

BACKGROUND

AKI has an incidence of up to 53% among critically ill patients with severe pneumonia due to Influenza A H1N1, which increases morbidity and mortality by up to 20-25%. Administration of intravenous fluids is an essential component for the management of hemodynamic instability in these patients, but a positive fluid balance has been associated with a poor prognosis.

OBJECTIVES

To describe the risk factors associated with the development of AKI in critically ill patients diagnosed with severe pneumonia due to Influenza A H1N1 and to analyze if the fluid balance influenced the mortality and development of AKI.

METHODS

- Subjects were >18 years old.
- Positive real-time PCR of nasopharyngeal swab or bronchioloalveolar lavage (Influenza H1N1).
- eTFG at admission > 60 ml / min / 1.73 m² SC (CKD-EPI).
- Medical data, biochemical parameters, mechanical ventilation parameters were collected.
- PaO₂/FIO₂ <200 mmHg on Admission.
- Fluid intake and elimination was carefully measured and we tested two different possible measurements that could be predictors of AKI and death.
- The SPSSv20 program was used for analysis. We performed comparative tests between the baseline data, Chi-square test for dichotomous variables, Student's t or Mann-Whitney U, for quantitative variables and Mom's ratio (OR) to determine the probability of event development based on Clinical variables.

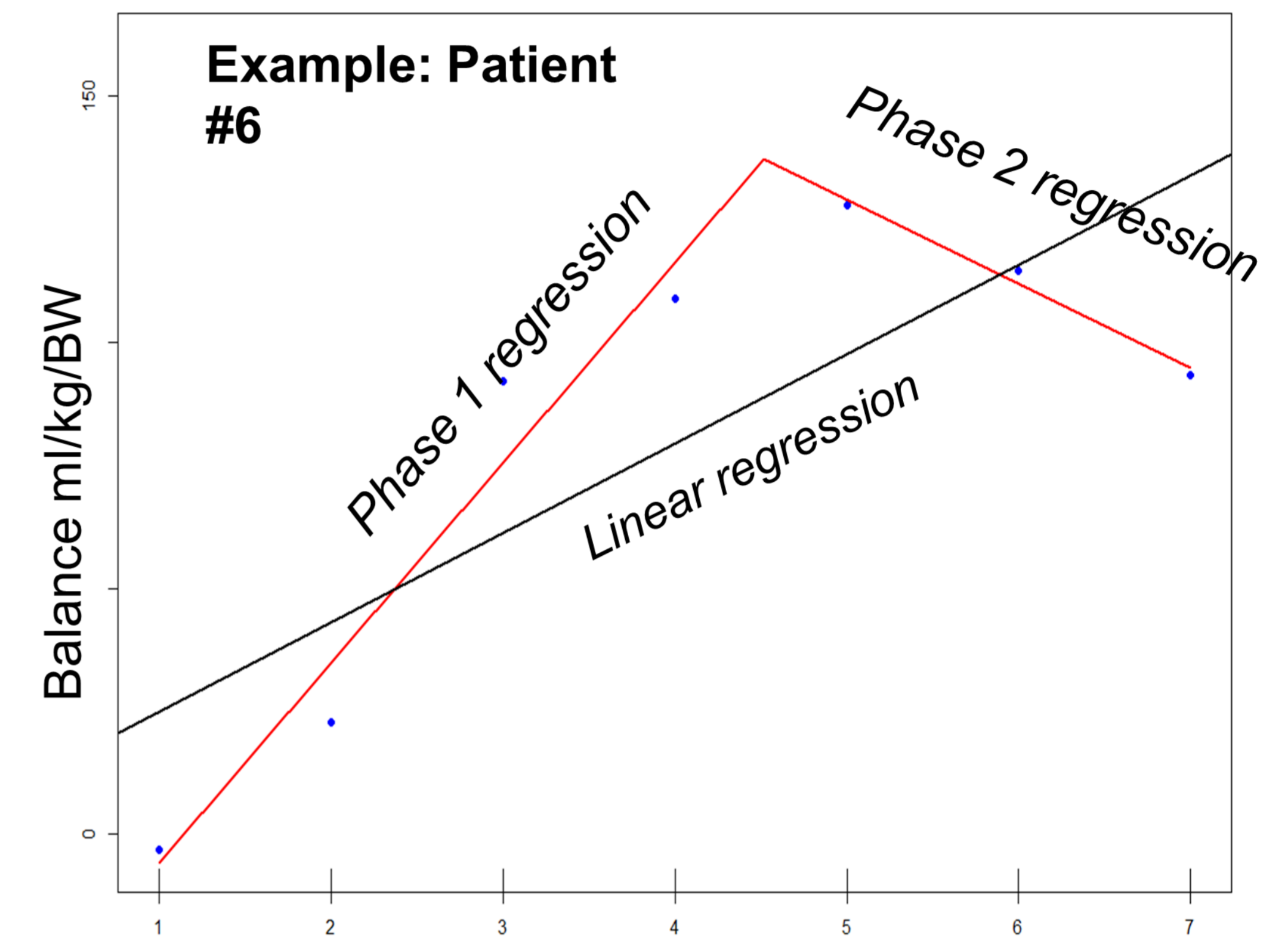
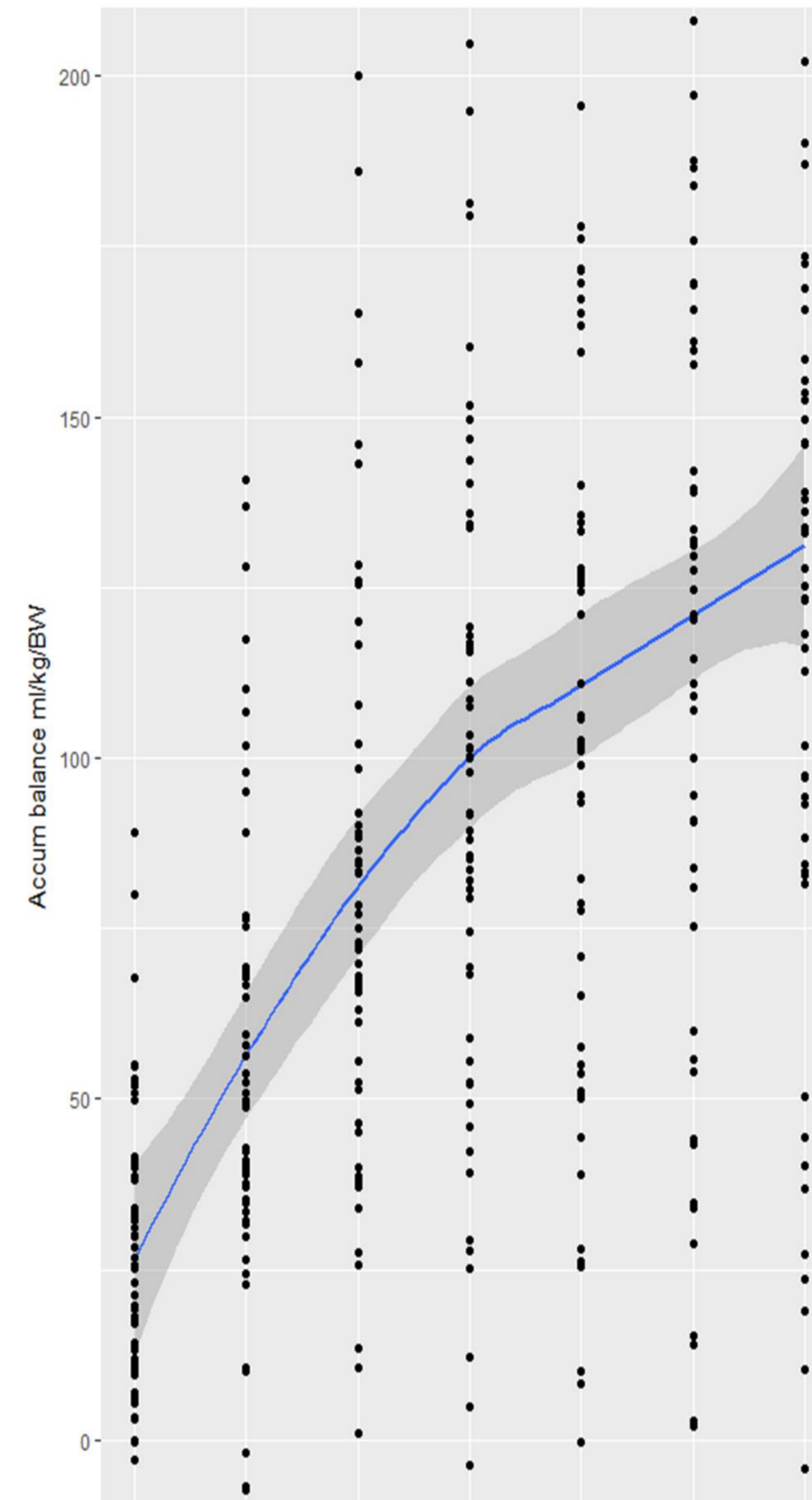


Figure 2. Segmented linear regression for each patient using Package segmented version 0.5-1.4 for the R statistical language, using one break point, starting at point 3 days (i.e. phi parameter set at 3).

Figure 1 Fluid administration during the seven days studied had a tendency to have two stages (Figure 1), a first stage lasting between 3 to 4 days at a higher rate than a second phase with a slower rate of fluid accumulation.

RESULTS

We included 60 patients, 39 (65%) men, mean age 47.5 years (CI 44.2-50.9), comorbidities: Obesity 56.7%, Systemic Arterial Hypertension 21.7%, Diabetes Mellitus 8.3%.

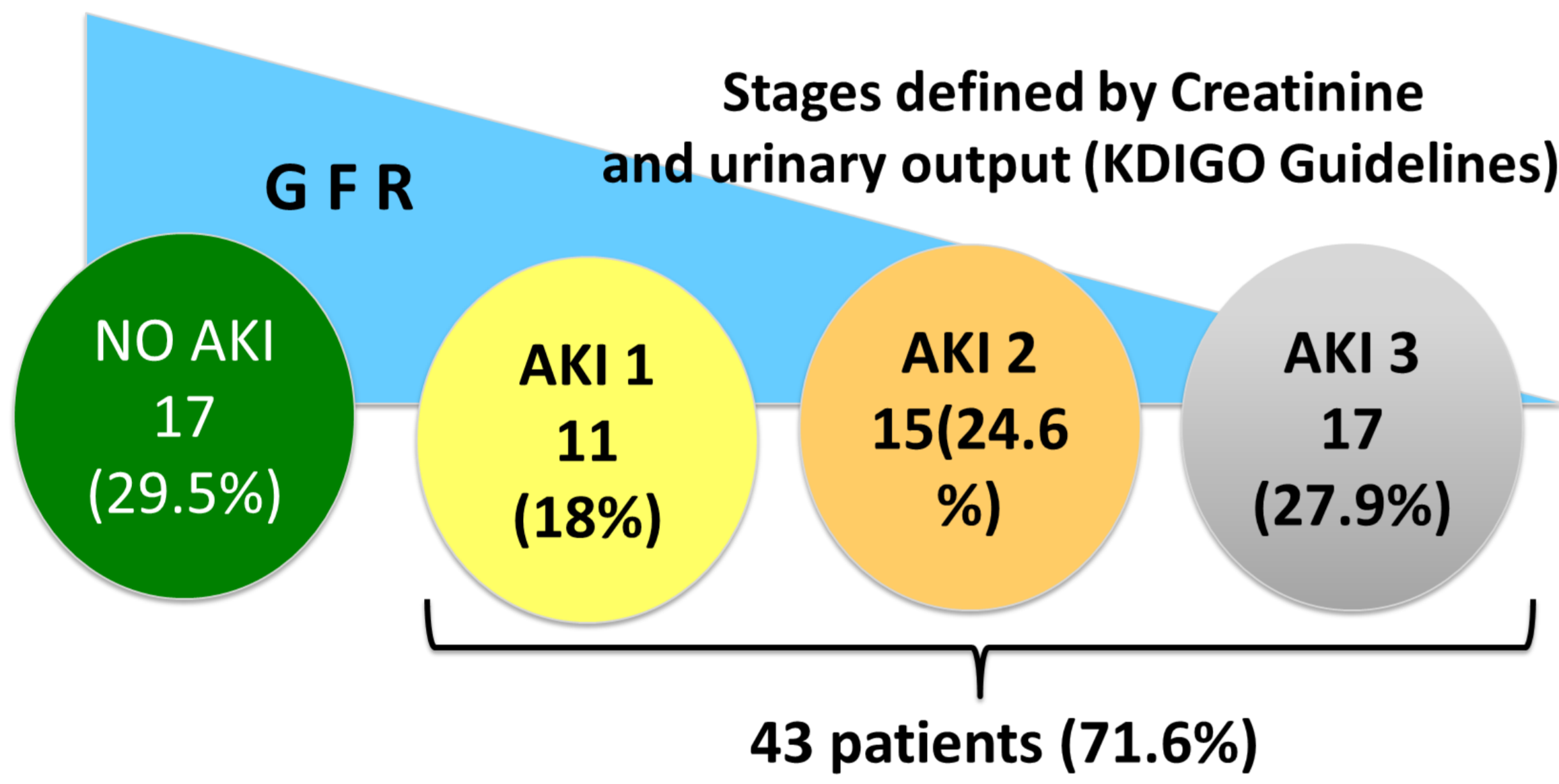


TABLE 1	AKI 43 (%)	NO-AKI 17 (%)	P	OR (IC)
Male	24 (55.8)	15 (88.2)	0.019	0.16 (.03-0.82)
Fever 48 hs before admission	41 (95.3)	13 (76.5)	0.048	6.30 (1.03-38.48)
Nephrotoxics	25(58.1)	4(23.59)	0.016	4.51 (1.26-16)
PEEP level >10	15 (83.3)	10 (50)	0.031	5 (1.09-22.82)
No-Survivors	17 (39.5)	2 (11.8)	0.037	4.9 (0.99-24.2)
Days in hospital	29 (14-50)	20 (12-27.5)	0.081	

TABLE 2	No-Survive	Survive	p
Age	63(54-76)	54(43-60)	0.009
PORT	112(72-128)	76 (62.5-91.5)	0.008
APACHE II	16(14.15-18.27)	12.44 (10.93-13.94)	0.004
SOFA	8 (7 - 10.8)	6.05 (5.14 - 6.96)	0.006

We do not find differences in other medical data, prognostic scores, laboratories or arterial gases associated with AKI outcomes and death.

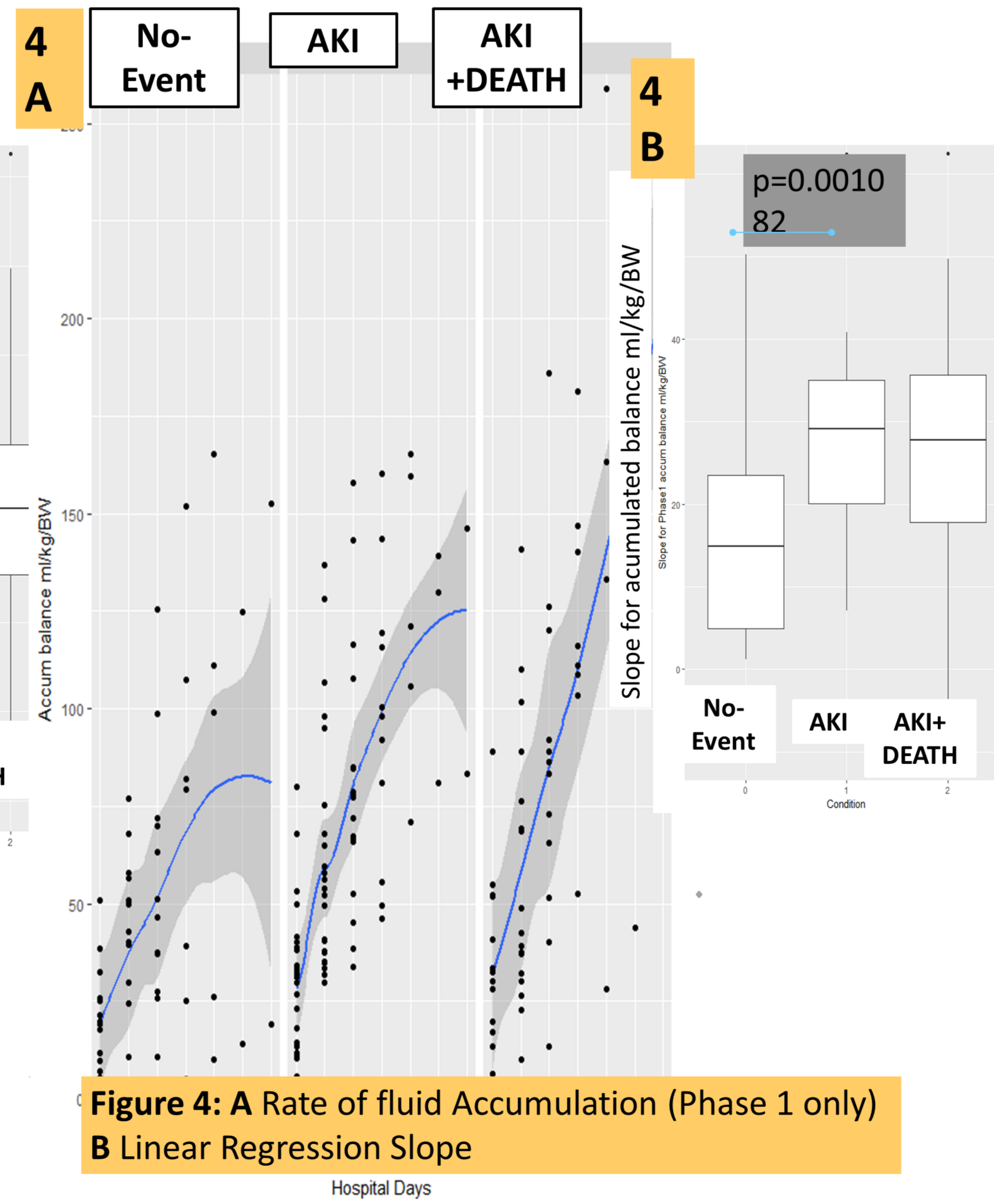
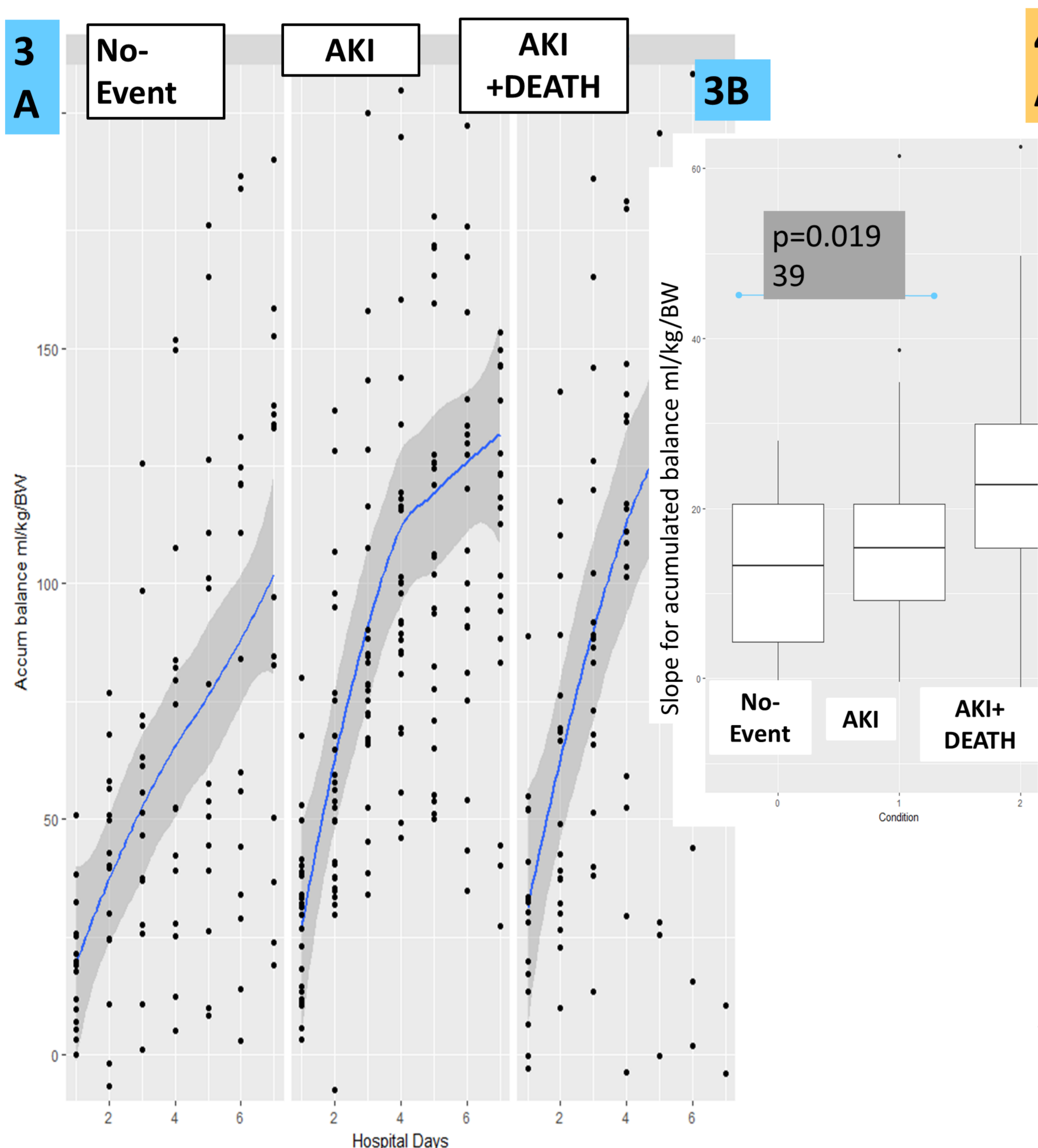


Figure 4: A Rate of fluid Accumulation (Phase 1 only)
B Linear Regression Slope

CONCLUSIONS

- The incidence of AKI in our cohort was high.
- The PORT, APACHE II, SOFA prognostic scales were predictors of mortality in Severe Pneumonia by Influenza.
- Total liquid gain is associated with higher mortality overall.
- A rapid rate of positive liquid balance increase during the first 3 days was associated with a higher risk of AKI.

BIBLIOGRAPHY

- Chittawatanarat K, Pichaiya T, Chandacham K, Jirapongchareonlap T, Chotirosniramit N. Fluid accumulation threshold measured by acute body weight change after admission in general surgical intensive care units: how much should be concerning? Ther Clin Risk Manag. 2015 Jul 27;11:1097-106.
- Watanabe T. Renal complications of seasonal and pandemic influenza A virus infections. Eur J Pediatr. 2013 Jan;172(1):15-22. doi: 10.1007/s00431-012-1854-x. Epub 2012 Oct 13.