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Peri-operative hyperglycemia in kidney transplantation

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Introduction

Kidney transplantation is frequently related to peri-operative hyperglycemia due to surgical stress response and the introduction of immunosuppressive therapy. But these hyperglycemia could enhance the risk of delayed graft function. Our goal was, after establishment of a dynamic glycemetic protocol, to assess its impact on the incidence of postoperative hyperglycemia.

Methods

This is an observational study. Over a period of 24 months, all patients who received a kidney transplant at the University Hospital of Caen were included. The glycemetic values were recorded from the day before the surgery (D-1) to seven days (D7) after transplantation. After the first twelve months (1st period), a dynamic glucose protocol has been established (2nd period). Statistics: Fisher exact test, Student test or Mann-Whitney test (SPSS Version 21 software).

Results

One hundred and nine patients were enrolled. After creating a dynamic protocol for insulin therapy we saw a significant decrease in blood glucose values at day 1 (8.5 vs 7.4mmol / L, $p = 0.001$) with more frequent use of subcutaneous insulin therapy (5 (9%) vs 20 (37%), $p = 0.001$). There is no significant difference in intravenous insulin therapy ($p = 0.51$). The peri-operative infection rate was reduced in the second period benefiting from the glycemetic control protocol (14 (25%) vs 3 (6%) patients, $p = 0.004$) but no significant difference in rate of kidney graft dysfunction defined by the need for dialysis before J7 was observed ($p = 0.95$) (Table 1).

Conclusion

This work suggests that the introduction of a protocol for glycemetic control in renal graft patient would allow a reduction of perioperative hyperglycemia. However glycemetic control does not affect the rate of renal graft dysfunction.

Table 1: Perioperative adverse events

	1st Period n=55	2 nd Period n=54	p value
Hypoglycemia <3,3mmol.L ⁻¹	1(2)	1(2)	0.75
Hyperglycemia> 10mmol.L ⁻¹	25(46)	23(43)	0.76
Hypoglycemia & hyperglycemia	1(2)	0(0)	0.51
Diabetes	3(15)	20(37)	<0.001*
Infectious complications	14(25)	3(6)	0.004*
Surgical complications	13(24)	19(35)	0.19
Dialysis before the 7th day	27(49)	28(52)	0.95
Creatinine>250 μmol.L ⁻¹ beyond the 7th day	10(18)	13(24)	0.45

Values are expressed as number (%), median [minimum-maximum], n number of patients, p* significant <0.05