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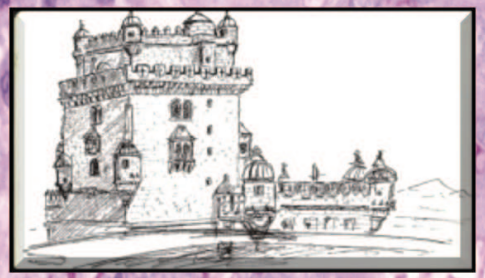

P59 - MODIFICATIONS IN KIDNEY STRUCTURE WITH AGE IN AN ANIMAL MODEL OF TYPE 2 DIABETES: FOCUS ON HYDRONEPHROSIS

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Introduction: The Zucker Diabetic Fatty (ZDF-*fa*/*fa*) rat is one of the most widely-used models for the study of type 2 diabetes (T2DM). Characterisation of renal morphology in this model may provide useful insights into the mechanism of diabetic nephropathy progression. The purpose of the present study was to determine renal morphology, identify and characterise renal dysfunction complications such as hydronephrosis, in Zucker Diabetic fatty (ZDF) rats in the course of T2DM progression.

Material and Methods: Male diabetic obese ZDF (*fa*/*fa*) rats were sacrificed at 8, 20 and 26 weeks of age and compared with lean age-matched ZDF (+/+) counterparts. Blood biochemistry was also performed to evaluate metabolic status. Kidney slices stained with hematoxylin-eosin and periodic acid-Schiff were evaluated. A semiquantitative rating was assigned for hydronephrosis and scored from 0 (normal) to 3 (severe), based on conformational aspects of the papilla and calyx and on cortex compression.

Results: A striking progression in the severity of hydronephrosis was observed. All end-stage rats, i.e. at 26 weeks of age, showed hydronephrosis, which was more severe in the diabetic rats (score: 2, 3) than in lean controls (score 1). No significant cortical atrophy was found. These abnormalities were accompanied by aggravated diabetic-metabolism dysfunction.

Conclusions: The results indicated that ZDF rats presented nephropathy with hydronephrosis. Lesions were age-related and accompanied by aggravated diabetic metabolism dysfunction, but did not hinder morphological evaluation. Therefore the ZDF rat might provide a useful model for the preclinical study of therapeutic interventions in diabetic nephropathy.