 12 animals ± S.E.

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$

Table (27)

Brain uptake of C^{14}-Galactose, C^{14}-Valine and C^{14}-Arginine (mg/gm. tissue) in virgine mice 24 hrs following the intraperitoneal administeration of different doses of prolactin.

	Doses of prolactin (µg/mice)				
	Control	**10 µ g**	**59 µ g**	**144 µ g**	**350 µg**
Galactose-C^{14}	1.5 ± 0.12	1.6 ± 0.04	***0.44 ± 0.05	***0.5 ± 0.07	**0.63± 0.15
Valine-C^{14}	1.3 ± 0.10	***0.74 ± 0.09	**0.66 ± 0.13	***0.5 ± 0.05	***0.63± 0.07
Arginine-C^{14}	1.27 ± 0.03	***0.35 ± 0.04	***0.60 ± 0.03	***0.72 ± 0.03	***0.85± 0.04

. The values represent the mean of 12 animals ± S.E.

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$

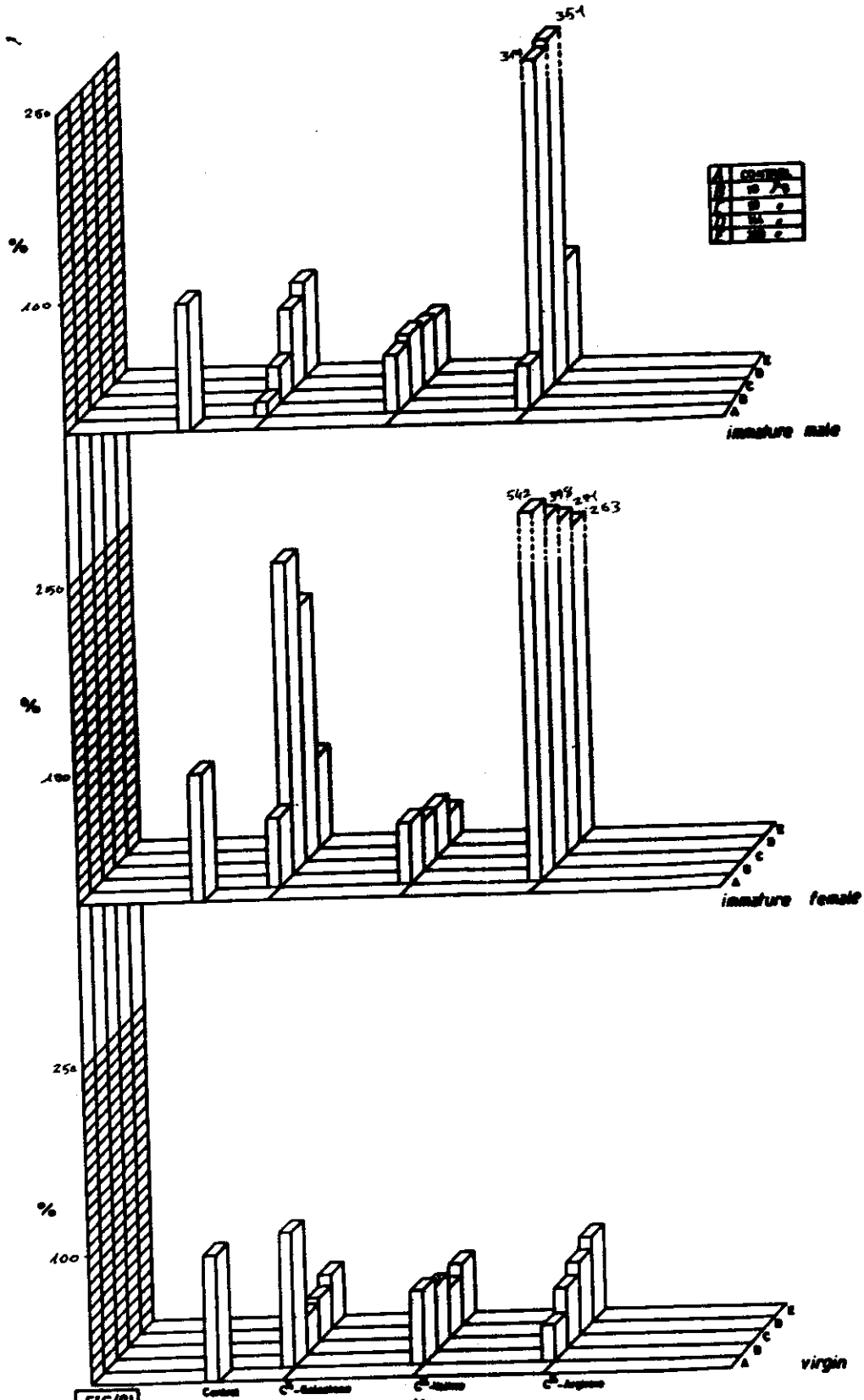


FIG (9)

Brain uptake of ^{14}C-Galactose ^{14}C-Valine and ^{14}C-Arginine in immature male and female mices as will virgin 24 hrs. following i.p administeration of different doses (10, 59, 144, 350 µg) of prolactin.