

Ocular Lipid Deposition in the Dog – the Use of Lipoprotein Electrophoresis to Identify Underlying Lipoprotein Abnormalities

Is lipoprotein analysis a useful tool?

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Materials and Methods (1)

Samples

- Number of Samples: 100 (EDTA plasma).
- Selection Criteria: “History of lipid deposition in the eye”.
- Age: Mean 5.0 years, SD 3.16 years.
- Sex: 26 M, 18 M(N), 19 F, 28 F(N).
- Breed: Samples were from 27 different breeds.

Materials and Methods (2)

Lipid Assays

Cholesterol

Triacylglycerol

Free Glycerol

Phospholipids

Total Lipid

Materials and Methods (3)

Sample Categorisation

Group I ('Normal')

Cholesterol < 7.0 mmol/L, Triacylglycerols < 0.7 mmol/L

Group II (Hypercholesterolaemic)

Cholesterol > 7.0 mmol/L, Triacylglycerols < 0.7 mmol/L

Group III (Hypertriacylglycerolaemic)

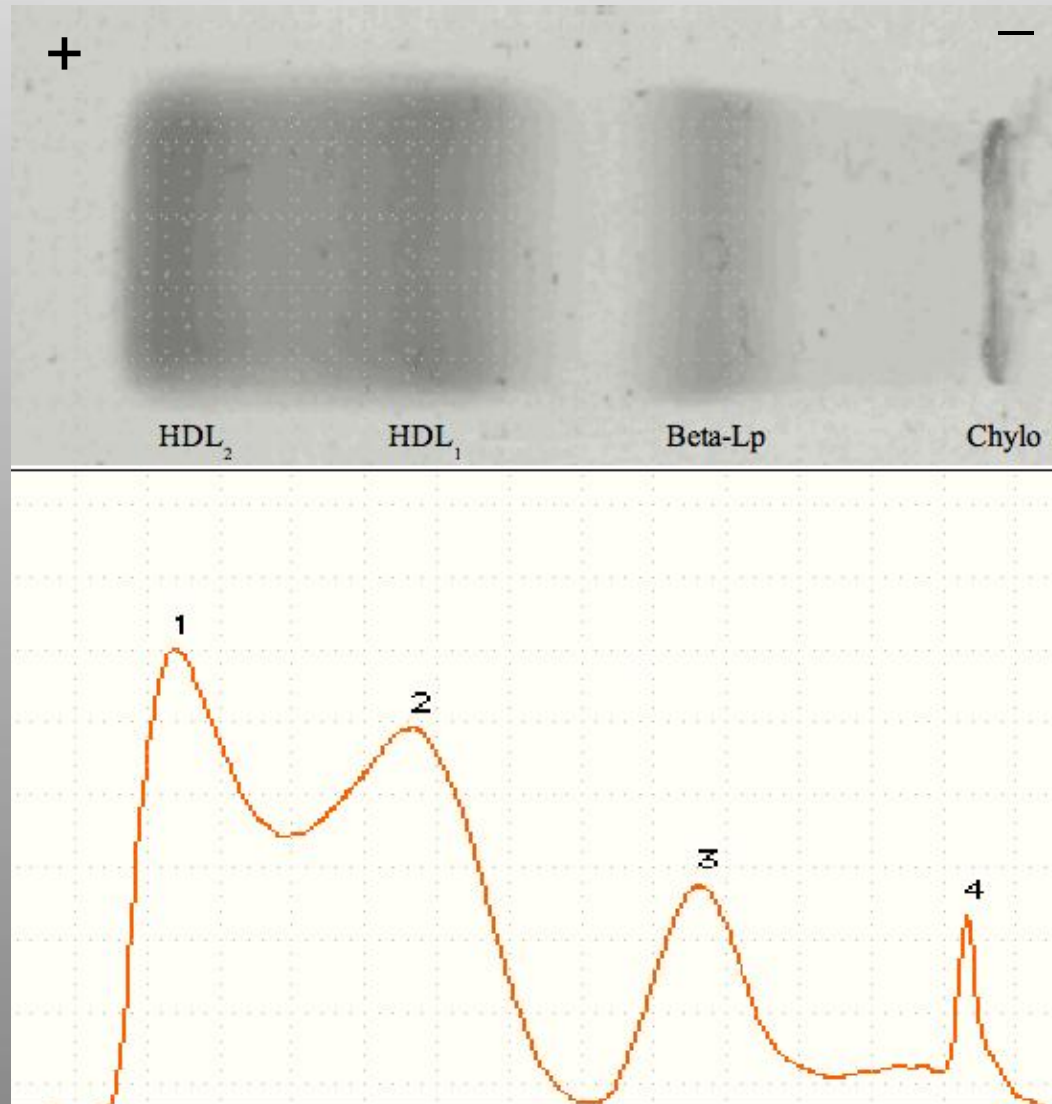
Cholesterol < 7.0 mmol/L, Triacylglycerols > 0.7 mmol/L

Group IV (Mixed)

Cholesterol > 7.0 mmol/L, Triacylglycerols > 0.7 mmol/L

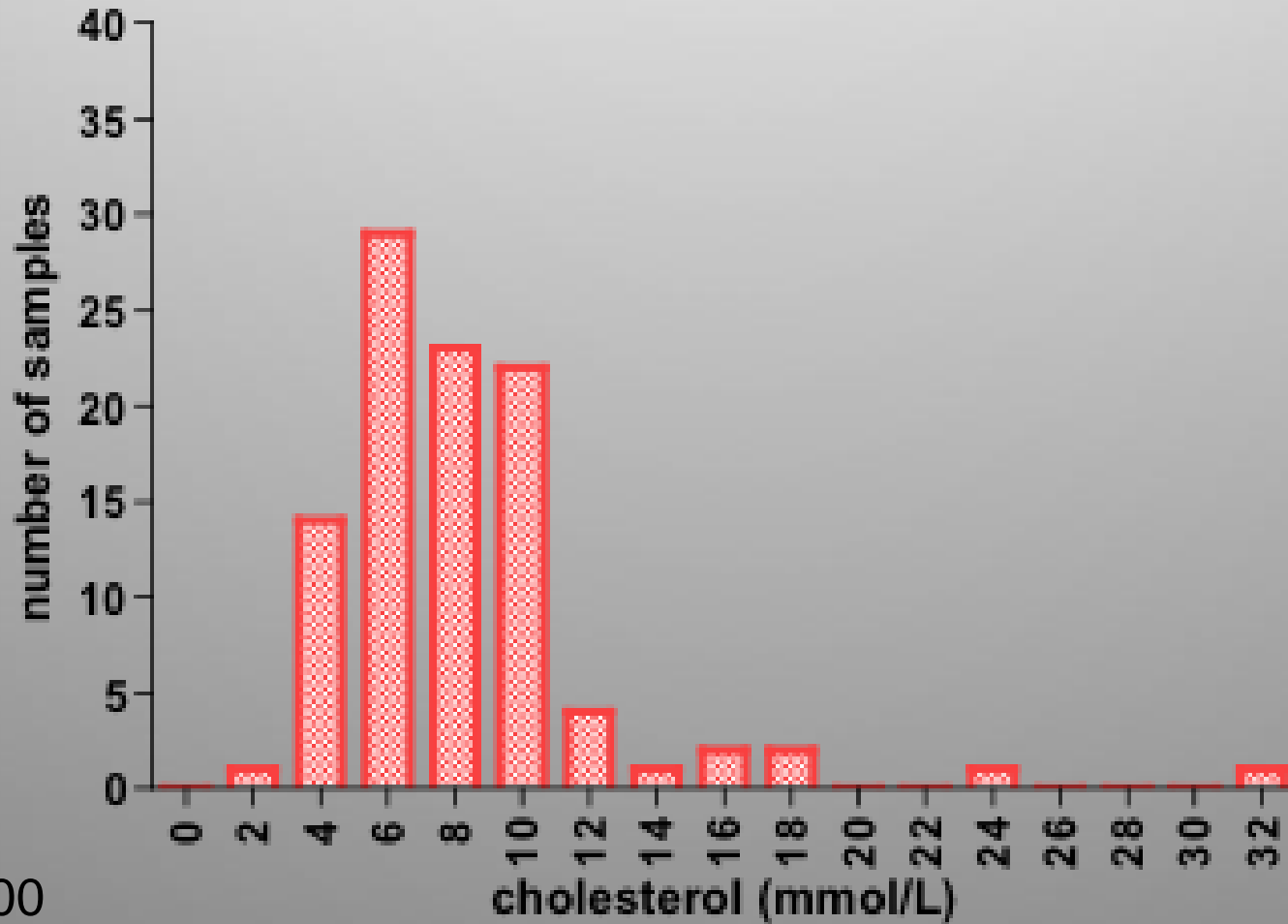
Materials and Methods (4)

Lipid Electrophoresis



Results (1)

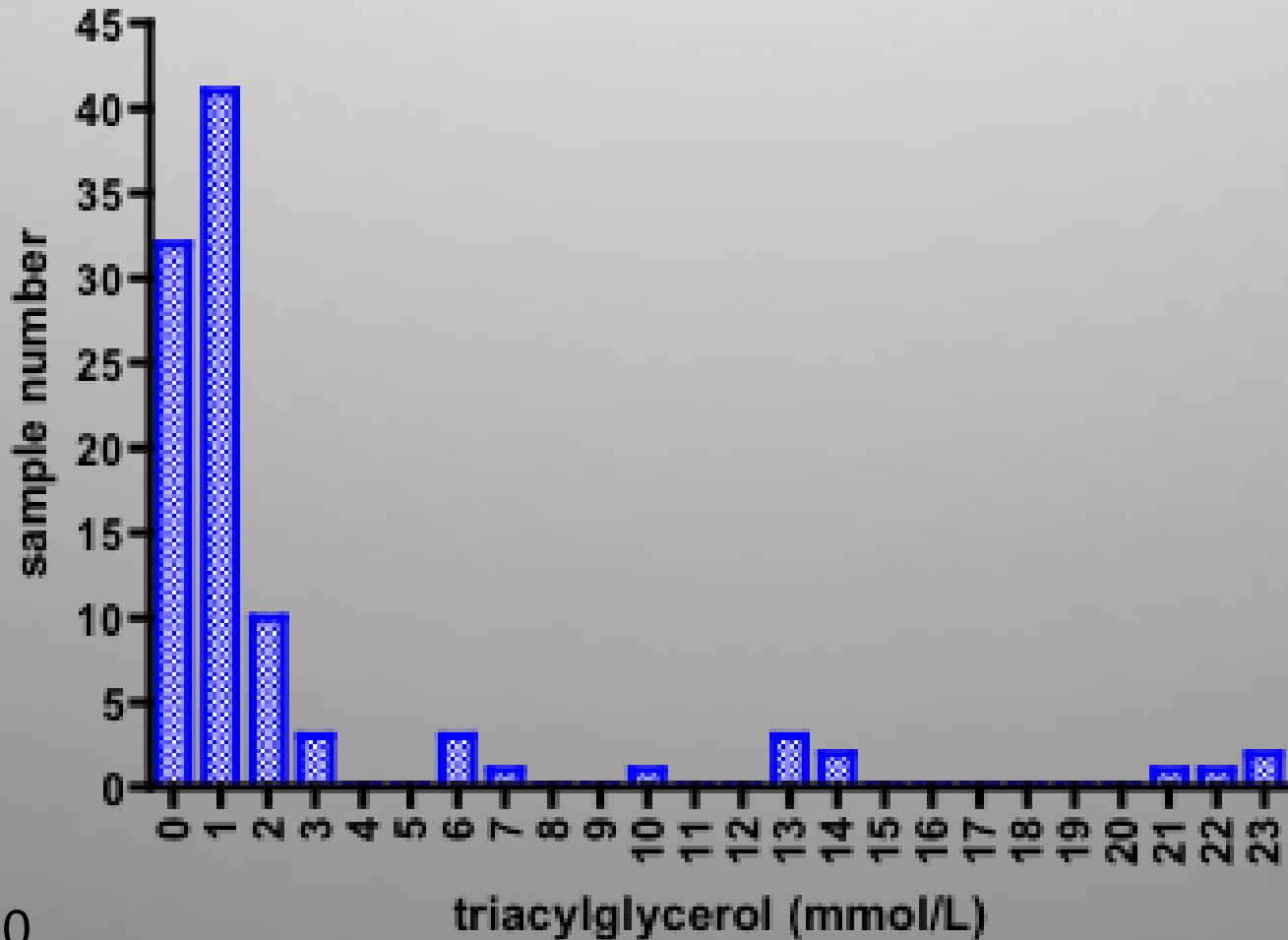
Cholesterol



n = 100

Results (2)

Triacylglycerol



n=100

Results (3)

Sample Categorisation

Group I ('Normal')

Cholesterol < 7.0 mmol/L, Triacylglycerols < 0.7 mmol/L

Group II (Hypercholesterolaemic)

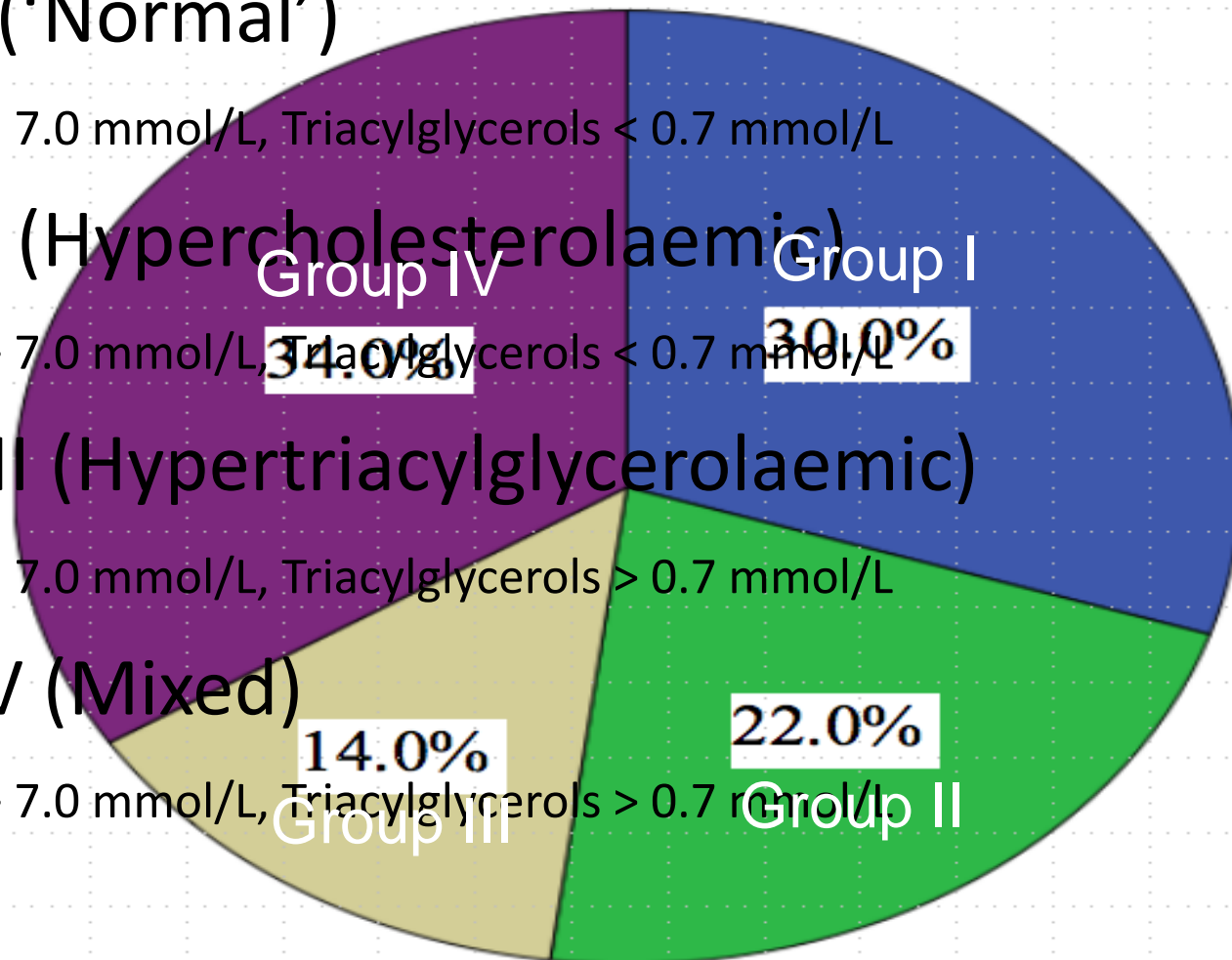
Cholesterol > 7.0 mmol/L, Triacylglycerols < 0.7 mmol/L

Group III (Hypertriacylglycerolaemic)

Cholesterol < 7.0 mmol/L, Triacylglycerols > 0.7 mmol/L

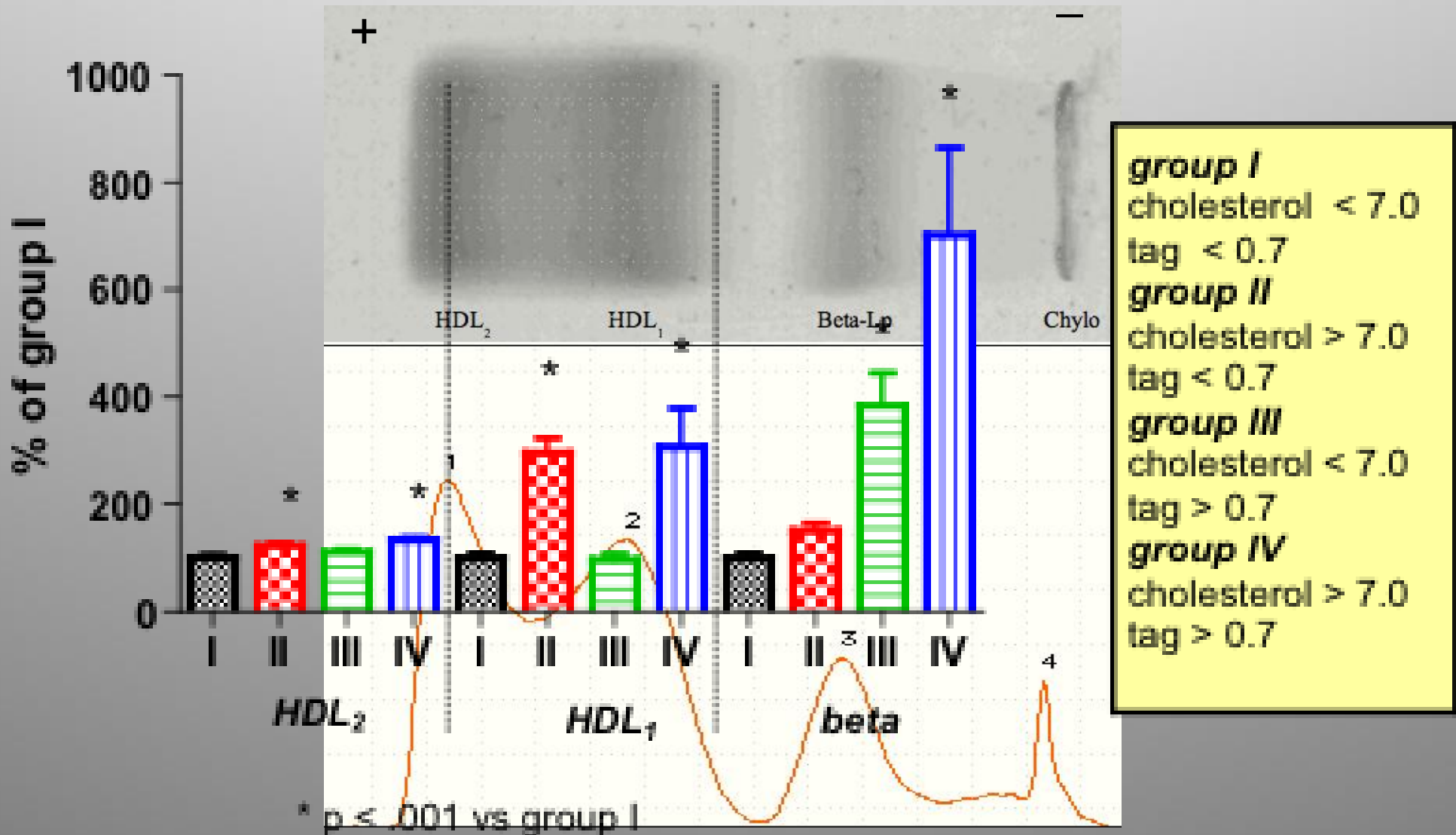
Group IV (Mixed)

Cholesterol > 7.0 mmol/L, Triacylglycerols > 0.7 mmol/L



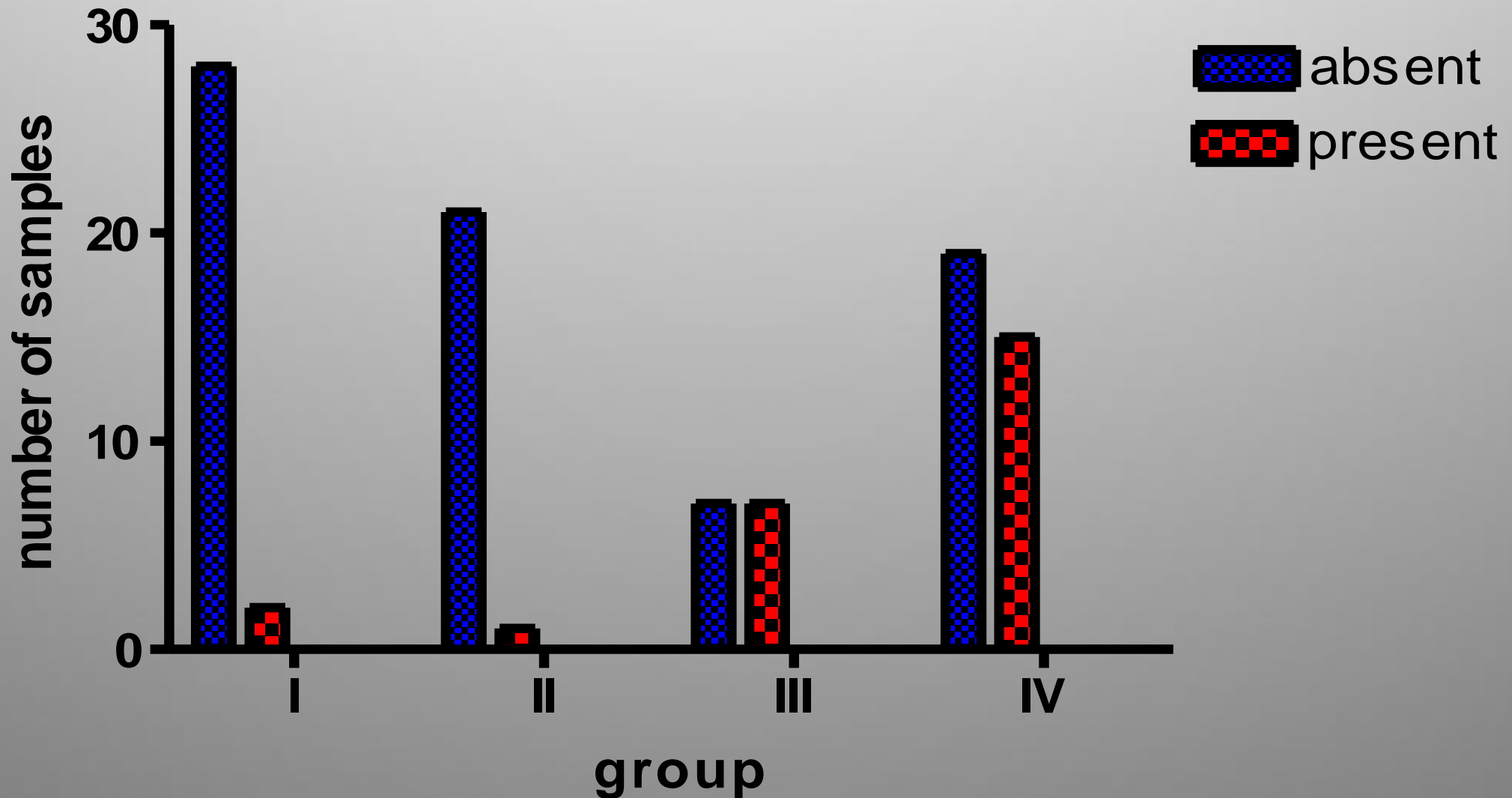
Results (4) - Lipid Electrophoresis

Relative Lipoprotein Levels



Results (5) - Lipid Electrophoresis

Incidence of chylomicronaemia



Conclusions

- 70% of animals with a “History of lipid deposition” show increases of cholesterol, triacylglycerol, or both.
- The most marked elevations were found with triacylglycerol.
- Lipid electrophoresis revealed that the hyperlipidaemic animals probably exhibited a variety of lipoprotein phenotypes.
- Chylomicrons were found to be present in 25% of the samples.
- Limitations : Referral samples, limited history/clin.path data/Tx, sensitivity of methodology.