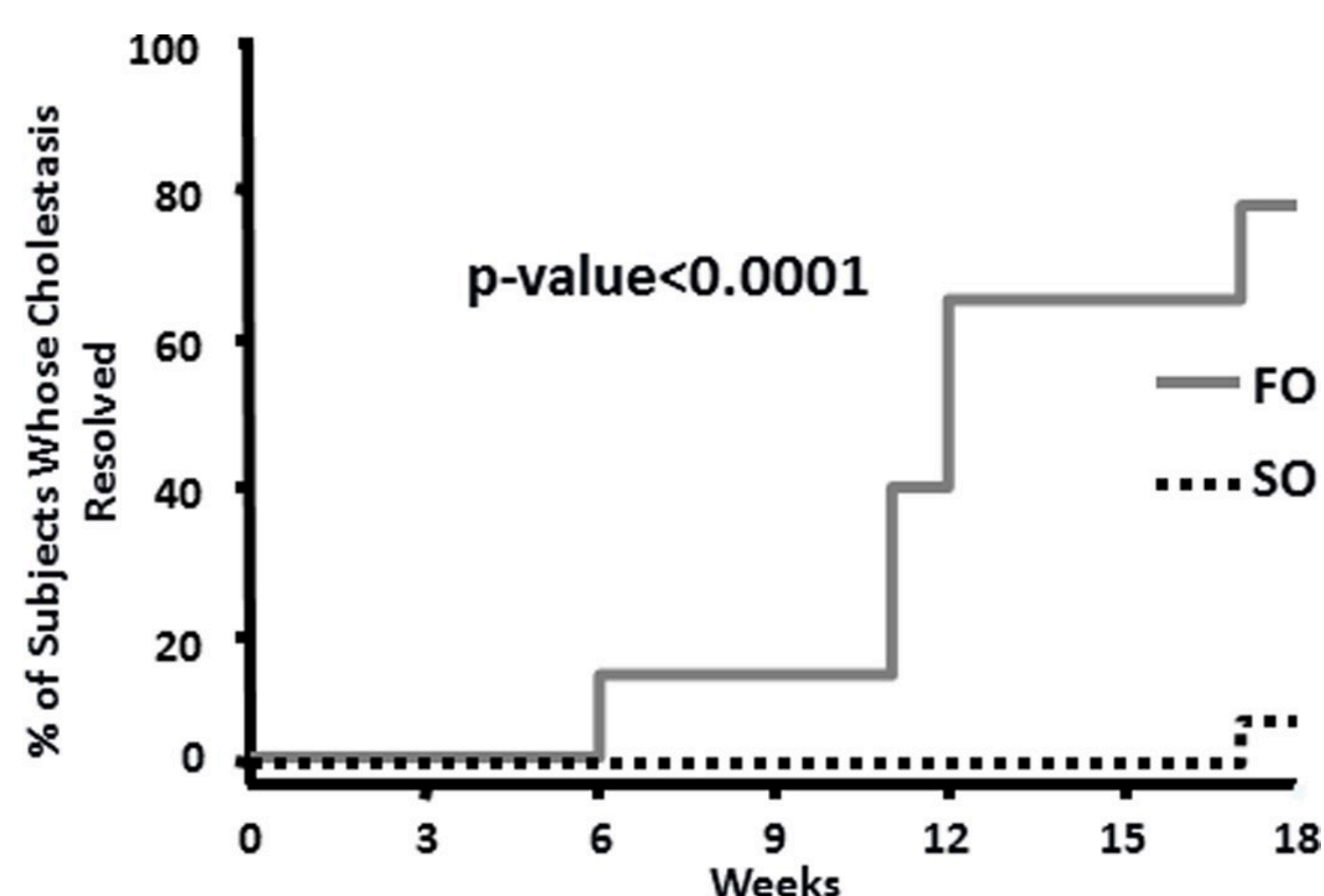


LIPID EMULSION WITH FISH OIL AND EXTREMELY PREMATURE INFANTS: CLINICAL OUTCOMES

BACKGROUND

- Extremely premature infants require IV lipids for non-protein calories and fatty acids
- 100% soybean oil (SO) contains a large amount of phytosterols and is associated with parenteral nutrition-associated cholestasis (PNAC)
- SO lacks the γ ω -3 fatty acid, docosahexaenoic acid (DHA), and the ω -6 fatty acid, arachidonic acid (ARA)
- DHA and ARA are important for growth, and DHA has anti-inflammatory properties
- We have demonstrated that IV fish oil reverses PNAC



- A composite IV lipid containing 15% fish oil (CO) contains DHA and ARA and less phytosterols

OBJECTIVES

Compare DHA and ARA status and clinical outcomes, including growth and PNAC, in extremely premature infants who received SO or CO

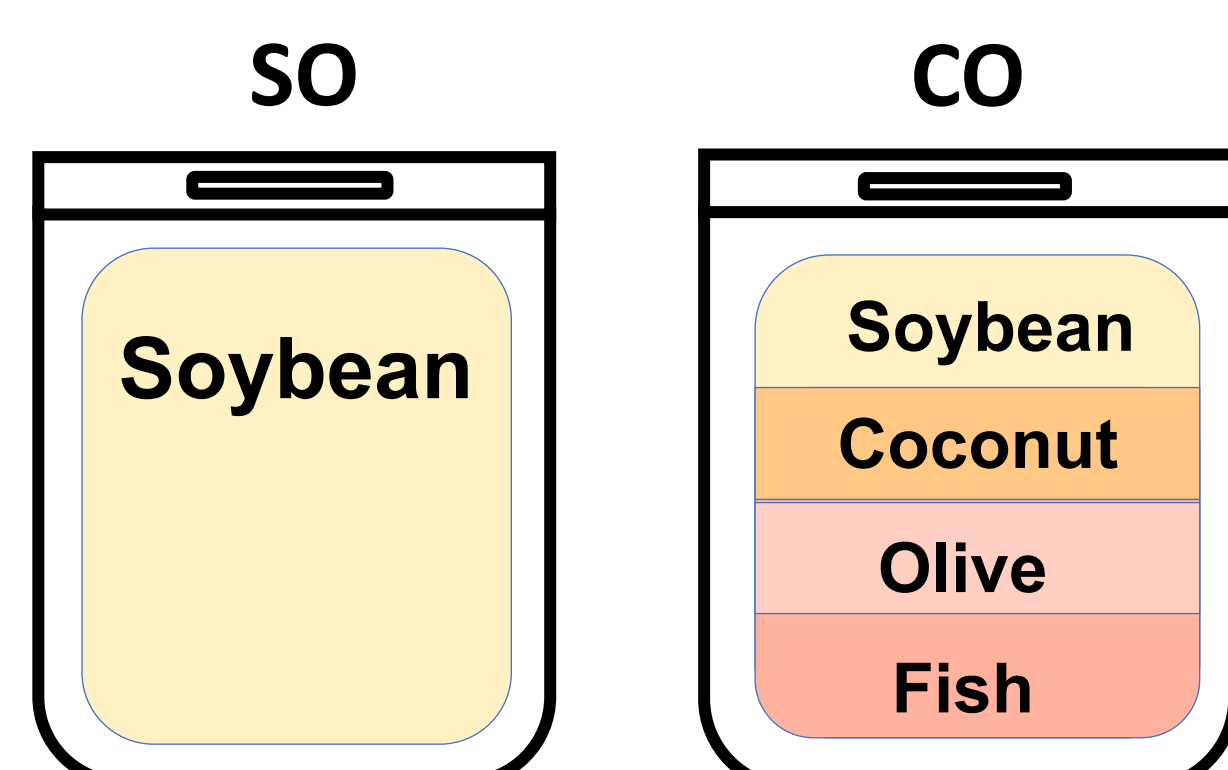
METHODS

Study Design

- Observational study
- Infants born between Jan 2014 - Dec 2019 at UCLA

Inclusion Criteria

- Birth weight <math><1</math> kg
- SO or CO
- PN > 7 days
- Survival to discharge



RESULTS

Subject Characteristics

	SO (N=43)	CO (N=43)	p value
Maternal Race - White	53%	44%	0.18
Gestational Age, weeks	26 (25, 29)	26 (25, 28)	0.20
C-section	79%	86%	0.57
Birth Weight, kg	0.8 (0.7, 0.9)	0.7 (0.6, 0.9)	0.04
Parenteral Nutrition Days	29 (19, 42)	23 (11, 33)	0.08
IV Lipid Days	28 (15, 40)	22 (11, 31)	0.08
Day of Life to Full Feeds	33 (24, 42)	25 (17, 34)	0.02
Length of Stay, days	99 (78, 117)	98 (85, 125)	0.95

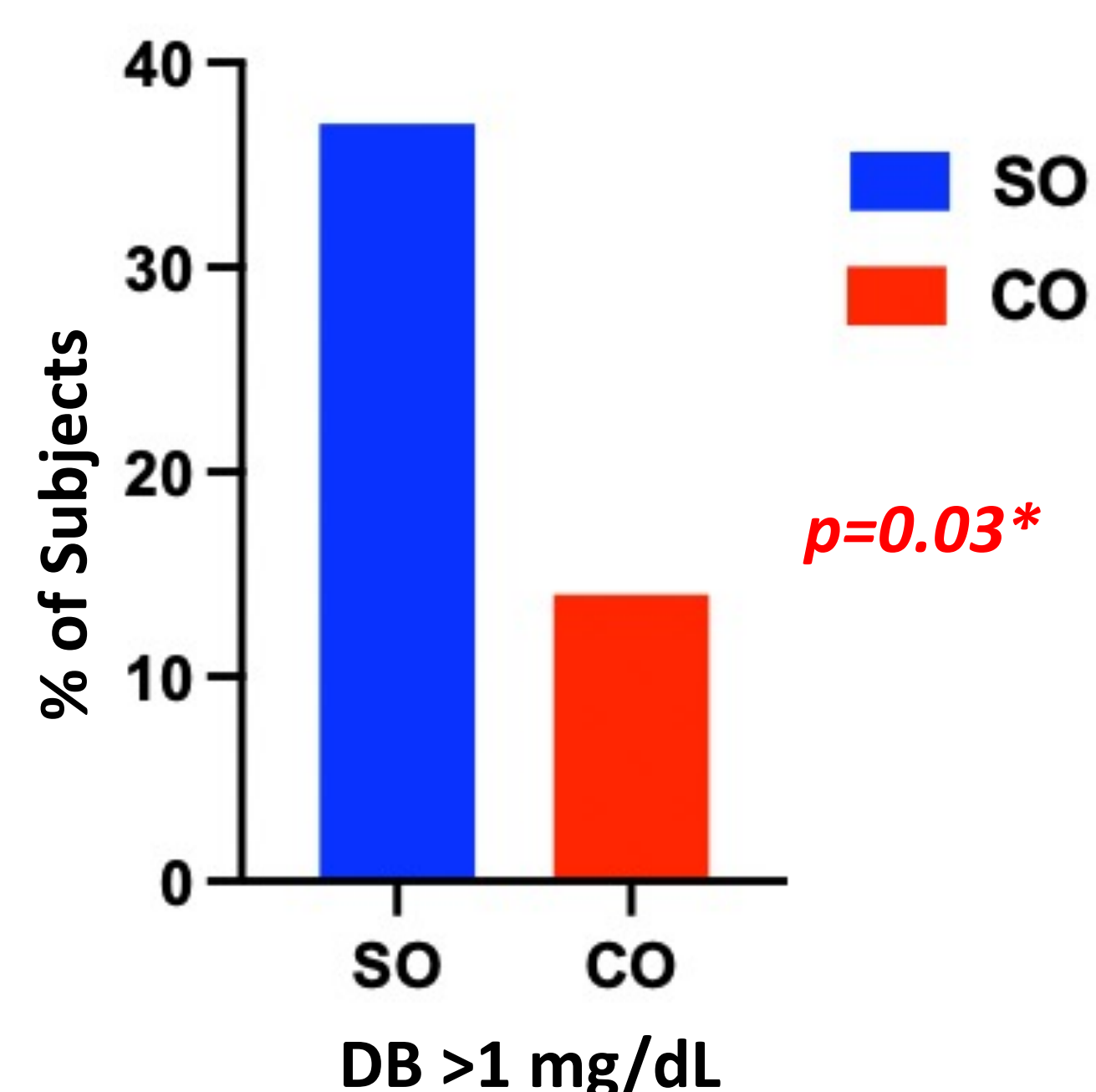
Clinical Outcomes

	SO (N=43)	CO (N=43)	p value
Maximum DB, mg/dL	0.8 (0.5, 1.4)	0.4 (0.3, 0.6)	0.001*
Maximum ALT, units/L	15 (9, 51)	10 (6, 17)	0.14
Maximum AST, units/L	34 (25, 65)	40 (28, 50)	0.74
Maximum Triglycerides, mg/dL	143 (108, 165)	133 (100, 179)	0.85
Chronic Lung Disease	56%	58%	1
ROP Requiring Laser	23%	26%	1

Data are presented as median (IQR) or %

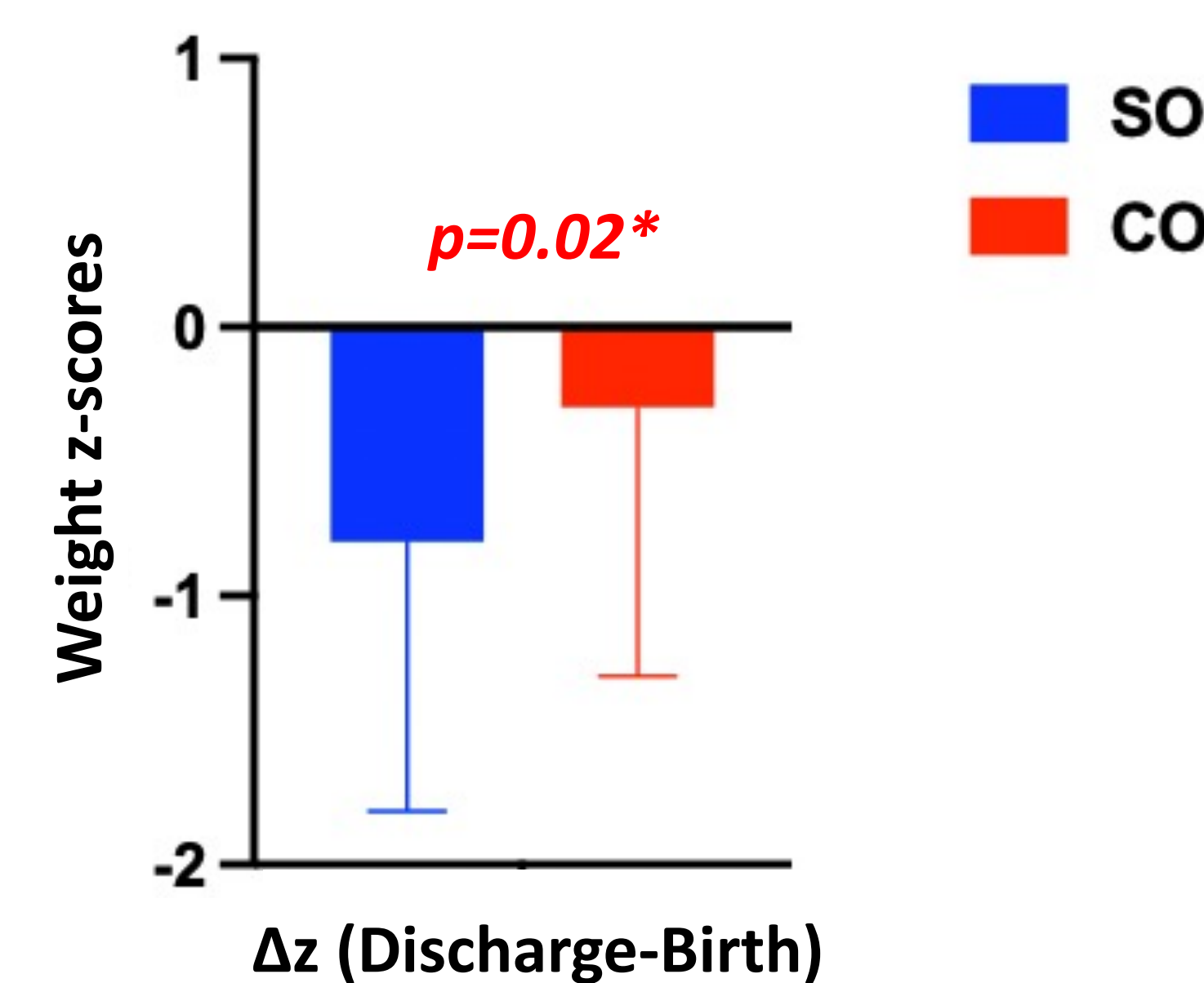
*No longer significant after controlling for days to full feeds

PNAC Incidence



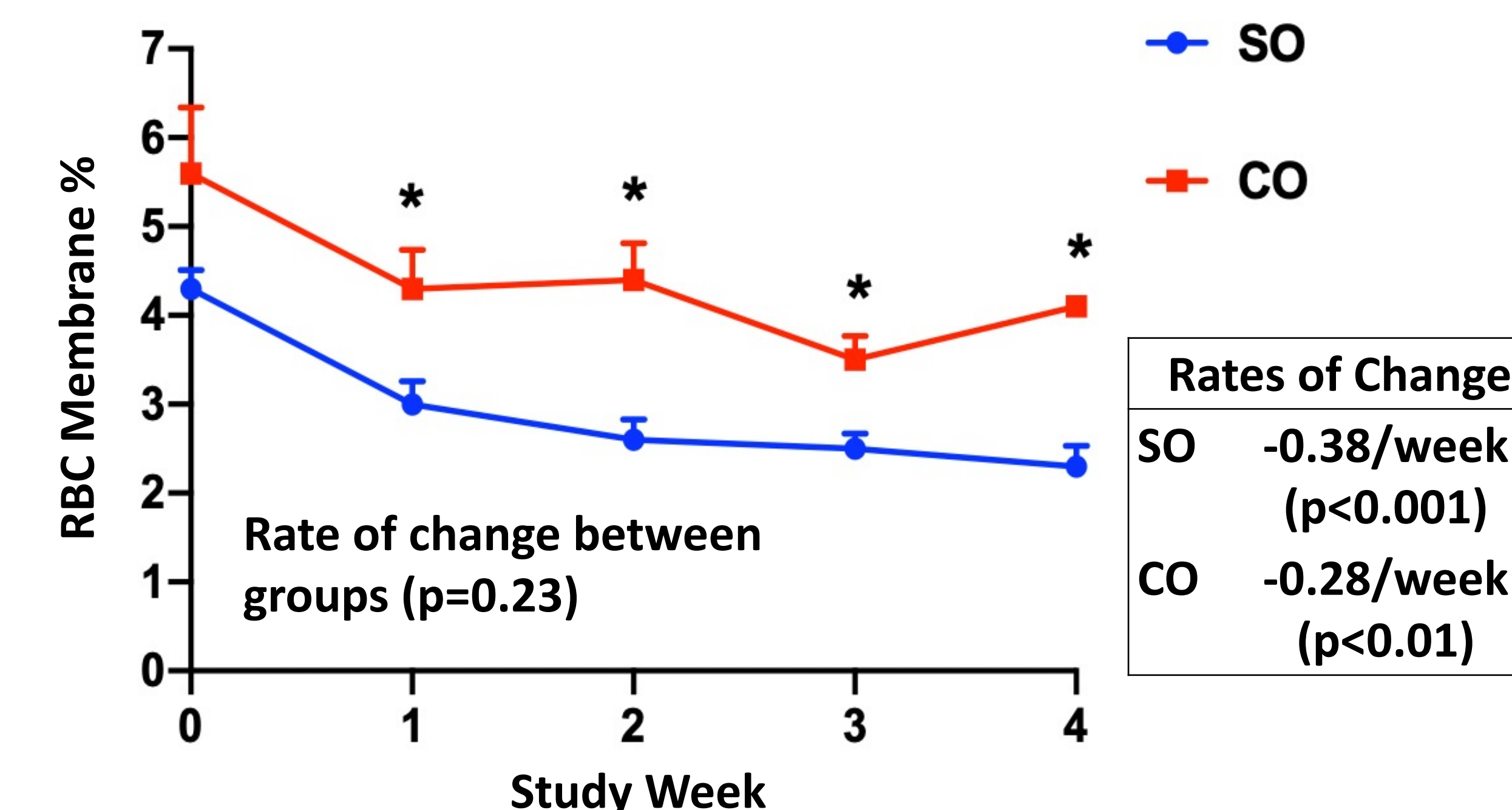
Effect	OR	95% CI	p value
Treatment (SO vs. CO)	3.1	[0.96, 10.2]	0.06
Day of Life to Full Feeds	1.1	[1.0, 1.1]	<math><0.001</math>

Growth Outcomes

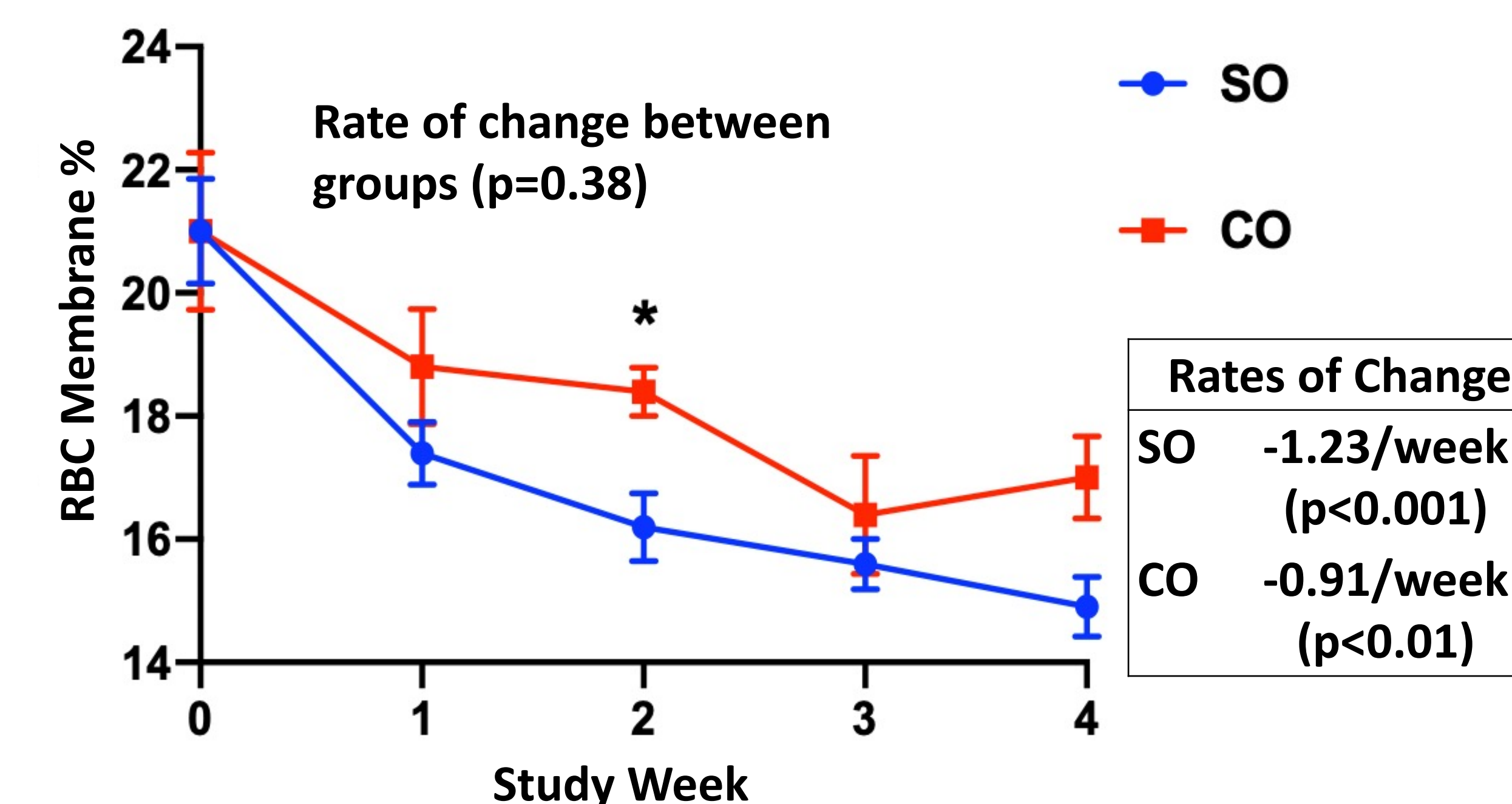


Effect	Estimate	p value
Treatment (SO vs. CO)	-0.08	0.22
Day of Life to Full Feeds	-0.02	0.01

CO Improves DHA Status



CO and ARA Status



* p<0.05 between groups at specific time point

CONCLUSION

- In preterm infants who received CO, DHA and ARA still declined, and clinical outcomes were similar when compared to infants who received SO.
- After controlling for days to reach full feeds, infants who received SO were 3x more likely to develop PNAC. However, this was not statistically significant.
- Enteral feeds are critical to optimizing growth and reducing PNAC in premature infants.