

THE ROLE OF ABDOMINAL ULTRASOUND (AUS) IN THE DECISION PROCESS FOR SURGICAL TREATMENT IN NEONATE WITH NEC

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Background and aims: Necrotizing Enterocolitis (NEC) is an inflammatory gastrointestinal disease of unknown aetiology that mostly affects the preterm infant and carries high mortality. Plain abdominal radiography is the current standard method for detecting/monitoring NEC. Nevertheless, exact timing for surgical intervention can be difficult to identify. The aim of the study is to evaluate the reliability of the AUS and Doppler in the diagnosis, management of NEC.

Methods: Pilot study. We enrolled 15 newborns with clinical signs of NEC (according to Bell). 2 of them had 2 episodes of NEC. At least one AUS was performed at the onset of the clinical signs. We follow the sonographic technique according to Faingold. A neonatologist and a paediatric radiologist judged the US images. Correlation with X-ray findings and the need of surgery was studied.

Results: Patients were divided in 2 groups: NEC stage IIIB (n=7) and NEC ≤ IIIA (n=10) (see Graph 1). Complex fluid collections, absent flow, no peristalsis, were the most prominent findings indicating the need for surgery.

	NEC IIIB (7)	NEC II-III (10)	TOTAL (17)
MEAN AGE (GA) wks	34,8 (25,6)	28,9 (24,93)	32,29 (25)
BIRTHWEIGHT g	846	702,5	725
FREE GAS XR	3 (17,6%)	0 (0%)	3 (17,6%)
FREE GAS US	2 (11,7%)	0 (0%)	2 (12,5%)
INTRAMURAL GAS XR	5 (29,4%)	1 (5,8%)	6 (35,3%)
INTRAMURAL GAS US	5 (29,4%)	5 (29,4%)	10 (58,8%)
COMPLEX FLUID US	2 (11,7%)	0 (0%)	2 (11,7%)
PORTAL VENOUS GAS	1 (5,8%)	0 (0%)	1 (5,8%)
THICK / THIN BOWEL	1 (5,8%) / 4 (23,5%)	0 (0%) / 4 (23,5%)	1 (5,8%) / 8 (47,1%)
NO PERISTALSIS	2 (11,7%)	0 (0%)	2 (11,7%)
NO FLOW	2 (11,7%)	0 (0%)	2 (11,7%)

[Table NEC]

Conclusions: AUS can detect necrotic loops and perforation by demonstrating complex fluid collections, absence of peristalsis and absent flow. Our data suggest that AUS can be crucial in the decision for surgical treatment. We propose to use AUS routinely together with plain radiography for the management of NEC.