

Category : **Sepsis/septic shock: management**

**A109 - The effect of premorbid metformin use on lactate kinetics, kidney injury and mortality in patients with sepsis and septic shock: an observational study.**

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### **Introduction:**

Sepsis and septic shock cause significant mortality worldwide, with no targeted molecular therapies available. Metformin has pleomorphic effects that may be beneficial in sepsis, but at present, the impact of metformin exposure in sepsis remains controversial. Metformin might alter lactate metabolism, but little is known about its impact on lactate kinetics. We therefore investigated the impact of preadmission metformin use on lactate kinetics, acute kidney injury (AKI) and mortality in sepsis and septic shock.

### **Methods:**

We conducted a retrospective cohort study in patients with sepsis and septic shock admitted to the ICU between January 2013 and September 2020, including 77 users and 390 non-users (subdivided in diabetics, n=48 and non-diabetics, n=342). AKI staging was based on the AKIN criteria including urinary output data. Chronic haemodialysis patients were excluded.

### **Results:**

Groups and subgroups did not differ in severity of illness nor sepsis aetiology. Admission lactate levels were not different, but evolution in lactate over the first 24 hours showed a larger decrease in users vs nonusers (median -53% vs -36%, p=0.010). No difference in AKI or need for renal replacement therapy was found. Mortality data showed lower mortality in users vs nonusers in case of septic shock (21.9% (n=7) vs 42.7% (n=61) for 90d mortality, p=0.029, OR 0.38 [95% CI: 0.15-0.93]) (see table 1), but revealed no significant differences in the general sepsis population.

### **Conclusion:**

In our data, preadmission metformin use is associated with a significantly larger decrease in lactate after admission in sepsis or septic shock and with reduced mortality in septic shock. This underscores the need for further studies investigating the interplay between metformin, lactate and sepsis, thereby exploring the potential of metformin use in the treatment of sepsis.

### **Table:**

	Users	Nonusers		P-value (users vs all non-users)
		Diabetics	Nondiabetics	
ICU mortality, n (%)	3 (9,4%)	2 (13,3%)	40 (31,3%)	0,019
30-day mortality, n (%)	6 (18,8%)	5 (33,3%)	44 (34,4%)	0,087
90-day mortality, n (%)	7 (21,9%)	5 (33,3%)	56 (43,8%)	0,029
1-year mortality, n (%)	10 (31,3%)	7 (46,7%)	66 (51,6%)	0,043

Table 1. Survival in patients with septic shock according to metformin use.