# RESULTS

# ANALYSIS OF THE RESULTS

The results of the present study were represented in Tables 2-31 and Figs. 11-24.

Table 2 shows clinical and laboratory data of the normal control group. The mean value of serum laminin was 1.43±0.15 U/ml and the range was 1.2-1.7 U/ml. The mean value of serum PIII NP was 4.16±0.71 μg/l and the range was 3.1-5.2 μg/l. The mean value of plasma fibronectin was 35.2±3.9 mg/dl and its range was 25-41 mg/dl.

Clinical and laboratory data of IDDM patients with normal fundus were represented in Table 3. The mean value of serum laminin was 2.3±0.4 U/ml, its range was 1.8-3.1 U/ml. The mean value of serum PIII NP was 6.6±2.4 μg/l, the range was 4.2-12 μg/l. The mean value of plasma FN was 43.2±8.2 mg/dl and the range was 29-56.5 mg/dl.

Clinical and laboratory data of IDDM patients with diabetic retinopathy were represented in Table 4. The mean value of serum laminin was 2.1±0.3 U/ml and the range was 1.5-2.5 U/ml. The mean value of serum PIII NP was 7.4±2.3 μg/l and the range was 4.2-13.0 μg/l. The mean value of plasma FN was 40.7±8.3 mg/dl and the range was 25.54 mg/dl.

Table 6 shows clinical and laboratory data of NIDDM patients with normal fundus. The mean value of serum laminin was 1.9±0.4 U/ml and the range was 1.4-2.8 U/ml. The mean value of serum PIII NP was

5.3±1.8 μg/l and the range was 3.4-10 μg/l. The mean value of plasma FN was 41.3±6.7 mg/dl and the range was 28-52 mg/dl.

Table 7 shows clinical and laboratory data of NIDDM patients with diabetic retinopathy. In this group, the mean value of serum laminin was 2.1±0.6 U/ml, the range was 1.4-3.8 U/ml. The mean value of serum PIII NP was 6.2±1.5 μg/l, its range was 4.2-10 μg/l. The mean value of plasma FN was 41.8±6.7 mg/dl and the range was 34-56 mg/dl.

A significant difference was encountered in serum fructosamine between IDDM patients and the normal control group at $P<0.001$ and between NIDDM patients and the normal control group at $P<0.05$ (Table 9). On the other hand, no significant difference was found in serum fructosamine neither between IDDM patients with normal fundus and IDDM patients with diabetic retinopathy ($P>0.05$) nor between NIDDM patients with normal fundus and the NIDDM patients with diabetic retinopathy ($P>0.05$) (Table 10).

The mean values of serum laminin, serum PIIINP and plasma FN in diabetics (IDDM and NIDDM) and the normal control group were shown in Table 11. In normal control group, the mean value of serum laminin was 1.43±0.2 U/ml, the mean value of serum PIII NP was 4.16±0.7 μg/l and the mean value of plasma FN was 35.15±3.9 mg/dl.

In diabetic patients, the mean value of serum laminin was 2.09±0.44 U/ml, the mean value of serum PIII NP was 6.39±2.1 μg/l and the mean value of plasma FN was 41.75±7.4 mg/dl. There were

significant differences in serum laminin, serum PIII NP and plasma FN between samples of the two groups at $P<0.001$.

Table 12 and Fig. 11 show the mean values of serum laminin, serum PIII NP and plasma FN in IDDM patients (with and without retinopathy) and in normal control group.

In normal control group, the mean value of serum laminin was $1.43\pm0.2$ U/ml, that of serum of PIII NP was $4.16\pm0.7$ $\mu$g/l and that of plasma FN was $35.15\pm3.9$ mg/dl.

In IDDM patients, the mean value of serum laminin was $2.16\pm0.3$ U/ml, the mean value of serum PIII NP was $7.02\pm2.3$ $\mu$g/l and that of plasma FN was $41.4\pm8.2$ mg/dl.

There were significant differences in the means of serum laminin, serum PIII NP and plasma FN between the two groups at $P<0.001$.

The mean values, SD, t and P values of serum laminin, serum PIII NP and plasma FN in NIDDM patients (with and without retinopathy) and in normal control group were represented in Table 13 and Fig. 11.

In NIDDM patients, the mean value of serum laminin was $2.02\pm0.5$ U/ml, the mean value of serum PIII NP was $5.78\pm1.7$ $\mu$g/l and the mean value of plasma FN was $41.55\pm6.6$ mg/dl. There were significant differences in serum laminin, serum PIII NP and plasma FN between the samples of the two groups at $P<0.001$.

Table 14 shows the mean values of serum laminin, serum PIII NP and plasma FN in IDDM and NIDDM patients.

In IDDM patients, the mean value of serum laminin was 2.14±0.4 U/ml, the mean value of serum PIII NP was 7.02±2.3 μg/l and the mean value of plasma FN was 41.95±8.2 mg/dl.

In NIDDM patients, the mean value of serum laminin was 2.02±0.5 U/ml, the mean value of serum PIII NP was 5.78±1.7 μg/l and that of plasma FN was 41.55±6.6 mg/dl.

Serum PIII NP was significantly higher in IDDM patients than in NIDDM patients, while no significant differences in serum laminin and plasma FN were present between the two groups.

The effect of duration of diabetes mellitus on the means of three parameters was represented in Table 15 and Fig. 12.

In diabetics with duration < 10 years, the mean value of serum laminin was 2±0.45 U/ml, the mean value of serum PIII NP was 5.71±2.18 μg/l and the mean value of plasma FN was 42.4±7.4 mg/dl.

In diabetics with duration > 10 years, the mean value of serum laminin was 2.15±0.43 U/ml, the mean value of serum PIII NP was 6.86±1.9 μg/l and the mean value of plasma FN was 41.31±7.4 mg/dl.

Serum PIII NP was significantly higher in diabetics with duration > 10 years than those with duration < 10 years, whereas no significant differences were present in the means of serum laminin and plasma FN between the two groups.

A comparison of the mean values of the three parameters between controlled and uncontrolled diabetic patients was represented in Table 17

(controlled diabetics: serum fructosamine ≤ 3 mmol/l and uncontrolled diabetics: serum fructosamine > 3 mmol/l.

In controlled group, the mean value of serum laminin was 2.1±0.51 U/ml, the mean value of serum PIII NP was 5.96±1.48 μg/l and the mean value of plasma FN was 42.58±8.13 mg/dl.

In uncontrolled group, the mean value of serum laminin was 2.08±0.39 U/ml, the mean value of serum PIII NP was 6.73±2.44 μg/l and the mean value of plasma FN was 41. 12±6.82 mg/dl.

There were no significant differences in the mean value of the three parameters between the two groups ($P>0.05$).

The mean values of the three parameters in NIDDM patients with normal fundus in comparison with those having diabetic retinopathy were represented in Table 18 and Fig. 13.

In NIDDM patients with normal fundus the mean value of serum laminin was 1.89±0.39 U/ml, the mean value of serum PIII NP was 5.26±1.77 μg/l and the mean value of plasma FN was 41.30±6.7 mg/dl.

In NIDDM patients with diabetic retinopathy, the mean value of serum laminin was 2.15±0.61 U/ml, the mean value of serum PIII NP was 6.29±1.51 and the mean value of plasma FN was 41.8±6.69 mg/dl.

Serum PIII NP was significantly higher in NIDDM patients with diabetic retinopathy than in those with normal fundus ($P<0.05$), while no significant differences were found neither in the level of serum laminin nor in plasma FN ($P>0.05$).

Table 19 and Fig. 14 show the mean values of the three parameters in IDDM patients with normal fundus in comparison with those having diabetic retinopathy.

In IDDM patients with normal fundus, the mean value of serum laminin was 2.27±0.37 U/ml, the mean value of serum PIII NP was 6.66±2.37 μg/l and the mean value of plasma FN was 43.17±8.19 mg/dl.

In IDDM patients with diabetic retinopathy the mean value of serum laminin was 2.19±0.42 U/ml, the mean value of serum PIII NP was 7.38±2.25 μg/l and the mean value of plasma FN was 40.73±8.34 mg/dl.

No significant differences were present in the mean values of the three parameters between the two groups ($P>0.05$).

A comparison of serum laminin in different grades of diabetic retinopathy was shown in Table 20 and Fig. 15.

In diabetics with normal fundus, the mean value of serum laminin was 2.08 U/ml, in diabetics with mild to moderate retinopathy, it was 1.89 U/ml while in diabetics with severe retinopathy, it was 2.19 U/ml.

No significant difference was present in the mean level of serum laminin in various grades of diabetic retinopathy ($P>0.05$).

No significant difference in serum mean level of PIII NP was present in various grades of diabetic retinopathy (Table 21 and Fig. 5). In diabetics with normal fundus, the mean value of serum PIII NP was

5.96 μg/l, in diabetics with mild to moderate retinopathy, it was 5.83 μg/l, while in diabetics with severe retinopathy, it was 7.27 μg/l.

In addition, Table 22 and Fig. 16 show no significant difference in the mean level of serum PIII NP between diabetics with normal fundus and those with mild to moderate retinopathy.

Table 23 and Fig. 16 show the mean values of serum PIII NP in diabetics with normal fundus, those with mild to moderate grade (as a single group) and those with severe retinopathy.

In the first group, the mean value of serum of PIII NP was $5.93 \pm 2.04$ μg/l while in the second group it was $7.27 \pm 1.98$ μg/l. There was a significant difference in the level of serum PIII NP between the two groups at $P < 0.001$.

A comparison of plasma FN level in different grades of diabetic retinopathy was shown in Table 24 and Fig. 15. In diabetics with normal fundus, the mean value of plasma FN was 42.23 mg/dl. In diabetics with mild to moderate grades, it was 41.56 mg/dl while in patients with severe grade it was 41.14 mg/dl. No significant difference in the level of plasma FN was present in various grades of diabetic retinopathy ($P > 0.05$).

Table 25 shows the mean values of the three parameters in diabetics without proteinuria and those with proteinuria.

In diabetics without proteinuria, the mean value of serum laminin was $1.94 \pm 0.41$ U/ml, the mean value of serum PIII NP was $6.38 \pm 1.12$ μg/l and that of plasma FN was $35 \pm 6.98$ mg/dl.

In diabetics with proteinuria, the mean value of serum laminin was $2.47 \pm 0.28$ U/ml, that of PIII NP was $8.97 \pm 1.78$ $\mu$g/l while plasma FN was $42.77 \pm 8.45$ mg/dl.

There were significant differences in serum laminin and serum PIII NP levels between the two groups at $P<0.001$, whereas, no significant difference was found in plasma FN level ($P>0.05$).

The mean values of serum laminin and serum PIII NP in diabetics without proteinuria and those with mild proteinuria were represented in Table 26. There were significant differences in serum levels of the two parameters between the two groups at $P<0.001$.

Table 27 shows the mean values of serum laminin and serum PIII NP in diabetics with mild proteinuria and those with moderate proteinuria.

In diabetic patients with mild proteinuria, the mean value of serum laminin was $2.41 \pm 0.23$ U/ml and the mean value of serum PIII NP was $8.21 \pm 1.19$ $\mu$g.l.

In diabetics with moderate proteinuria, the mean value of serum laminin was $2.54 \pm 0.34$ U/ml and the mean value of serum PIII NP was $10.06 \pm 2.0$ $\mu$g/l.

There was a significant difference in serum PIII NP level between the two groups at $P<0.05$ while no significant difference was found in serum laminin level between the two groups ($P>0.05$).

A comparison of plasma FN level in different grades of proteinuria was shown in Table 28. No significant difference was present in the level of plasma FN in various grades of proteinuria ($P>0.05$).

The correlations of different clinical and laboratory findings in diabetic (IDDM and NIDDM) patients were shown in Table 29 and Figs. 19 & 20.

Positive significant correlations were found between: serum PIII NP and serum laminin (Fig, 19-A), serum PIII NP and proteinuria (Fig. 19-B), serum PIII NP and fundus (Fig. 19-C), serum PIII NP and duration of diabetes (Fig. 19-D), serum laminin and proteinuria (Fig. 20-A) and between duration of diabetes and fundus (Fig. 20-B).

Table 30 and Fig. 21 show the correlation of different clinical and laboratory findings in diabetic (IDDM and NIDDM) patients with normal fundus.

Positive significant correlations were found between: serum PIII NP and serum laminin (Fig. 21-A), serum PIII NP and proteinuria (Fig. 21-B) and between serum laminin and proteinuria (Fig. 21-C).

The correlations of different clinical and laboratory findings in diabetic (IDDM and NIDDM) patients with diabetic retinopathy are shown in Table 31 and Fig. 22.

Positive significant correlations were found between: serum PIII NP and serum laminin (Fig. 22-A), serum PIII NP and proteinuria (Fig. 22-B), serum PIII NP and fundus (Fig. 22-C) and serum PIII NP and duration of diabetes (Fig. 22-D).

| Serial No. | Age (years) | Sex | Fundus | Urinary protein (mg/dl) | Urinary glucose (fasting) | F.B.G. (mg/dl) | P.P (mg/dl) | Fructos-amine (mmol/l) | Serum urea (mg/dl) | Serum creatinine (mg/dl) | Serum laminin (U/ml) | Serum PIII NP (μg/l) | Plasma FN (mg/dl) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 60 | F | N | Nil | Nil | 107 | 110 | 2.0 | 27 | 0.9 | 1.2 | 5.0 | 40 |
| 2 | 60 | F | N | Nil | Nil | 98 | 114 | 2.2 | 22 | 0.8 | 1.6 | 3.6 | 40 |
| 3 | 65 | F | N | Nil | Nil | 92 | 117 | | 25 | 0.8 | 1.6 | 5.1 | 41 |
| 4 | 60 | F | N | Nil | Nil | 89 | 115 | | 14 | 0.6 | 1.7 | 5.2 | 38 |
| 5 | 55 | F | N | Nil | Nil | 80 | 95 | | 30 | 1.0 | 1.5 | 3.2 | 37 |
| 6 | 50 | F | N | Nil | Nil | 86 | 90 | | 36 | 0.9 | 1.5 | 3.1 | 33 |
| 7 | 35 | F | N | Nil | Nil | 88 | 96 | | 20 | 0.8 | 1.4 | 4.0 | 31 |
| 8 | 40 | F | N | Nil | Nil | 93 | 97 | | 23 | 0.7 | 1.4 | 3.2 | 30 |
| 9 | 40 | F | N | Nil | Nil | 75 | 80 | 2.0 | 30 | 0.7 | 1.4 | 3.4 | 36 |
| 10 | 35 | F | N | Nil | Nil | 85 | 90 | | 26 | 1.1 | 1.2 | 4.0 | 32 |
| 11 | 38 | F | N | Nil | Nil | 78 | 96 | | 29 | 0.6 | 1.4 | 4.0 | 31 |
| 12 | 34 | F | N | Nil | Nil | 80 | 85 | 2.1 | 22 | 0.8 | 1.3 | 3.8 | 35 |
| 13 | 40 | F | N | Nil | Nil | 98 | 103 | 2.1 | 17 | 0.5 | 1.5 | 4.0 | 39 |
| 14 | 41 | F | N | Nil | Nil | 92 | 103 | | 28 | 0.9 | 1.2 | 4.6 | 36 |
| 15 | 40 | M | N | Nil | Nil | 92 | 97 | | 25 | 0.8 | 1.5 | 3.4 | 37 |
| 16 | 26 | M | N | Nil | Nil | 86 | 104 | | 24 | 0.6 | 1.6 | 5.0 | 25 |
| 17 | 40 | M | N | Nil | Nil | 95 | 120 | | 25 | 0.7 | 1.2 | 5.2 | 34 |
| 18 | 35 | M | N | Nil | Nil | 85 | 90 | | 33 | 1.2 | 1.4 | 4.6 | 35 |
| 19 | 36 | M | N | Nil | Nil | 78 | 84 | | 35 | 1.1 | 1.5 | 4.4 | 36 |
| 20 | 34 | M | N | Nil | Nil | 82 | 95 | | 24 | 0.9 | 1.4 | 4.3 | 37 |
| Range | 26-65 | | | | | 75-107 | 80-120 | | 14-36 | 0.5-1.2 | 1.2-1.7 | 3.1-5.2 | 25-41 |
| Mean | 43.2 | | | | | 87.95 | 99.05 | | 25.8 | 0.82 | 1.43 | 4.16 | 35.2 |
| S.D. | 11.02 | | | | | 8.09 | 11.49 | | 5.56 | 0.19 | 0.15 | 0.71 | 3.9 |

F = female; M = male; F.B.G. = fasting blood glucose; P.P. = postprandial blood glucose.

Table 3. Clinical and laboratory data of IDDM patients with normal fundus.

| Serial No. | Age (years) | Sex | Duration of diabetes (years) | Fundus | Urinary protein (mg/dl) | Urinary glucose (fasting) | F.B.G. (mg/dl) | P.P (mg/dl) | Fructos-amine (mmol/l) | Serum urea (mg/dl) | Serum creatinine (mg/dl) | Serum laminin (U/ml) | Serum PIII NP (μg/l) | Plasma FN (mg/dl) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 45 | F | 10 | N | Nil | + + + | 261 | 270 | 6.0 | 26 | 1.0 | 1.8 | 4.4 | 48.5 |
| 2 | 42 | F | 7 | N | 100 | Nil | 131 | 160 | 3.1 | 33 | 1.1 | 3.1 | 12.0 | 44.5 |
| 3 | 50 | F | 13 | N | Nil | + + + | 415 | 315 | 3.4 | 36 | 1.2 | 2.2 | 6.0 | 43.5 |
| 4 | 37 | M | 8 | N | 30 | Nil | 202 | 245 | 3.4 | 28 | 0.7 | 2.8 | 11.0 | 48.0 |
| 5 | 35 | M | 5 | N | Nil | Nil | 88 | 110 | 1.8 | 23 | 0.8 | 2.2 | 6.6 | 29 |
| 6 | 40 | M | 12 | N | Nil | Nil | 220 | 304 | 2.2 | 30 | 1.1 | 2.1 | 5.0 | 44 |
| 7 | 42 | F | 8 | N | Nil | Nil | 140 | 194 | 3.3 | 34 | 0.9 | 2.2 | 4.5 | 38 |
| 8 | 44 | M | 12 | N | Nil | + + + | 320 | 453 | 3.6 | 27 | 1.0 | 2.0 | 4.6 | 40 |
| 9 | 30 | F | 6 | N | 30 | + + + | 238 | 253 | 3.8 | 40 | 1.2 | 2.5 | 8.0 | 56 |
| 10 | 34 | M | 5 | N | Nil | Nil | 122 | 250 | 2.8 | 32 | 1.3 | 2.0 | 6.0 | 40 |
| 11 | 42 | F | 5 | N | Nil | Nil | 130 | 210 | 3.8 | 27 | 1.1 | 1.9 | 4.2 | 56 |
| 12 | 45 | F | 10 | N | 30 | Nil | 104 | 170 | 1.9 | 36 | 1.3 | 2.5 | 7.8 | 30 |
| 13 | 39 | F | 6 | N | 100 | + | 208 | 250 | 2.1 | 28 | 0.7 | 2.7 | 7.9 | 50.5 |
| 14 | 41 | F | 8 | N | 30 | + + + | 410 | 438 | 4.9 | 35 | 1.2 | 2.2 | 6.9 | 35 |
| 15 | 36 | M | 6 | N | Nil | Nil | 150 | 210 | 2.3 | 34 | 1.1 | 1.9 | 5.0 | 44 |
| Range | 30-50 | | | | | | 88-415 | 110-453 | 1.8-6 | 23-40 | 0.7-1.3 | 1.8-3.1 | 4.2-12 | 29-56 |
| Mean | 40.3 | | | | | | 209.3 | 255.5 | 3.2 | 31.3 | 1.0 | 2.3 | 6.6 | 43.2 |
| S.D. | 5.1 | | | | | | 104.4 | 94.2 | 1.2 | 4.7 | 0.2 | 0.4 | 2.4 | 8.2 |

F = female; M = male; F.B.G. = fasting blood glucose; P.P. = postprandial blood glucose.

Table 4. Clinical and laboratory data of IDDM patients with diabetic retinopathy.

| Serial No. | Age (years) | Sex | Duration of diabetes (years) | Fundus | Urinary protein (mg/dl) | Urinary glucose (fasting) | F.B.G. (mg/dl) | P.P (mg/dl) | Fructos-amine (mmol/l) | Serum urea (mg/dl) | Serum creatinine (mg/dl) | Serum laminin (U/ml) | Serum PIII NP (μg/l) | Plasma FN (mg/dl) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 55 | F | 15 | Bil. Pro. D. Ret. | 500 | + | 182 | 215 | 3.3 | 45 | 1.2 | 2.2 | 13.0 | 43.5 |
| 2 | 50 | F | 14 | Bil. Pro. D. Ret. | 30 | + + + | 359 | 467 | 4.7 | 35 | 1.0 | 2.3 | 7.2 | 48 |
| 3 | 60 | F | 20 | Bil. Pro. D. Ret. | 30 | Nil | 196 | 262 | 2.6 | 36 | 0.9 | 2.2 | 7.1 | 40 |
| 4 | 46 | M | 20 | Bil. Pro. D. Ret. | Nil | + + + | 231 | 263 | 5.2 | 27 | 0.8 | 1.9 | 8.2 | 35 |
| 5 | 41 | M | 13 | Early Bil. Back. D. Ret. | Nil | + | 203 | 265 | 4.6 | 33 | 1.1 | 3.5 | 6.2 | 34 |
| 6 | 50 | F | 20 | Bil. Pro. D. Ret. | Nil | Nil | 91 | 124 | 2.1 | 25 | 0.7 | 2.2 | 7.4 | 40 |
| 7 | 57 | F | 20 | Bil. Pro. D. Ret. | Nil | Nil | 158 | 236 | 3.3 | 42 | 1.4 | 1.9 | 5.0 | 48 |
| 8 | 50 | F | 15 | Bil. Pro. D. Ret. | Nil | + + | 244 | 300 | 2.9 | 19 | 1.0 | 1.8 | 7.4 | 52 |
| 9 | 55 | F | 15 | Bil. Prepro. D. Ret. | Nil | Nil | 176 | 180 | 2.9 | 30 | 1.1 | 1.9 | 4.9 | 54 |
| 10 | 60 | F | 22 | Bil. Pro. D. Ret. | 100 | + | 116 | 193 | 3.5 | 54 | 1.5 | 2.2 | 10.1 | 49 |
| 11 | 49 | F | 14 | Late Bil. Back. D. Ret. | Nil | Nil | 207 | 447 | 2.0 | 37 | 0.9 | 1.9 | 4.2 | 38 |
| 12 | 52 | M | 16 | Late Bil. Back. D. Ret. | 30 | + + + | 344 | 375 | 4.0 | 26 | 1.2 | 2.0 | 9.0 | 40 |
| 13 | 35 | F | 10 | Bil. Pro. D. Ret. | Nil | Nil | 95 | 143 | 3.1 | 28 | 0.1 | 1.9 | 5.4 | 25 |
| 14 | 60 | M | 23 | Bil. Pro. D. Ret. | 30 | Nil | 111 | 196 | 2.1 | 38 | 1.3 | 2.5 | 8.5 | 30 |
| 15 | 59 | M | 22 | Bil. Pro. D. Ret. | Nil | Nil | 120 | 162 | 5.0 | 45 | 1.2 | 2.4 | 7.1 | 34.5 |
| Range | 35-60 | | | | | | 91-359 | 124-467 | 2-5.2 | 19-54 | 0.7-1.5 | 1.5-2.5 | 4.2-13.0 | 25-54 |
| Mean | 51.9 | | | | | | 188.9 | 255.2 | 3.4 | 34.7 | 1.1 | 2.19 | 7.4 | 40.7 |
| S.D. | 7.3 | | | | | | 81.9 | 104.1 | 1.07 | 9.2 | 0.2 | 0.42 | 2.3 | 8.3 |

F = female; M = male; F.B.G. = fasting blood glucose; P.P. = postprandial blood glucose;
Bil. Pro. D. Ret. = bilateral proliferative diabetic retinopathy; Bil. Prepro. D. Ret. = bilateral preproliferative diabetic retinopathy; Bil. Back. D. Ret. = bilateral background diabetic retinopathy.

Table 5. Descriptive statistics of clinical and laboratory data of IDDM patients (with normal fundus and with diabetic retinopathy).

| n = 30 | Age (years) | Duration of diabetes (years) | F.B.G. (mg/dl) | P.P (mg/dl) | Serum fructosamine (mmol/l) | Serum urea (mg/dl) | Serum creatinine (mg/dl) | Serum laminin (U/ml) | Serum PIII NP (µg/l) | Plasma FN (mg/dl) |
|---|---|---|---|---|---|---|---|---|---|---|
| Range | 30-60 | 5-23 | 88-415 | 110-467 | 1.8-6.0 | 19-54 | 0.7-1.5 | 1.5-3.1 | 4.2-13 | 25-56.5 |
| Mean | 46.0 | 12.7 | 199.1 | 255.3 | 3.3 | 33 | 1.1 | 2.2 | 7 | 41.9 |
| S.D. | 8.6 | 5.7 | 92.8 | 97.5 | 1.1 | 07.4 | 0.2 | 0.3 | 2.3 | 8.2 |

F.B.G. = fasting blood glucose; P.P. = postprandial blood glucose.

| Serial No. | Age (years) | Sex | Duration of diabetes (years) | Fundus | Urinary protein (mg/dl) | Urinary glucose (fasting) | F.B.G. (mg/dl) | P.P (mg/dl) | Fructos-amine (mmol/l) | Serum urea (mg/dl) | Serum creatinine (mg/dl) | Serum laminin (U/ml) | Serum PIII NP (μg/l) | Plasma FN (mg/dl) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 60 | F | 15 | Bil. Pro. D. Ret. | Nil | + + + | 259 | 348 | 3.0 | 55 | 1.6 | 3.8 | 7.0 | 53 |
| 2 | 64 | M | 19 | Bil. Pro. D. Ret. | 30 | + | 217 | 355 | 4.4 | 25 | 1.0 | 2.6 | 8.4 | 40 |
| 3 | 60 | F | 10 | Early Bil. Back. D. Ret. | Nil | + | 243 | 392 | 4.1 | 31 | 0.9 | 1.8 | 4.6 | 39 |
| 4 | 66 | M | 18 | Bil. Pro. D. Ret. | Nil | Trace | 190 | 250 | 3.1 | 28 | 0.8 | 2.5 | 7.0 | 37 |
| 5 | 60 | M | 9 | Late Bil. Back. D. Ret. | Nil | Trace | 152 | 268 | 3.5 | 24 | 0.7 | 1.4 | 4.2 | 35 |
| 6 | 58 | F | 17 | Bil. prepro. D. Ret. | Nil | + + + | 406 | 393 | 4.2 | 25 | 1.1 | 2.2 | 6.2 | 40 |
| 7 | 60 | F | 12 | Early Bil. Back. D. Ret. | 100 | + | 210 | 183 | 2.1 | 43 | 1.3 | 2.5 | 7.4 | 56 |
| 8 | 60 | F | 22 | Bil. Pro. D. Ret. | Nil | + + + | 359 | 511 | 3.8 | 29 | 0.9 | 2.0 | 5.3 | 45 |
| 9 | 56 | F | 15 | Bil. Pro. D. Ret. | 100 | + + + | 400 | 544 | 4.5 | 48 | 1.4 | 2.3 | 10.0 | 38 |
| 10 | 65 | M | 19 | Bil. Pro. D. Ret. | Nil | Nil | 195 | 315 | 2.0 | 30 | 0.7 | 1.7 | 6.2 | 34 |
| 11 | 67 | F | 20 | Bil. Pro. D. Ret. | Nil | + + + | 234 | 395 | 4.2 | 28 | 0.8 | 1.8 | 5.2 | 39 |
| 12 | 56 | F | 10 | Bil. Back. D. Ret. | Nil | Nil | 183 | 214 | 2.4 | 27 | 0.9 | 1.5 | 5.0 | 52 |
| 13 | 64 | M | 17 | Bil. Pro. D. Ret. | Nil | + + | 237 | 309 | 4.4 | 26 | 0.1 | 1.7 | 5.9 | 40 |
| 14 | 55 | F | 13 | Late Bil. Back. D. Ret. | Nil | Nil | 105 | 123 | 1.6 | 35 | 1.1 | 1.8 | 5.8 | 38 |
| 15 | 60 | F | 10 | Bil. Pro. D. Ret. | Nil | + | 210 | 270 | 2.2 | 40 | 1.2 | 2.6 | 6.2 | 41 |
| Range | 55-67 | | | | | | 105-406 | 123-544 | 1.6-4.5 | 24-55 | 0.7-1.6 | 1.4-3.8 | 4.2-10 | 34-56 |
| Mean | 60.7 | | | | | | 240 | 318 | 3.3 | 32.9 | 1.0 | 2.1 | 6.2 | 41.8 |
| S.D. | 3.7 | | | | | | 86.1 | 164.6 | 1.02 | 9.3 | 0.3 | 0.6 | 1.5 | 6.7 |

F = female; M = male; F.B.G. = fasting blood glucose; P.P. = postprandial blood glucose;
Bil. Pro. D. Ret. = bilateral proliferative diabetic retinopathy; Bil. Prepro. D. Ret. = bilateral preproliferative diabetic retinopathy; Bil. Back. D. Ret. = bilateral background diabetic retinopathy.

Table 8. Descriptive statistics of clinical and laboratory data of NIDDM patients (with normal fundus and with diabetic retinopathy).

| n = 30 | Age (years) | Duration of diabetes (years) | F.B.G. (mg/dl) | P.P (mg/dl) | Serum fructosamine (mmol/l) | Serum urea (mg/dl) | Serum creatinine (mg/dl) | Serum laminin (U/ml) | Serum PIII NP (µg/l) | Plasma FN (mg/dl) |
|---|---|---|---|---|---|---|---|---|---|---|
| Range | 45-68 | 5-22 | 84-450 | 120-544 | 1.6-5.3 | 19-55 | 0.7-1.6 | 1.4-3.8 | 3.4-10 | 28-56 |
| Mean | 59.5 | 10.9 | 218 | 297.3 | 3.2 | 30.1 | 1.0 | 2.0 | 5.8 | 41.6 |
| S.D. | 5.5 | 5.3 | 95.5 | 147.1 | 1.0 | 8.0 | 0.2 | 0.5 | 1.7 | 6.6 |

F.B.G. = fasting blood glucose; P.P. = postprandial blood glucose.

Table 9. Comparison between mean values of serum fructosamine levels in IDDM patients and normal controls and comparison between mean values of serum fructosamine levels in NIDDM patients and normal controls.

| | | | | |
|---|---|---|---|---|
| Fructosamine (mmol/l) (mean ± SD) | IDDM patients (n = 30) | Normal controls (n = 5) | t | P |
| | 3.32 ± 1.09 | 2.08 ± 0.08 | 2.51 | <0.001** |
| | NIDDM patients (n = 30) | Normal controls (n = 5) | t | P |
| | 3.18 ± 1.02 | 2.08 ± 0.08 | 2.37 | <0.05* |

* = significant ($P<0.05$).
** = highly significant ($P<0.001$).

Table 10. Comparison between mean values of serum fructosamine levels in IDDM patients with normal fundus and those with diabetic retinopathy and comparison between mean values of serum fructosamine levels in NIDDM patients with normal fundus and those with diabetic retinopathy.

| | | | | |
|---|---|---|---|---|
| Fructosamine (mmol/l) (mean ± SD) | IDDM patients with normal fundus (n = 15) | IDDM patients with diabetic retinopathy (n = 15) | t | P |
| | 3.23 ± 1.15 | 3.42 ±1.07 | −0.48 | >0.05 |
| | NIDDM patients with normal fundus (n = 15) | NIDDM patients with diabetic retinopathy (n = 15) | t | P |
| | 3.05 ± 1.04 | 3.30 ± 1.02 | −0.66 | >0.05 |

Table 11. Comparison between mean values (± S.D.) of serum laminin, serum PIII NP and plasma fibronectin levels of all diabetic patients and normal controls.

| | Diabetic patients (n = 60) | Normal controls (n = 20) | t | P |
|---|---|---|---|---|
| Laminin (U/ml) | 2.09 ± 0.44 | 1.43 ± 0.2 | 6.59 | <0.001** |
| PIII NP (μg/l) | 6.39 ± 2.1 | 4.16 ± 0.7 | 4.66 | <0.001** |
| Fibronectin (mg/dl) | 41.75 ± 7.4 | 35.15 ± 3.9 | 3.80 | <0.001** |

** = highly significant (P<0.001).

Table 12. Comparison between mean values (± S.D.) of serum laminin, serum PIII NP and plasma fibronectin levels in IDDM patients and normal controls.

| | IDDM patients (n = 30) | Normal controls (n = 20) | t | P |
|---|---|---|---|---|
| Laminin (U/ml) | 2.16 ± 0.3 | 1.43 ± 0.2 | 9.23 | <0.001** |
| PIII NP (μg/l) | 7.02 ± 2.3 | 4.16 ± 0.7 | 5.39 | <0.001** |
| Fibronectin (mg/dl) | 41.4 ± 8.2 | 35.15 ± 3.9 | 3.44 | <0.001* |

** = highly significant (P<0.001).

Table 13. Comparison between mean values (± S.D.) of serum laminin, serum PIII NP and plasma fibronectin levels in NIDDM patients and normal controls.

| | NIDDM patients (n = 30) | Normal controls (n = 20) | t | P |
|---|---|---|---|---|
| Laminin (U/ml) | 2.02 ± 0.5 | 1.43 ± 0.2 | 4.92 | <0.001** |
| PIII NP (μg/l) | 5.78 ± 1.7 | 4.16 ± 0.7 | 4.02 | <0.001** |
| Fibronectin (mg/dl) | 41.55 ± 6.6 | 35.15 ± 3.9 | 3.89 | <0.001** |

** = highly significant (P<0.001).

Table 14. Comparison between mean values (± S.D.) of serum laminin, serum PIII NP and plasma fibronectin levels in IDDM and NIDDM patients.

| | IDDM patients (n = 30) | NIDDM patients (n = 30) | t | P |
|---|---|---|---|---|
| Laminin (U/ml) | 2.14 ± 0.4 | 2.02 ± 0.5 | 1.10 | >0.05 |
| PIII NP (μg/l) | 7.02 ± 2.3 | 5.78 ± 1.7 | 2.38 | <0.05* |
| Fibronectin (mg/dl) | 41.95 ± 8.2 | 41.55 ± 6.6 | 0.21 | >0.05 |

* = significant (P<0.05).

Table 15. Comparison between mean values (± S.D.) of serum laminin, serum PIII NP and plasma fibronectin levels in diabetic (IDDM & NIDDM) patients with duration of diabetes less than 10 years and those with duration more than 10 years.

| | Diabetic patients with duration of diabetes < 10 years | Diabetic patients with duration of diabetes > 10 years | t | P |
|---|---|---|---|---|
| Laminin (U/ml) | 2.00 ± 0.45 | 2.15 ± 0.43 | −1.36 | >0.05 |
| PIII NP (μg/l) | 5.71 ± 2.18 | 6.86 ± 1.9 | −2.14 | <0.05* |
| Fibronectin (mg/dl) | 42.42 ± 7.41 | 41.31 ± 7.4 | 0.57 | >0.05 |

* = significant (P<0.05).

Table 16. The frequency and percentage ratio of some clinical and laboratory data.

| | Diabetic patients without retinopathy (n = 30) | | Diabetic patients with retinopathy (n = 30) | |
|---|---|---|---|---|
| | No. | % | No. | % |
| Serum PIII NP > 5.4 μg/l | 13 | 43 | 21 | 70 |
| Serum laminin > 1.6 U/ml | 25 | 83 | 27 | 90 |
| Plasma FN > 40 mg/dl | 16 | 53 | 11 | 37 |
| with proteinuria ≥ 30 mg/dl | 8 | 27 | 9 | 30 |
| Duration of diabetes > 10 years | 3 | 10 | 25 | 83 |
| Duration of diabetes < 10 years | 27 | 90 | 5 | 17 |

Table 17. Comparison between mean values (± S.D.) of serum laminin, serum PIII NP and plasma fibronectin levels in controlled diabetic patients (serum fructosamine ≤ 3 mmol/l) and uncontrolled diabetic patients (serum fructosamine > 3 mmol/l).

| | Controlled diabetics (n = 26) | Uncontrolled diabetics (n = 34) | t | P |
|---|---|---|---|---|
| Laminin (U/ml) | 2.10 ± 0.51 | 2.08 ± 0.39 | 0.21 | > 0.05 |
| PIII NP (μg/l) | 5.96 ± 1.48 | 6.73 ± 2.44 | −1.42 | > 0.05 |
| Fibronectin (mg/dl) | 42.58 ± 8.13 | 41.12 ± 6.82 | 0.76 | > 0.05 |

Table 18. Comparison between mean values (± S.D.) of serum laminin, serum PIII NP and plasma fibronectin levels in NIDDM patients with normal fundus with those with diabetic retinopathy.

| | NIDDM patients with normal fundus (n = 15) | NIDDM patients with diabetic retinopathy (n = 15) | t | P |
|---|---|---|---|---|
| Laminin (U/ml) | 1.89 ± 0.39 | 2.15 ± 0.61 | −1.39 | >0.05 |
| PIII NP (μg/l) | 5.26 ± 1.77 | 6.29 ± 1.51 | −1.72 | <0.05* |
| Fibronectin (mg/dl) | 41.30 ± 6.70 | 41.80 ± 6.69 | −0.20 | >0.05 |

* = significant (P<0.05)

Table 19. Comparison between mean values (± S.D.) of serum laminin, serum PIII NP and plasma fibronectin levels in IDDM patients with normal fundus with those with diabetic retinopathy.

| | IDDM patients with normal fundus (n = 15) | IDDM patients with diabetic retinopathy (n = 15) | t | P |
|---|---|---|---|---|
| Laminin (U/ml) | 2.27 ± 0.37 | 2.19 ± 0.42 | 0.59 | >0.05 |
| PIII NP (μg/l) | 6.66 ± 2.37 | 7.38 ± 2.25 | 0.85 | >0.05 |
| Fibronectin (mg/dl) | 43.17 ± 8.19 | 40.73 ± 8.34 | 0.80 | >0.05 |

Table 20. One-way ANOVA test for laminin in different grades of retinopathy in diabetic patients.

| Group | Number of cases | Laminin (U/ml) (mean) | F ratio | P |
|---|---|---|---|---|
| No retinopathy | 30 | 2.08 | 1.51 | 0.23 |
| Mild & moderate retinopathy | 9 | 1.89 | | |
| Severe retinopathy | 21 | 2.19 | | |

Table 21. One-way ANOVA test for PIII NP in different grades of retinopathy in diabetic patients.

| Group | Number of cases | PIII NP (μg/l) (mean) | F ratio | P |
|---|---|---|---|---|
| No retinopathy | 30 | 5.96 | 2.96 | 0.06 |
| Mild & moderate retinopathy | 9 | 5.83 | | |
| Severe retinopathy | 21 | 7.27 | | |

Table 22. Comparison between mean values (± S.D.) of serum PIII NP in non-retinopathic and retinopathic patients with mild to moderate grades of retinopathy.

| | Non-retinopathic diabetics (n = 30) | Retinopathic with mild to moderate retinopathy (n = 9) | t | P |
|---|---|---|---|---|
| PIII NP (μg/l) | 5.96 ± 2.17 | 5.83 ± 1.6 | 0.16 | 0.43 |

Table 23. Comparison between mean values (± S.D.) of serum PIII NP in diabetics with no retinopathy, mild and moderate retinopathy (as a single group) and diabetics having severe grade of retinopathy.

| | Non-retinopathics, mild to moderate retinopathics (n = 39) | Severe diabetic retinopathics (n = 21) | t | P |
|---|---|---|---|---|
| PIII NP (μg/l) | 5.93 ± 2.04 | 7.27 ± 1.98 | −2.45 | <0.001** |

** = highly significant (P<0.001).

Table 24. One-way ANOVA test for fibronectin in different grades of retinopathy in diabetic patients.

| Group | Number of cases | FN (mg/dl) (mean) | F ratio | P |
|---|---|---|---|---|
| No retinopathy | 30 | 42.23 | 0.13 | 0.87 |
| Mild & moderate retinopathy | 9 | 41.56 | | |
| Severe retinopathy | 21 | 41.14 | | |

Table 25. Comparison between mean values (± S.D.) of serum laminin, serum PIII NP and plasma fibronectin levels in IDDM and NIDDM patients with no proteinuria and those with proteinuria.

| | Diabetic patients without proteinuria (n = 43) | Diabetic patients with proteinuria (n = 17) | t | P |
|---|---|---|---|---|
| Laminin (U/ml) | 1.94 ± 0.41 | 2.47 ± 0.28 | −4.86 | <0.001** |
| PIII NP (μg/l) | 5.38 ± 1.12 | 8.97 ± 1.78 | −9.38 | <0.001** |
| Fibronectin (mg/dl) | 41.35 ± 6.98 | 42.77 ± 8.45 | −0.67 | >0.05 |

** = highly significant (P<0.001).

Table 26. Comparison between mean values (± S.D.) of serum laminin and serum PIII NP levels in IDDM and NIDDM patients without proteinuria and those with mild proteinuria.

| | Diabetic patients without proteinuria (n = 43) | Diabetic patients with mild proteinuria (n = 10) | t | P |
|---|---|---|---|---|
| Laminin (U/ml) | 1.94 ± 0.41 | 2.41 ± 0.23 | −3.50 | <0.001** |
| PIII NP (μg/l) | 5.38 ± 1.12 | 8.21 ± 1.19 | −7.12 | <0.001** |

** = highly significant (P<0.001).

Table 27. Comparison between mean values (± S.D.) of serum laminin and serum PIII NP levels in diabetic patients with mild proteinuria and those with moderate proteinuria.

| | Diabetic patients with mild proteinuria (n = 10) | Diabetic patients with moderate proteinuria (n = 7) | t | P |
|---|---|---|---|---|
| Laminin (U/ml) | 2.41 ± 0.23 | 2.54 ± 0.34 | −0.96 | >0.05 |
| PIII NP (μg/l) | 8.21 ± 1.19 | 10.06 ± 2.0 | −2.39 | <0.05* |

* = significant (P<0.05).

Table 28. One-way ANOVA test for fibronectin in different grades of proteinuria in diabetic patients.

| Group | Number of cases | FN (mg/dl) (mean) | F ratio | P |
|---|---|---|---|---|
| No proteinuria | 43 | 41.35 | 0.54 | >0.05 |
| Mild proteinuria | 10 | 41.55 | | |
| Moderate & severe proteinuria | 7 | 44.50 | | |

Table 29. Correlation of different clinical and laboratory findings in IDDM and NIDDM patients.

| | Duration | Fundus | Urinary proteins | Fructosamine | Laminin | PIII NP | FN |
|---|---|---|---|---|---|---|---|
| Duration | 1.00 | | | | | | |
| Fundus | 0.84* | 1.00 | | | | | |
| Urinary proteins | 0.14 | 0.06 | 1.00 | | | | |
| Fructosamine | 0.19 | 0.11 | 0.08 | 1.00 | | | |
| Laminin | 0.15 | 0.07 | 0.54* | −0.05 | 1.00 | | |
| PIII NP | 0.32* | 0.26* | 0.80* | 0.15 | 0.59* | 1.00 | |
| FN | −0.09 | −0.07 | 0.09 | −0.07 | 0.12 | 0.01 | 1.00 |

Critical value (1-tail, 0.05) = + or − 0.21453
Critical value (2-tail, 0.05) = + or − 0.25398
* = significant correlation.

Table 30. Correlation of different clinical and laboratory findings in IDDM and NIDDM patients with normal fundus.

| | Age | Duration | Gluco-suria | Protei-nuria | Urea | Creatinine | F.B.S. | P.P. | Fructos-amine | Laminin | PIII NP | FN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Age | 1.00 | | | | | | | | | | | |
| Duration | −0.08 | 1.00 | | | | | | | | | | |
| Glucosuria | −0.11 | 0.22 | 1.00 | | | | | | | | | |
| Proteinuria | −0.30 | 0.18 | 0.10 | 1.00 | | | | | | | | |
| Urea | 0.21 | 0.14 | 0.02 | 0.21 | 1.00 | | | | | | | |
| Creatinine | −0.06 | 0.33 | 0.16 | 0.19 | 0.40 | 1.00 | | | | | | |
| F.B.S. | −0.17 | 0.40 | 0.85 | 0.06 | −0.04 | 0.14 | 1.00 | | | | | |
| P.P. | −0.14 | 0.35 | 0.76 | 0.06 | −0.06 | 0.16 | 0.87 | 1.00 | | | | |
| Fructos-amine | −0.18 | 0.16 | 0.66 | 0.10 | −0.13 | 0.11 | 0.60* | 0.61* | 1.00 | | | |
| Laminin | −0.36* | 0.25 | −0.76 | 0.82* | 0.24 | 0.11 | −0.07 | −0.05 | −0.04 | 1.00 | | |
| PIII NP | −0.36* | 0.19 | 0.0 | 0.87* | 0.15 | 0.09 | 0.03 | 0.02 | 0.10 | 0.82* | 1.00 | |
| FN | −0.14 | −0.05 | −0.07 | 0.04 | 0.12 | −0.03 | −0.08 | −0.12 | 0.03 | −0.02 | 0.00 | 1.00 |

Critical value (1-tail, 0.05) = + or − 0.30645
Critical value (2-tail, 0.05) = + or − 0.36034
* = significant correlation.

Table 31. Correlation of different clinical and laboratory findings in IDDM and NIDDM patients with diabetic retinopathy.

| | Age | Duration | Fundus | Gluco-suria | Protei-nuria | Urea | Creati-nine | F.B.S. | P.P. | Fructos-amine | Laminin | PIII NP | FN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Age | 1.00 | | | | | | | | | | | | |
| Duration | 0.33 | 1.00 | | | | | | | | | | | |
| Fundus | 0.18 | 0.49* | 1.00 | | | | | | | | | | |
| Glucosuria | 0.11 | 0.0 | 0.01 | 1.00 | | | | | | | | | |
| Proteinuria | 0.10 | 0.15 | 0.08 | 0.16 | 1.00 | | | | | | | | |
| Urea | 0.12 | 0.11 | 0.12 | 0.04 | 0.44 | 1.00 | | | | | | | |
| Creatinine | 0.01 | 0.06 | 0.01 | 0.13 | 0.44 | 0.79 | 1.00 | | | | | | |
| F.B.S. | 0.09 | −0.04 | −0.09 | 0.78 | 0.16 | −0.09 | 0.07 | 1.00 | | | | | |
| P.P. | 0.16 | 0.15 | 0.09 | 0.62 | 0.04 | −0.07 | −0.07 | 0.80 | 1.00 | | | | |
| Fructos-amine | −0.07 | 0.18 | 0.05 | 0.61 | 0.06 | 0.08 | 0.03 | 0.47 | 0.35 | 1.00 | | | |
| Laminin | 0.25 | 0.21 | 0.29 | 0.22 | 0.29 | 0.57 | 0.56 | 0.12 | 0.05 | −0.07 | 1.00 | | |
| PIII NP | −0.05 | 0.31* | 0.32* | 0.26 | 0.77* | 0.34 | 0.42 | 0.09 | −0.07 | 0.17 | 0.38* | 1.00 | |
| FN | 0.21 | −0.09 | −0.04 | 0.19 | 0.17 | 0.23 | 0.36 | 0.21 | 0.08 | −0.16 | 0.24 | 0.05 | 1.00 |

Critical value (1-tail, 0.05) = + or − 0.30645
Critical value (2-tail, 0.05) = + or − 0.36034
* = significant correlation.

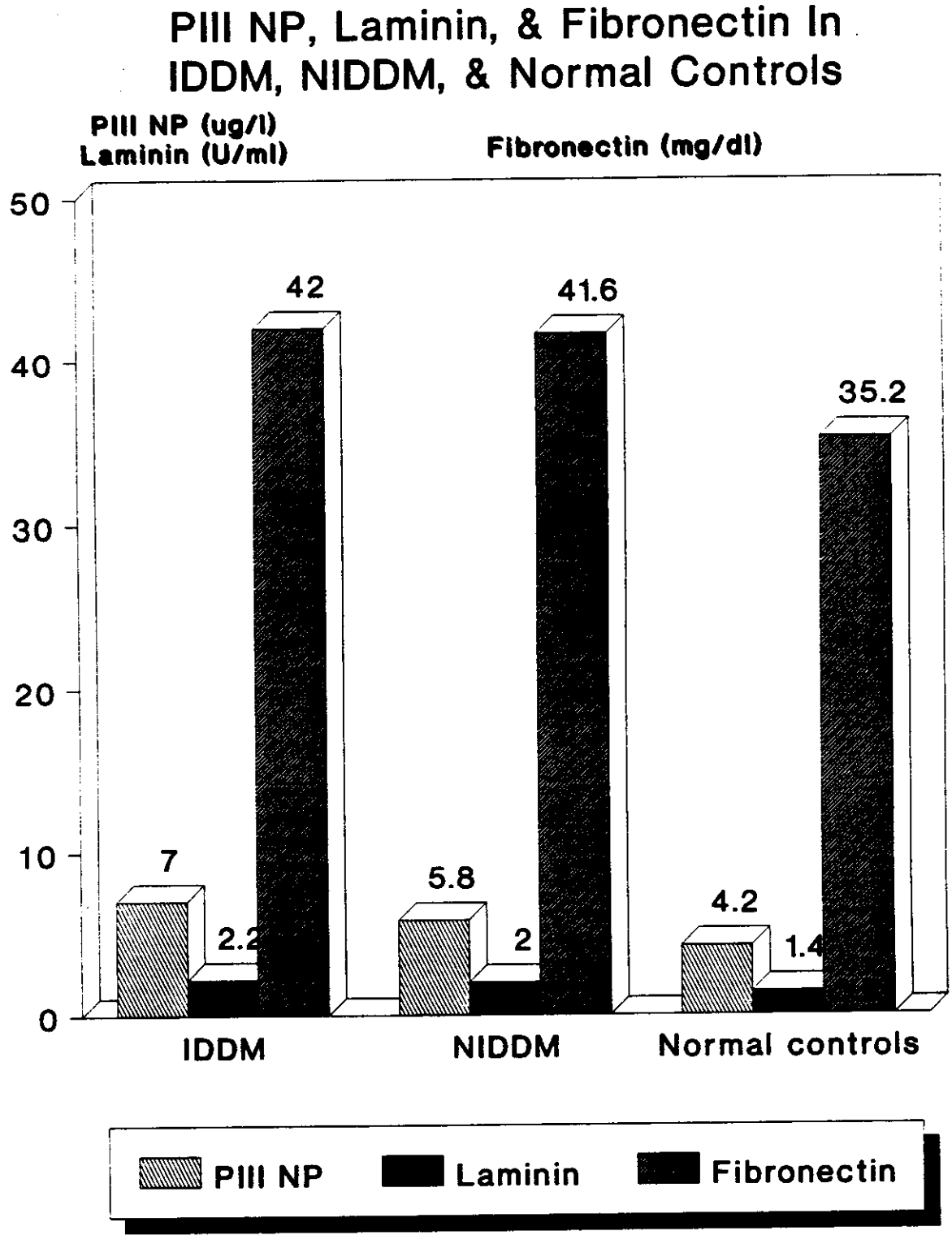
PIII NP, Laminin, & Fibronectin In
IDDM, NIDDM, & Normal Controls
PIII NP (ug/l)
Laminin (U/ml)
Fibronectin (mg/dl)
50
40
30
20
10
0
42
41.6
35.2
7
2.2
5.8
2
4.2
1.4
IDDM
NIDDM
Normal controls
PIII NP
Laminin
Fibronectin

FIGURE: 11

# PIIINP, Laminin, & Fibronectin In Relation To Duration Of D.M.

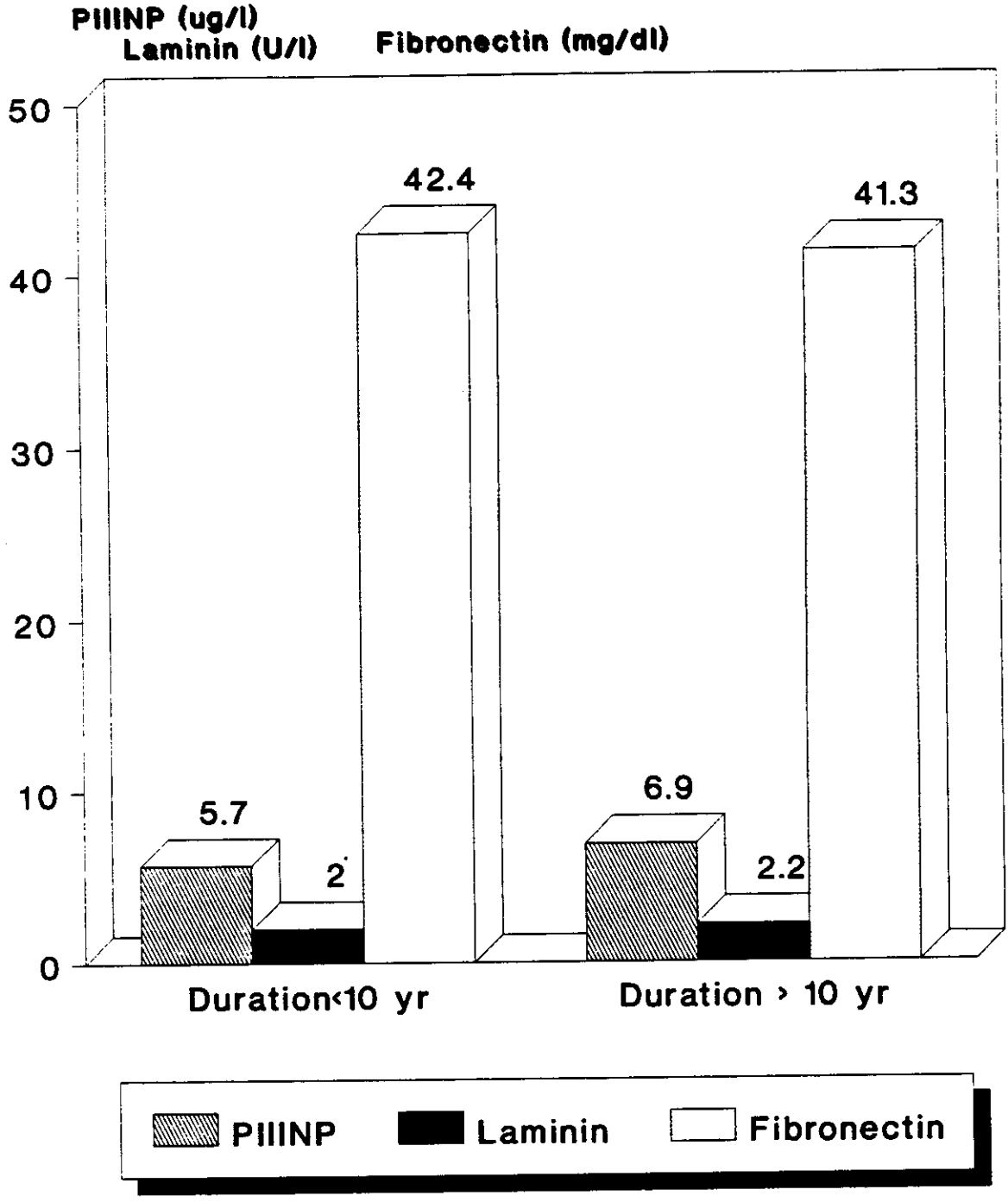


FIGURE:12

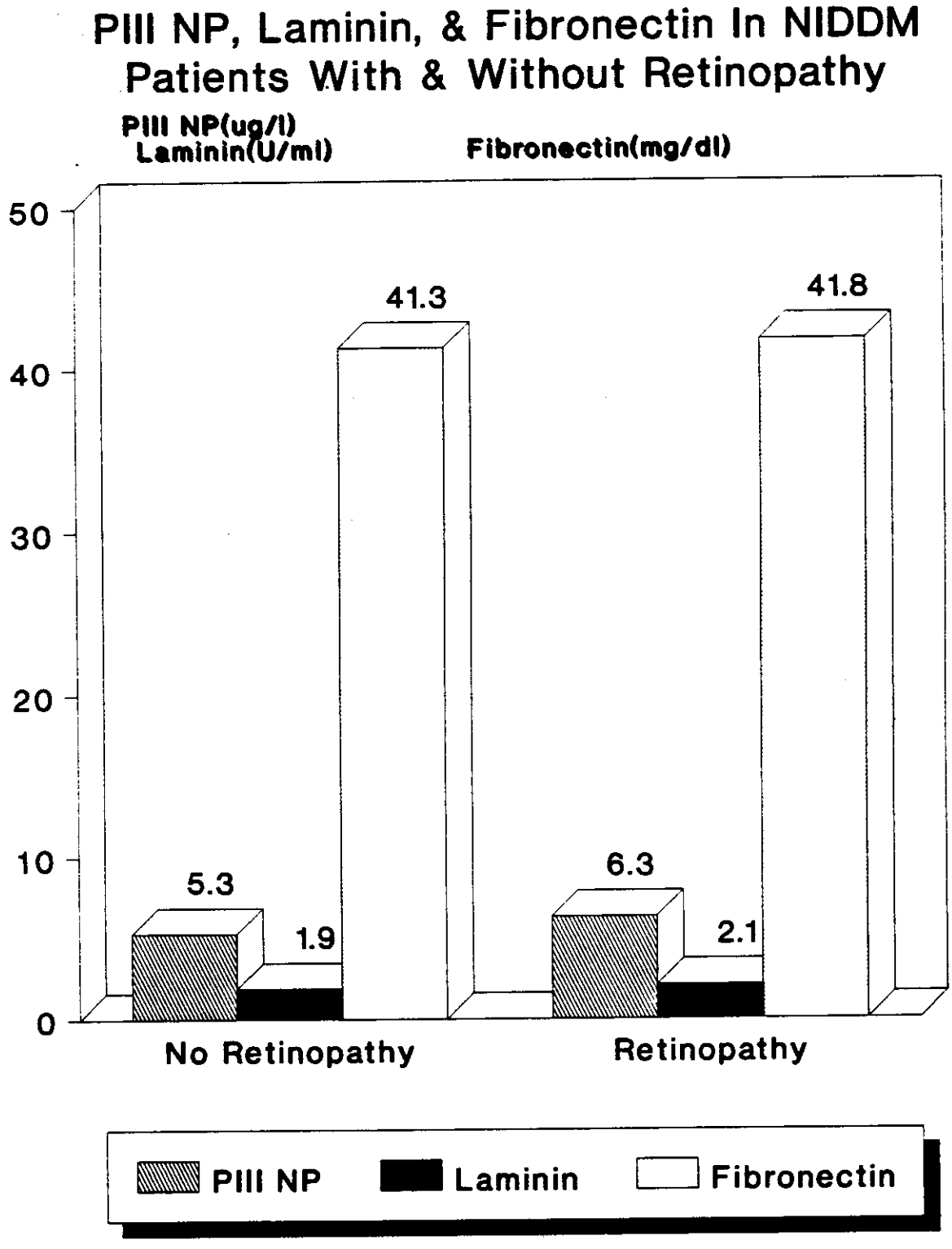
PIII NP, Laminin, & Fibronectin In NIDDM Patients With & Without Retinopathy
PIII NP(ug/l)
Laminin(U/ml)
Fibronectin(mg/dl)
50
40
30
20
10
0
41.3
41.8
5.3
1.9
6.3
2.1
No Retinopathy
Retinopathy
PIII NP
Laminin
Fibronectin

FIGURE: 13

# PIIINP, Laminin, & Fibronectin In IDDM Patients With & Without Retinopathy

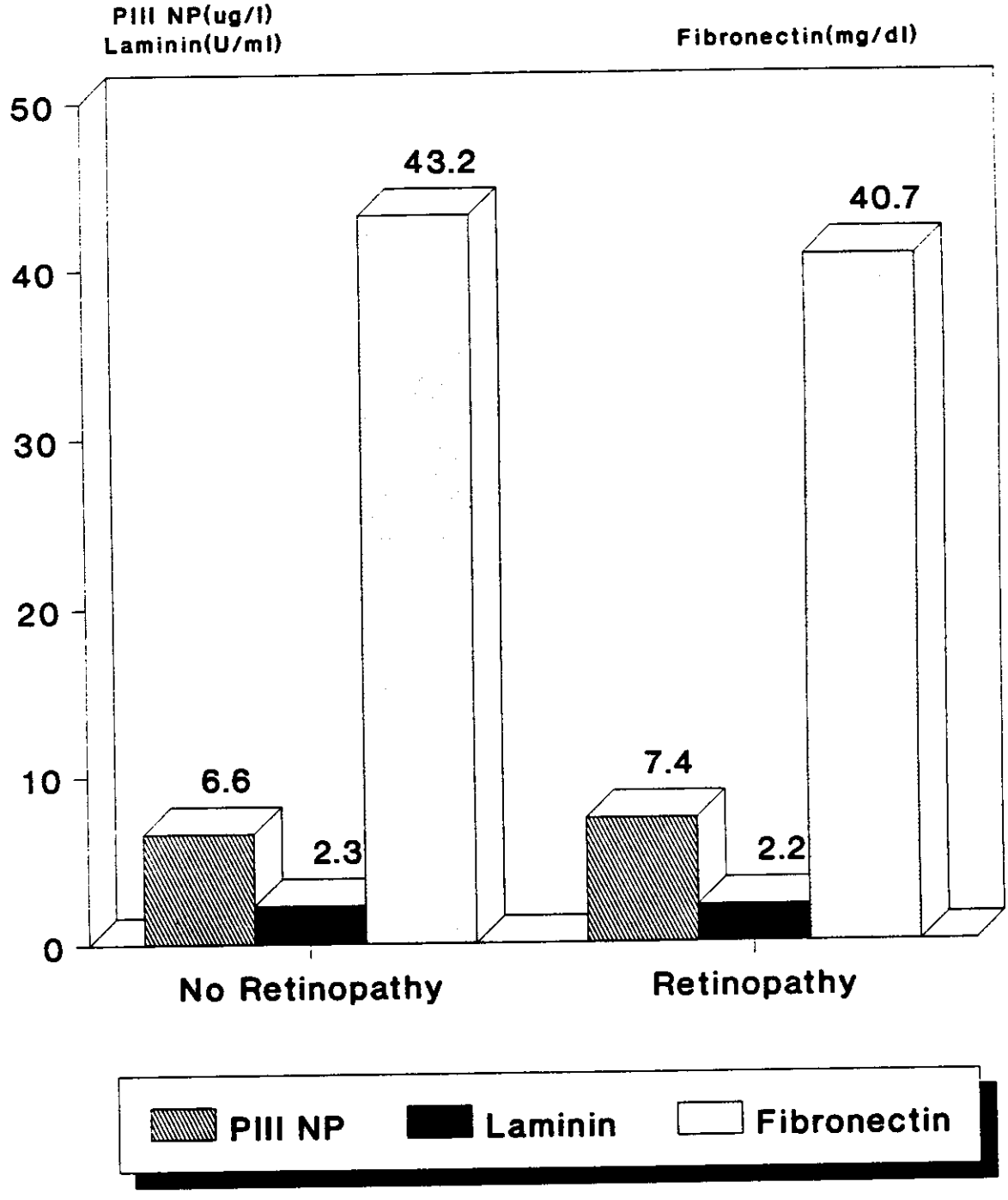


FIGURE: 14

# PIIINP, Laminin, & Fibronectin In Different Grades Of Retinopathy

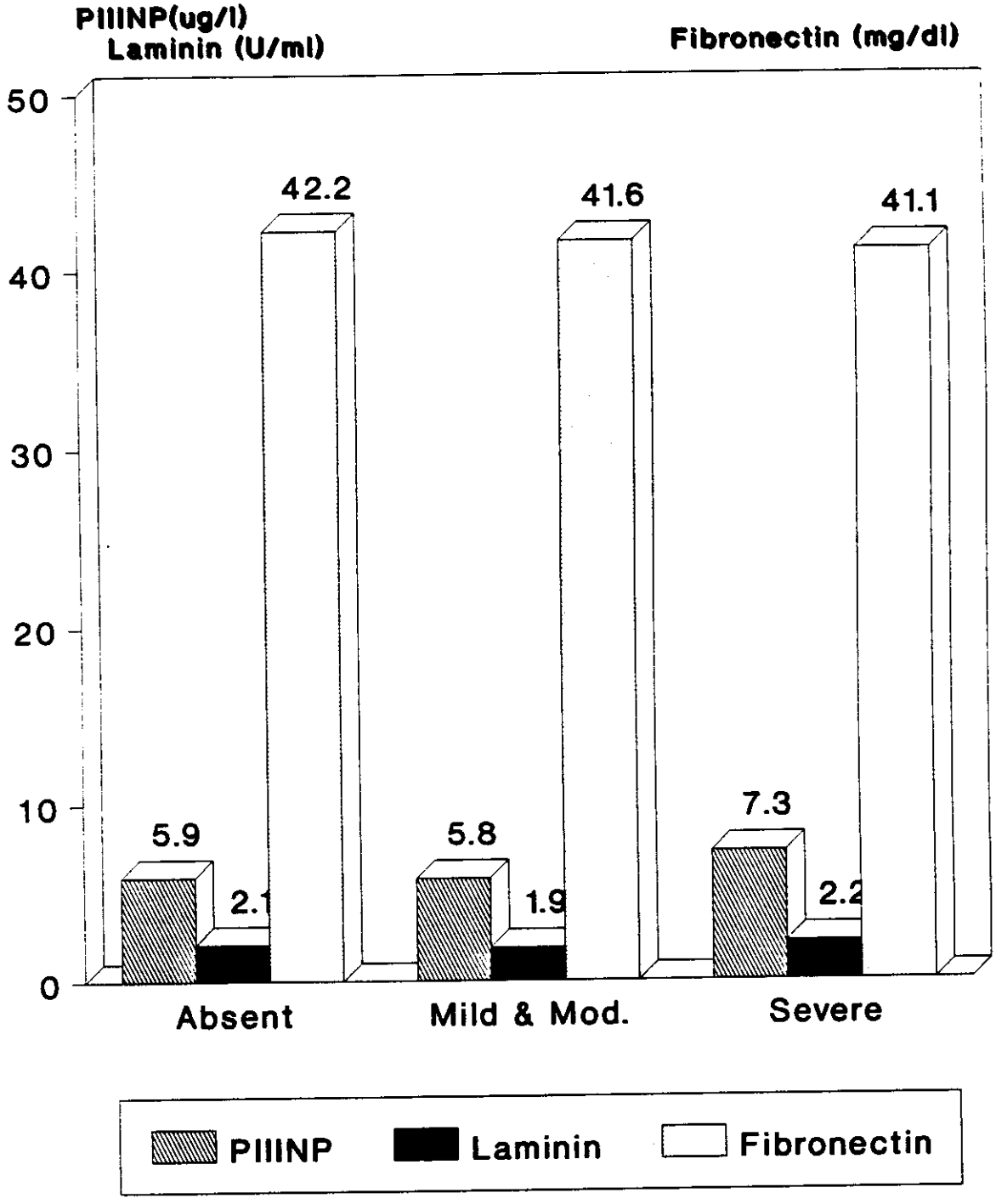


FIGURE:15

## PIIINP In Various Grades Of Retinopathy

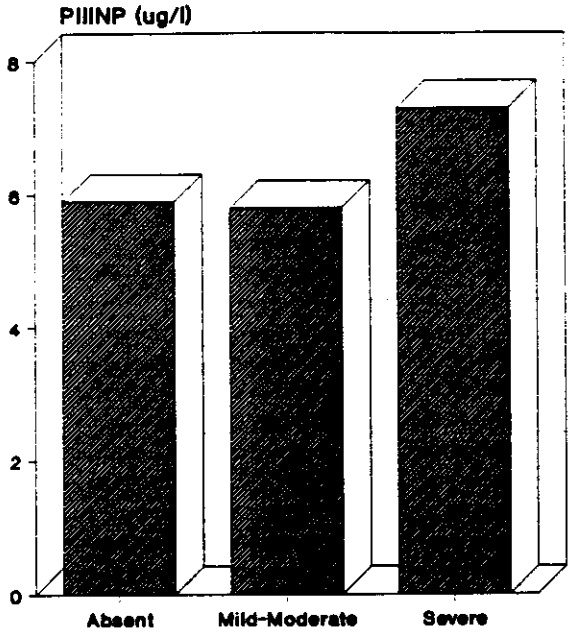


Figure: 16(a)

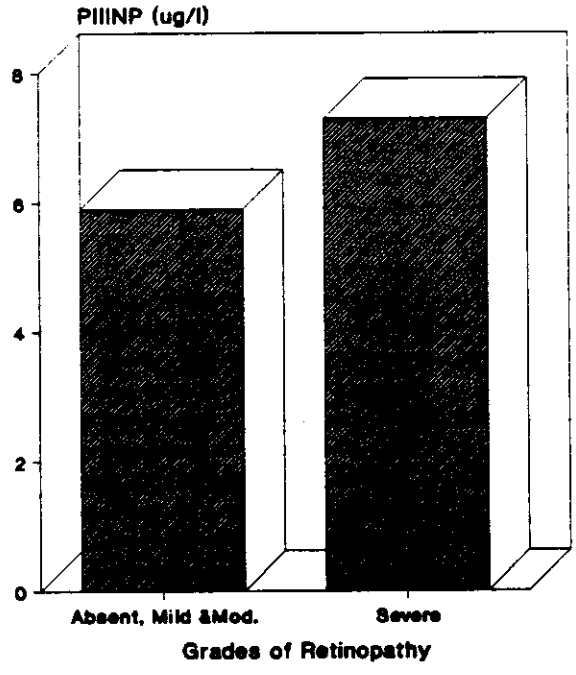


Figure: 16(b)

# Grades of Retinopathy
# In IDDM & NIDDM Diabetics

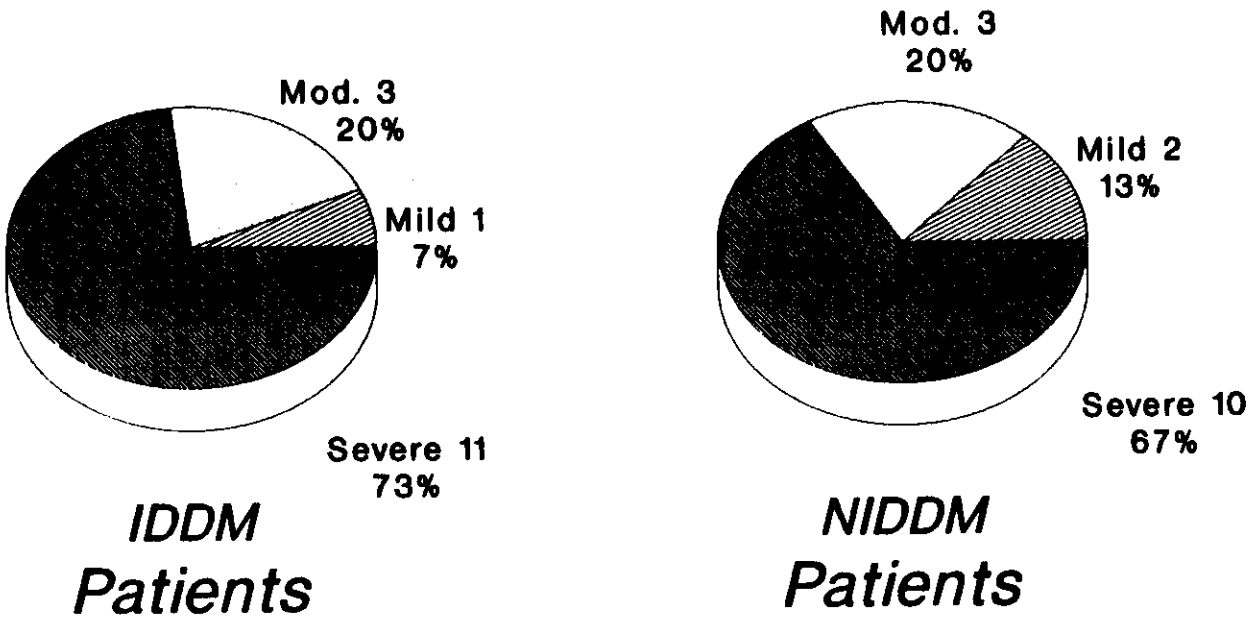


FIGURE: 17

# Grades of Proteinuria In IDDM & NIDDM Diabetics

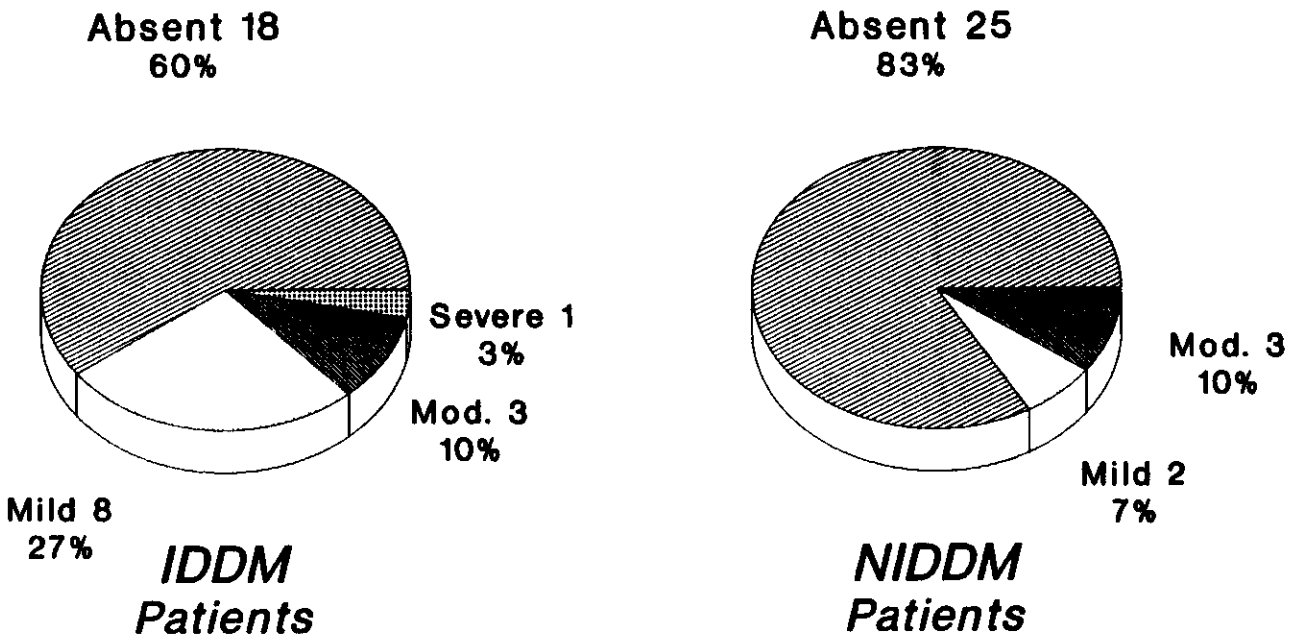


FIGURE: 18

## Correlation Between Serum PIII NP Level & Laminin In Diabetics

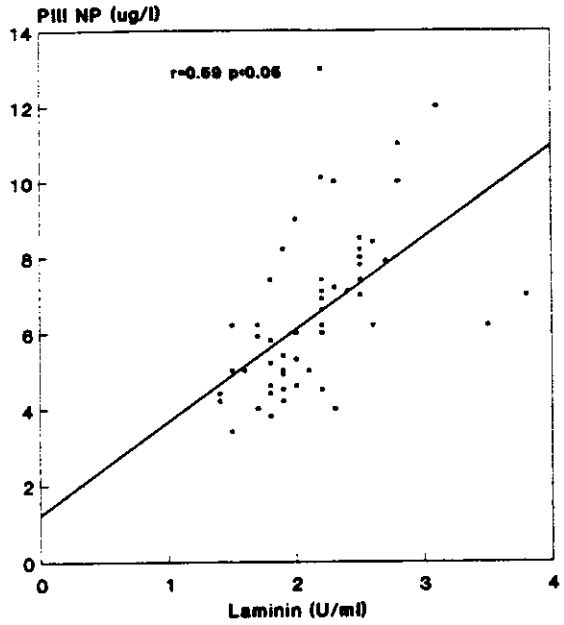


Figure: 19 (a)

## Correlation Between Serum PIII NP Level & Proteinuria In Diabetics

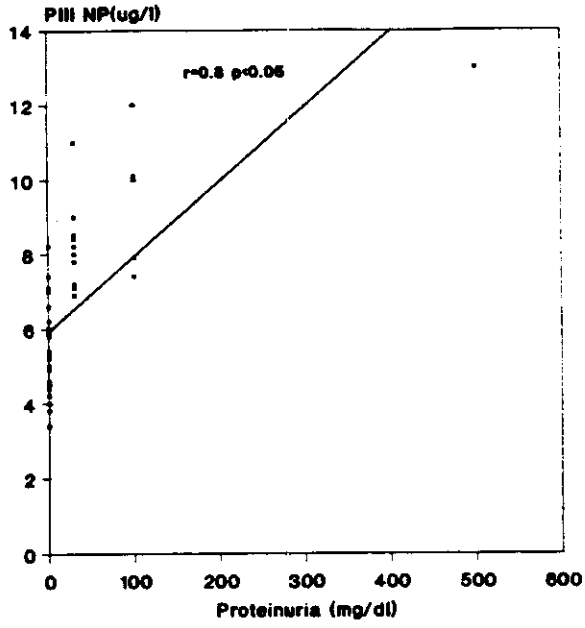


Figure: 19 (b)

## Correlation Between PIII NP Level And Degree Of Fundal Affection In Diabetics

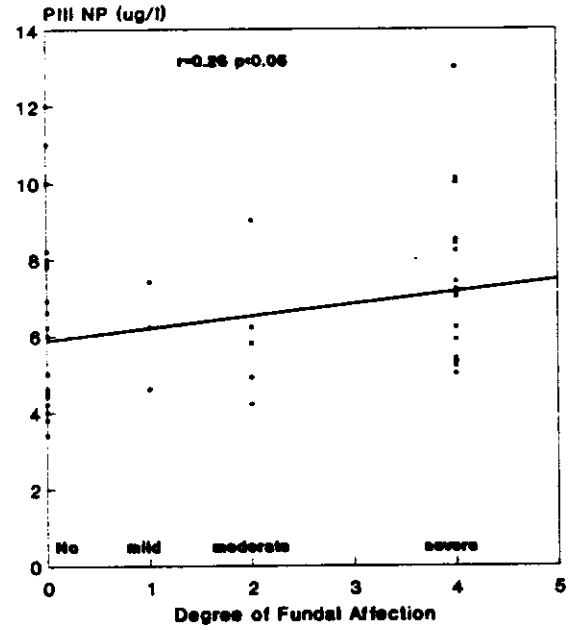


Figure: 19(c)

## Correlation Between Serum PIII NP And Duration of Diabetes

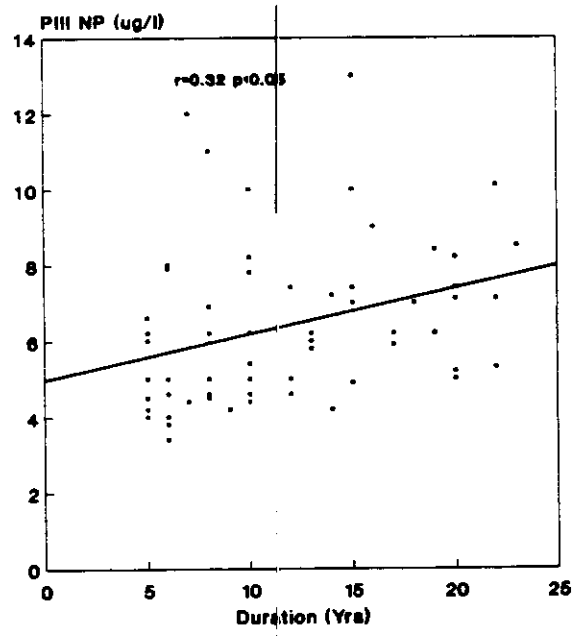


Figure: 19(d)

## Correlation Between Serum Laminin And Degree Of Proteiuria In Diabetics

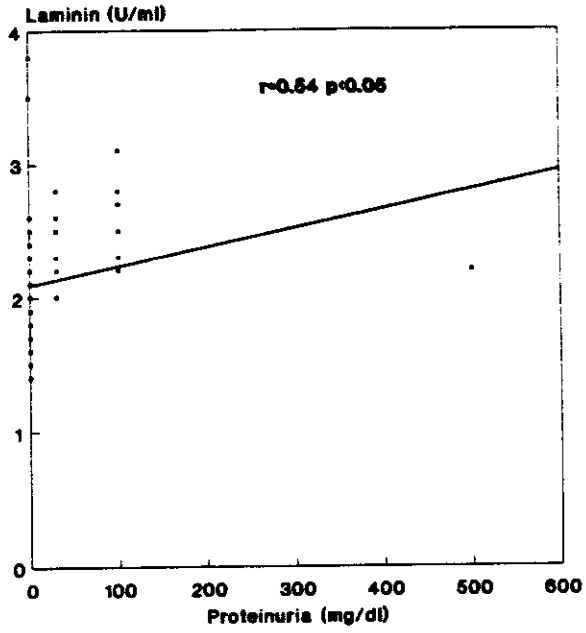


Figure 20 (a)

## Correlation Between Duration Of Diabetes And Degree Of Fundal Affection

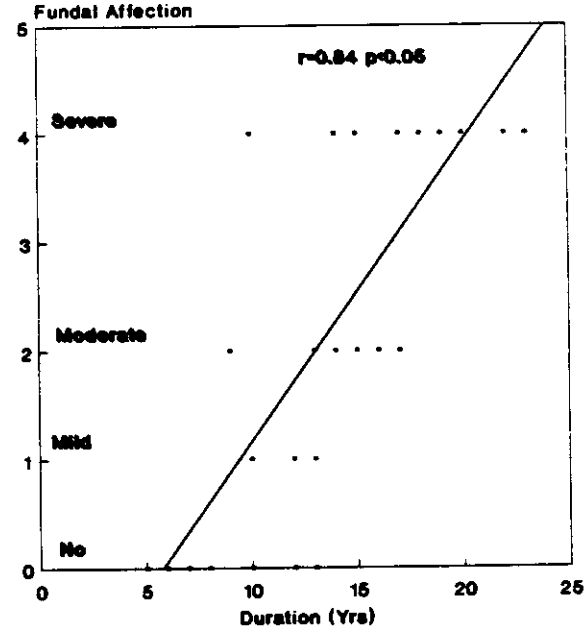


Figure 20 (b)

Correlation Between Serum PIII NP And Laminin In Diabetics With Normal Fundus

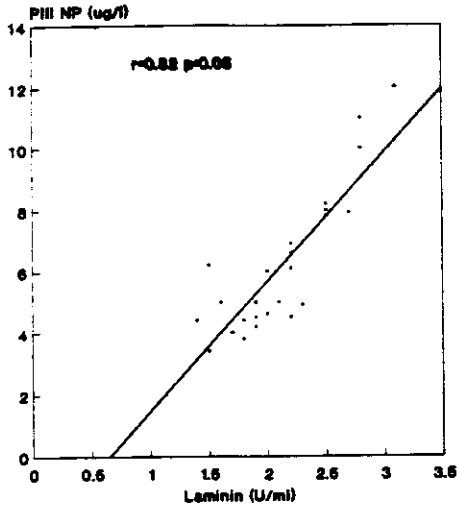


Figure: 21 (a)

Correlation Between Serum PIII NP Level And Proteinuria In Diabetics With Normal Fundus

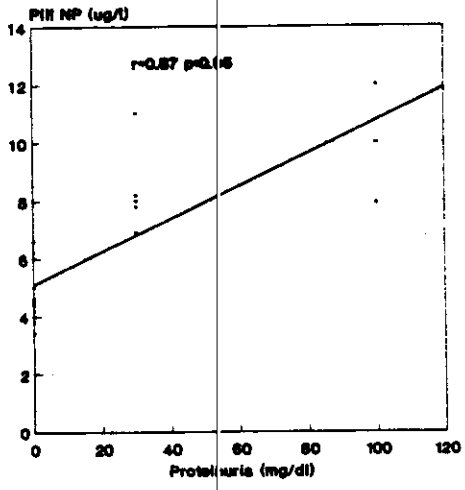


Figure: 21 (b)

## Correlation Between Serum Laminin And Proteinuria In Diabetics With Normal Fundus

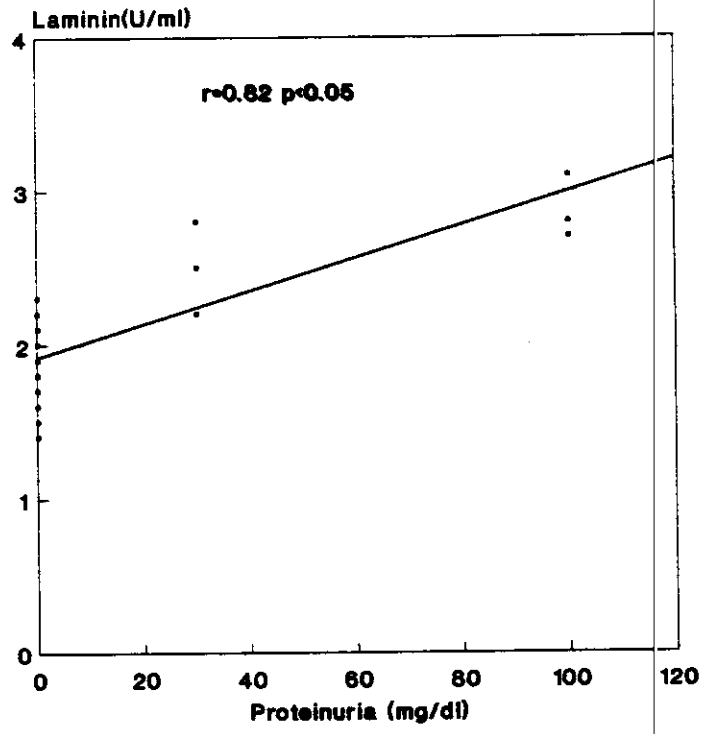


Figure: 21(c)

Correlation Between Serum PIII NP And Laminin In Diabetics With Retinopathy

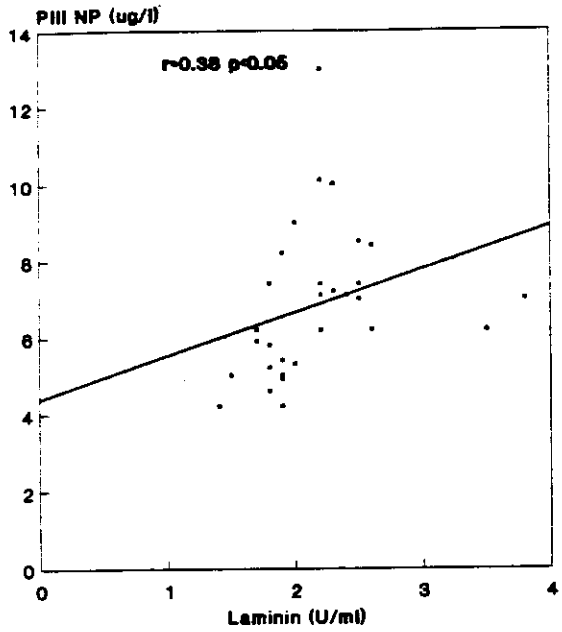


Figure: 22 (a)

Correlation Between Serum PIII NP And Proteinuria In Diabetics With Retinopathy

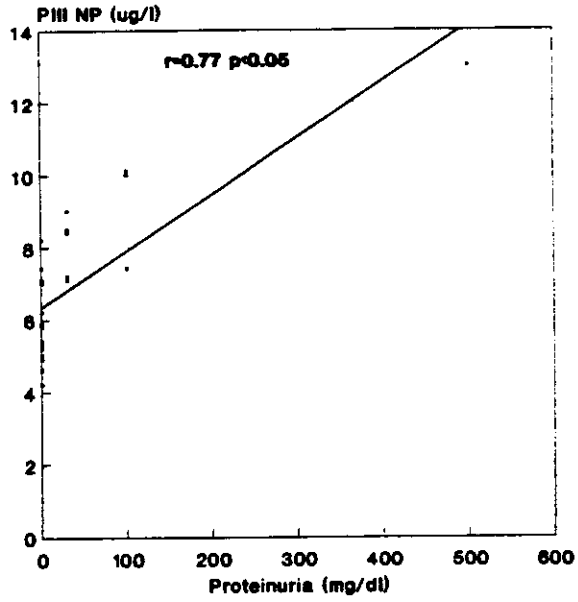


Figure: 22 (b)

Correlation Between Serum PIII NP And Degree Of Fundal Affection In Diabetics With Retinopathy

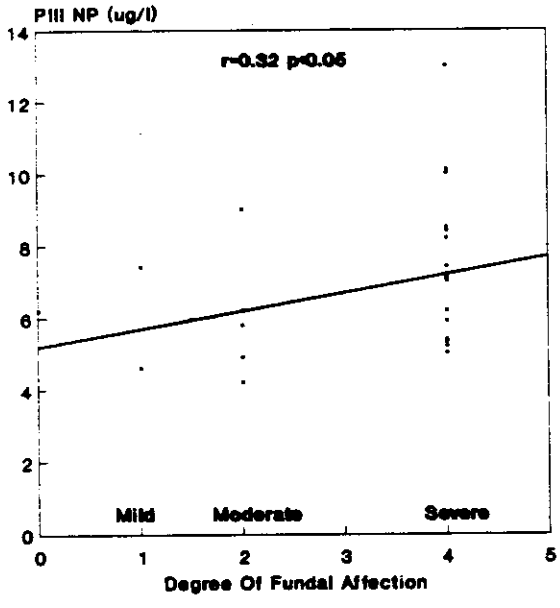


Figure: 22(c)

Correlation Between Serum PIII NP And Duration Of Diabetes In Diabetics With Retinopathy

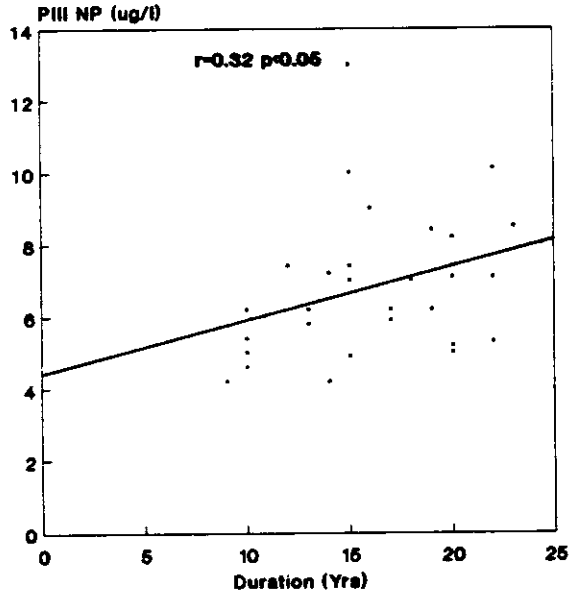


Figure: 22(d)