Glucose Control After Isolated Splenectomy

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Background

- Few long-term studies have identified splenectomy as an independent risk factor for the development of type 2 diabetes mellitus (T2D) and cardiovascular mortality.[2,3]
- How elective splenectomy specifically affects glucose hemostasis and T2D control is poorly studied.

Aims

- To investigate the impact of isolated elective splenectomy on glucose control in patients with and without pre-operatively diagnosed T2D

Methods

- Single- center, multi-surgeon retrospective study
- Patients included those who underwent isolated elective splenectomy from 1997 to 2017
- Inclusion criteria included patients who had pre and post surgical hemoglobin A1c data available as well as recorded body mass index
- Patients with simultaneous distal pancreatectomy were excluded

Results

Table 1. Demographics of participants.

Demographics	
Number of patients	44
Sex Male/Female (% male)	22/22 (50)
Age at time of surgery (years)	64.0 ± 15
Pre-operative diagnosis of type 2 diabetes mellitus (%)	19 (43)
Patients with insulin prescribed (%)	11 (58)

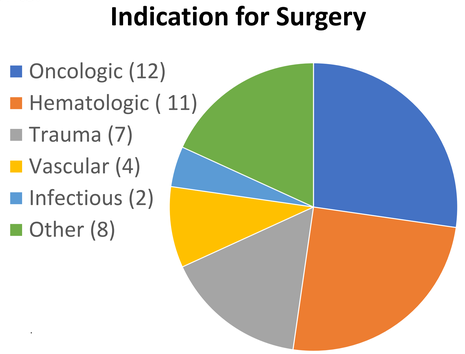


Figure 1. Indications for surgery.

	All patients			T2D patients			Non-T2D patients		
Relation to operative timing	Pre	Post	p-value	Pre	Post	p-value	Pre	Post	p-value
Average Hemoglobin A1c (%)	6.0	6.5	0.009	6.6	7.0	0.1	5.6	6.1	0.02
Insulin requirement (n,[%])	11 [25]	14 [32]		11 [25]	10 [23]		0	4 [16]	
Body Mass Index (kg/m²)	30.2	28.7	0.9	30.7	29.9	0.3	29.9	27.7	0.2
Mean time to follow up (yrs)		1.9			1.4			2.3	

Table 2. Metabolic metrics in the pre-operative and post-operative period.

Conclusions

- In patients without a pre-operative diagnosis of T2D, there was a significant increase in post operative HbA1c and several meeting criteria for T2D.
- Splenectomy was also associated with increased HbA1c in patients with pre-operative diagnosis of T2DM.
- The post- splenectomy increase in HbA1c was not associated with an increase in BMI.
- There was a non-significant decrease in BMI for all patients in the post-operative period
- Further studies are needed to better understand the mechanism responsible for post-splenectomy changes in glucose homeostasis.
- Patients after elective splenectomy may require closer monitoring for development of T2D

References

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2. Zhang J, Deng Z, Jin L, et al. Spleen-Derived Anti-Inflammatory Cytokine IL-10 Stimulated by Adipose Tissue-Derived Stem Cells Protects Against Type 2 Diabetes. *Stem Cells Dev*. 2017;26(24):1749-1758.