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ABSTRACT BOOK

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LONG-TERM BOWEL FUNCTION OUTCOMES IN ADOLESCENTS AND YOUNG ADULTES WITK ANORECTAL MALFORMATIONS: A PROSPECTIVE STUDY OF 25 PATIENTS

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Aim of the study: To provide an overview of the bowel function outcomes of adolescents and young adults (AYA) with an anorectal malformation (ARM).

Methods: Data from all patients participating in the Lifelong guidance program were prospectively gathered. Patients enrolled in this program from January 2021 to December 2023 were eligible for inclusion. For this study, data on the gastrointestinal function obtained from 3 questionnaires (i.e. physical health, incontinence, and Groninger DeFeC) were analysed. Main outcomes were gastrointestinal outcomes such as potential problems with defecation and/or accidental stool loss (e.g., soiling, staining).

Main results: Twenty-five patients participated in this project with a median age of 18.0 years (IQR 17.0-18.0). Abdominal pain or cramps were reported in 12/25 patients, of which nine patients experienced this monthly and three weekly. Accidental stool loss occurred in 7/25 patients, of which soiling occurred in 5 patients and solid stool loss in two. Five/25 patients reported monthly loss of diarrhoea. Some patients required laxatives (n=4), an enema (n=1), or rectal rinsing (n=5) to properly evacuate stool. Of the patients that experience difficulty losing defecation, n=9/12 talked with someone about it, of which four with family and five with medical specialists.

Conclusions: Defecation problems were frequently reported in AYA's with ARM. This emphasizes the need for continuous monitoring and guidance of ARM patients highlighting the importance of a sufficient lifelong guidance and transition of care protocol.

TRANSITIONAL CARE FOR PATIENTS WITH ESOPHAGEAL ATRESIA AND CONGENITAL DIAPHRAGMATIC HERINIA: A EUROPEAN INVENTORY INITIATIVE

Cunera M.C. de Beaufort, Dalia Aminoff, Ivo de Blaauw, Célia Crétolle, Jens Dingemann, Natalie Durkin, Wout F.J. Feitz, JoAnne Fruithof, Caterina Grano, Carmen Mesas Burgos, Nicole Schwarzer, Graham Slater, Tutku Soyer, Cristiano Violani, Rene Wijnen, Paolo de Coppi, Ramon R. Gorter; for the Transition of Care study group.

Background: Patients with esophageal atresia (EA) and congenital diaphragmatic hernia (CDH) are subdue to long-term morbidity, however, European data about access to transition of care (TOC) for these conditions is limited. The aim of this international study was to assess the current status of TOC and adult care (AC) programs for patients with EA and/or CDH.

Methods: A survey was developed by members of EUPSA, ERNICA, and ePAGs, comprising of four domains: general information, general questions about transition to adulthood, and disease-specific questions regarding TOC and AC programs. Recruitment of centers was done by the ERNs and EUPSA, using mailing lists and social media accounts. Only one survey could be filled out by each participating center. Descriptive statistics were reported.

Results: Eighty-two centers participated. Seventy-two centers (87.8%) had a self-reported area of expertise for EA and CDH. TOC programs were installed in 45.8% of the centers (EA n=32, CDH n=13), and AC programs in 29.2% (EA n=20, CDH n=12). Adult gastroenterologists and pulmonologists were most often responsible for the care of respectively EA and CDH patients. When comparing centers, wide variation was observed in the content of the programs.

Conclusion: Despite the awareness of the importance of TOC and AC programs for EA and CDH patients, these programs were installed in less than 50% of the participating centers. Various transition and AC programs for EA and CDH were applied, with considerable heterogeneity in content and involved responsible caregivers. Future research should improve TOC and AC programs for patients with EA and CDH.

LONG-TERM ONCOLOGICAL OUTCOMES OF FOLLICULAR THYROID CANCER IN ADOLESCENTS AND YOUNG ADULTS: A NATIONWIDE POPULATION-BASED STUDY

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Introduction: Follicular thyroid carcinoma (FTC) in adolescents and young adults (AYAs) is rare and data on long-term oncological outcomes are scarce. This study aimed to describe the long-term recurrence and survival rates of AYAs with FTC, and to identify risk factors for recurrence.

Methods: We conducted a nationwide, retrospective cohort study, in which we combined two national databases. Patients aged 15 – 39 years, diagnosed with FTC in The Netherlands between 2000 and 2016, were included. Age, sex, pT-stage, pN-stage, size of tumor, focality, positive margins, angioinvasion were included in a cox proportional hazard model to identify risk factors for recurrence. This study has been approved by the institutional review board of Amsterdam UMC (registration number #20.319).

Main Results: 192 patients were included. Most patients presented with a minimally invasive FTC (MI-FTC) (95%). Five patients presented with synchronous metastases (2.6%). During a median follow-up of 12.0 years, three patients developed a recurrence (1.6%), of which one patient developed a regional recurrence (33%), and two patients presented with distant recurrences (67%). Five patients died during follow-up (2.6%). Cause of death was not captured. A cox proportional hazard model could not be performed, due to the low number of recurrences.

Conclusion: FTC in AYAs is generally characterized as a low-risk tumor, as it exhibits a very low recurrence rate, a high overall survival rate, and it typically presents as MI-FTC without synchronous metastases. These findings underscore the favorable long-term oncological prognosis of FTC in AYAs.

THE DEFINITION OF RECURRENCE OF DIFFERENTIATED THYROID CANCER: A SYSTEMATIC REVIEW

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Aim of the study: Currently, there is no universally accepted definition of recurrence for differentiated thyroid cancer (DTC). The primary aim of this systematic review was to assess the definition of recurrence of DTC.

Methods: A systematic literature search in MEDLINE and EMBASE was performed for studies reporting on recurrence of DTC, published January 2018 to December 2023. Studies that did not provide a definition of recurrence were excluded. Primary outcome was definition of recurrence of DTC. Secondary outcomes were whether studies differentiated between recurrence and persistent disease, or between recurrence after lobectomy, total thyroidectomy and total thyroidectomy with radioiodine ablation (RAI). This study adhered to 2020 PRISMA statement for systematic reviews.

Main results: Out of 1450 identified studies, 231 studies met inclusion criteria. The most prevalent definitions of recurrence were cytology/pathology-proven recurrence (22.5%) and the combination of imaging studies and cytology/pathology-proven recurrence (18.2%). Forty studies

(17.3%) differentiated between recurrence and persistent disease, while one study (<1%) defined recurrence after lobectomy and total thyroidectomy with RAI, but omitted total thyroidectomy without RAI.

Conclusions: Our main finding is that there is no universally accepted definition of recurrence of DTC and there is extensive heterogeneity among the definitions, emphasizing the need for a globally uniform definition. The findings of this study will serve as the basis of a future Delphi-based proposal for a novel and widely accepted definition of recurrence of DTC. A universally accepted definition could facilitate global discussion, enhance the assessment of treatment outcomes and improve the comparability of studies.

THE EFFECT OF BARIATRIC SURGERY ON QUILITY OF LIFE AND DEPRESSION, AND THE IMPACT OF QUALITY OF LIFE AND DEPRESSION ON WEIGHT OF LOSS IN ADOLESCENTS: A RANDOMIZED CONTROLLED TRIAL

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Aim: We investigated the effect of bariatric surgery (BS) on health-related quality of life (Hr-QoL) and depression in adolescents post-intervention, comparing them to their counterparts who underwent multidisciplinary lifestyle intervention (MLI). In addition we assess the impact of pre-existing impaired Hr-QoL and depression on weight loss.

Methods: Adolescents with severe obesity were included and randomized into the intervention group (laparoscopic adjustable gastric banding and MLI) or the control group (MLI). Anthropometric measurements, questionnaires evaluating Hr-QoL and depression were taken at baseline, 12 months, and 24 months.

Main results: Of the 59 patients included, 80% were female. The mean age was 15.76 (±1.00) and mean BMI 44.11 (±5.56). Significant differences between the study groups in BMI, Hr-QoL, and depression at 12 months were observed. After 24 months this difference persisted for BMI (mean difference -3.43, 95%CI -6.78,-0.8) but not for the Hr-QoL (7.80, -1.93,17.53) and depression (-4.18, -11.68,3.31). Participants with pre-existing impaired Hr-QoL experienced significantly greater weight loss in the intervention group than in the control group after 24 months (-0.46, -0.84,-0.08). In contrast, participants with normal Hr-QoL had similar weight loss outcomes regardless of the treatment (mean difference -0.49, -1.13,0.15). Participants with depression had similar weight loss after 24 months in both study arms (-0.56, 95%CI -1.68,0.56), while in participants without depression the intervention group had greater weight loss than the control group after 24 months (-0.40, 95%CI -0.73,-0.07). Interestingly, the group with depression at baseline trended towards greater weight loss over de 24 month follow-up period than their peers without depression in both intervention and control group.

Conclusion: BS was superior in comparison to MLI for the reduction in BMI, improvement in Hr-QoL, and depression score after 12 months. After 24 months this difference was not detectable for Hr-QoL and depression but sustained for BMI. An impaired Hr-QoL should not be a contraindication

for BS, as weight loss in the intervention group was greater. BS candidates with depression have similar weight loss outcomes with MLI and BS but in comparison with those without depression they experienced greater weight loss in both study arms.

LONG TERM GASTROINTESTINAL SEQUELAE IN CHILDREN WHO UNDERWENT PYLOROMYOTOMY FOR INFANTILE HYPERTROPHIC PYLORIC STENOSIS

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Aim of the study: Pyloromyotomy, the treatment for infantile hypertrophic pyloric stenosis (IHPS), is a procedure with a low risk of complications and quick recovery. However, at a later age, gastrointestinal (GI) symptoms are commonly reported and recently we even described a fatal case of adhesive small bowel obstruction years after pyloromyotomy. Therefore, the aim of this study was to systematically evaluate long-term gastrointestinal sequelae of pyloromyotomy.

Methods: All children who underwent open or laparoscopic pyloromyotomy between 2007-2017 (n=450) in two pediatric surgical centers, were invited to complete a questionnaire, which included the PedsQL™-GI Module. Outcomes were compared to published healthy controls (n=587) and between type of procedure by using an unpaired t-test.

Main results: In total, 196 respondents completed the questionnaire. The majority (n=169, 86.2%) was male with a mean age of 11.4 (±3.1) years. 103 children underwent laparoscopic pyloromyotomy (52.6%) and 93 (47.4%) open pyloromyotomy. The mean total score of all children who underwent pyloromyotomy was 88.6 (±11.0), which is comparable to healthy controls (88.6 (±12.9)). All subtopics were similar for children who underwent pyloromyotomy compared to healthy controls (Table 1). There were no differences in scores of the PedsQL™-GI module between the open and laparoscopic subgroup.

Conclusions: We showed that the scores of the PedsQL™-GI module do not differ between children who underwent pyloromyotomy during infancy and healthy controls. Long-term gastrointestinal outcomes of children with IHPS who underwent pyloromyotomy are good. This evidence can be used during parental counseling. It also suggests that there is no need for long-term follow-up.

Table 1. PedsQL™ GI Symptoms Scales and Worry Scales scores for children who underwent pyloromyotomy during infancy and healthy controls[1]

		IHPS (n = 196)		Healthy controls[1] (n = 587)		
GI symptoms Scales and Worry scales	**Items**	**Mean**	**Standard deviation**	**Mean**	**Standard deviation**	**p-value**
Symptoms total score	58	88.6	11.0	88.6	12.9	>0,9999
Stomach Pain and Hurt	6	82.3	18.6	81.1	17.8	0,4193
Stomach discomfort when eating	5	91.3	14.5	89.6	16.2	0,1923
Food and drink limits	6	93.2	15.6	89.7	17.0	0,0111
Trouble swallowing	3	95.7	9.6	95.6	10.9	0,9089
Heartburn and reflux	4	89.4	14.1	90.6	14.3	0,3077
Nausea and vomiting	4	93.2	12.3	91.6	14.7	0,1705
Gas and bloating	7	81.5	19.7	83.3	20.1	0,2756
Constipation	14	86.4	16.7	86.9	17.6	0,7274
Blood in poop	2	97.4	8.1	96.3	12.0	0,2323
Diarrhea	7	92.2	11.7	94.3	11.5	0,0278
Worry about going poop	5	94.9	11.0	94.2	12.4	0,4821
Worry about stomach aches	2	92.8	14.0	91.2	16.4	0,2210

Legend SD means standard deviation. p<.001 is considered significant for group differences.

[1]Varni et al. Interpretability of the PedsQL™ gastrointestinal symptoms scales and gastrointestinal worry scales in pediatric patients with functional and organic gastrointestinal diseases. J Pediatr Psychol. 2015;40(6):591-601.

*Lower scores demonstrate more (worse) gastrointestinal symptoms and hence lower (worse) gastrointestinal-specific HRQOL.

EXPLORING CONGENITAL ANOMALIES USING INNOVATIVE IMAGING TECHNIQUES:APPLICABILITY OF MICRO-CT IMAGING IN PEDIATRIC SURGICAL RESEARCH

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Aim Pathogenesis of rare and complex congenital anomalies remains not fully understood. To further our understanding we need novel techniques to identify new pathways that could form the base for therapeutic interventions. The aim of this study is to explore the applicability and capability of micro-CT imaging in pediatric surgical research.

Methods Patients undergoing surgical reconstruction for rare and complex congenital anomalies (like esophageal atresia (EA), anorectal malformation, Hirschsprung disease (HD), pediatric pseudo-obstruction syndrome (PIPO) or intractable severe constipation) are eligible for inclusion since 01-02-2023. After informed consent is obtained, resected material is fixed in 4% PFA within 3 hours for a total of 48 hours. Material is than stained using 3,75% B-lugol for 48 hours. Scans were performed on a Phoenix Nanotom M micro-CT. After scanning the samples are de-stained to perform complimentary histopathologic evaluation.

Results At time of submission, 12 patients with ARM, 2 patients with EA and 2 patients with HD have been scanned. Data from the analysis from the ARM samples is presented separately. In the HD samples, clear differentiation between affected and non-affected segments of the bowel (on microscopic level) could be observed. Analyses revealed a lack of ganglion cells, an abnormal morphology of muscle fibers and epithelial changes. In the EA samples, a third muscle layer could be observed.

Conclusion Micro CT imaging is able to produce ultrahigh 3D resolution imaging of surgical samples from congenital anomalies and is capable of identifying crucial structures. This warrants further research which is ongoing at our institute.

DISTAL PART OF THE FISTULEA IN ANORECTAL MALFORMATIONS: TO PRESERVE OR NOT TO PRESERVE?

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Aim During surgical reconstruction of anorectal malformations (ARM), a small part of the bowel (fistula) is usually resected. However, vital structures, such as the internal anal sphincter (IAS), could be present in this fistula. Micro-CT imaging, capable of imaging samples in ultra-high 3D resolution, was employed to study this fistula to evaluate its morphology.

Methods Patients undergoing surgical reconstruction for ARM between 01-09-2022 and 01-09-2023 were eligible for inclusion. After informed consent, the resected fistulae were fixed within 3 hours using 4% paraformaldehyde(PFA). All samples were stained using 3,75% B-Lugol for 48 hours. Scans were performed on a Phoenix Nanotom M micro-CT. Samples were de-stained for subsequent histopathologic examination. Outcomes were presence of vital structures like the IAS, epithelial transition zone and innervation. ARM Fistulae were compared with 3 fetal anal canal samples that were derived from the Dutch Fetal Biobank.

Results In total, 11 samples from 11 patients were included. All ARM had either a recto-perineal or recto-vestibular fistula. All samples showed evidence of the IAS, demonstrated by the presence of circularly arranged muscle fibres that widened towards the distal end of the fistula. Columnar epithelia, transitioning towards stratified squamous epithelium distally, was observed. Histology is pending at time of submission, however preliminary results show innervation of the muscle.

Conclusion Distal part of fistulae, currently resected during surgical reconstruction for ARM, contain vital structures like IAS, normal epithelial transitions zone and innervations. This might indicate that the distal part of the fistula should be preserved during surgical reconstruction.

NORMAL COLON LENGHTS BASED ON MAGNETIC RESONANCE IMAGING IN CHILDREN: PRELIMINARY RESULTS

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Aim To describe colon lengths on magnetic resonance imaging (MRI) in children without constipation in order to provide normative data for colon lengths in children for dolichocolon and dolichosigmoid.

Methods We performed a retrospective study of children aged 0-18 years who underwent MRI for inflammatory bowel disease, including ulcerative colitis and Crohn's disease without colon involvement, who did not fulfil the Rome IV criteria for functional constipation. Primary outcome was the total colon length and secondary outcome was the rectosigmoid length (in cm). Two authors measured the colon segments on MRI independently using the program syngo.via. Linear regression was used to explore the relationship between colon lengths and age, height, weight and body surface area.

Main results Forty-eight children (median age was 14; range 6-18 years, 50% male) were included in this study. Median total colon length was 114.9 cm [106.1, 124.8]. Median rectosigmoid length was 38.0 cm [29.4, 42.0]. Table 1 depicts the length of all predetermined colon segments per age in years. A linear regression model demonstrated a positive significant correlation between total colon length and age ($R = 0.15$, $p = 0.006$), height ($R = 0.21$, $p = <0.001$), weight ($R = 0.18$, $p = 0.003$) and body surface area ($R = 0.23$, $p = <0.001$).

Conclusions Median total colon length on MRI in children without constipation was 114.9 cm; [106.1, 124.8]. Median rectosigmoid length 38.0 cm; [29.4, 42.0]. More patients are needed to establish reference values for dolichocolon and dolichosigmoid.

PATIENT REPORTED OUTCOMES OF THE CHAIT TRAPDOOR™ CECOSTOMY IN PEDIATRIC PATIENTS WITH DEFECATION DISORDERS

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Aim of the study To evaluate the outcomes of patients who underwent Chait Trapdoor™ cecostomy (CTC) placement for severe constipation or fecal incontinence (FI).

Methods We performed a retrospective study including all children (<18 years) who underwent CTC placement between 2009 and 2023 at our tertiary referral center. Data were extracted from medical charts. During routine follow-up in 2023, patient reported outcomes were measured. Main outcomes included whether the CTC was still being used, satisfaction with CTC and resolution of symptoms.

Results Sixty-two children underwent CTC placement. Median age at CTC placement was 12 years [IQR 8-14; range 1-17 years] and median follow-up was 4 years [IQR 2-8: range 0-14 years]. Most common underlying diseases were functional constipation (n=39, 63%), spina bifida (n=11, 18%) and anorectal malformation (n=5, 8%). In 32 (48%) patients CTC was placed for FI (due to severe constipation or neurogenic causes), while the remaining 30 (48%) patients did not experience FI but solely severe constipation. At last follow-up, 37/62 patients (60%) still used their CTC, whereas 25/62 (40%) had their CTCs removed (figure 1). Forty-one patients (66%) expressed to be satisfied with their CTC. Patients with FI 16/32 (50%) reported a complete resolution of symptoms after CTC placement. Patients without FI, but solely severe constipation achieved daily bowel moments in 16/30 (53%) patients.

Conclusion At last follow-up, 60% of patients still used their CTC and 66% were satisfied with their CTC. The majority of patients reported daily bowel movements and/or disappearance of FI after CTC placement.

SUBTOTAL COLECTOMY WITH ILEORECTAL ANASTOMOSIS IN PATIENTS WITH PEDIATRIC INTERSTINAL PSEUDO-OBSTRUCTION (PIPO); AN ALTERNATIVE FOR ENTEROSTOMY?

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Aim of the study: Treatment of Pediatric Intestinal Pseudo-Obstruction (PIPO) is primarily symptomatic, including preservation of bowel function, improvement of growth and development by optimizing nutrition. Enterostomy placement is sometimes needed for enteric decompression, but major postoperative complications may occur. The aim of this study is to evaluate the outcome of subtotal colectomy with ileorectal anastomosis as an alternative surgical procedure in PIPO patients, experiencing major enterostomy-related complications.

Methods: We performed a retrospective case-series including all PIPO patients, who underwent a subtotal colectomy with ileorectal anastomosis for this indication at our tertiary referral center. Data on baseline characteristics, clinical course, surgical procedure(s), and postoperative early and late complications (scored using Clavien-Madadi classification) were collected. Main outcomes were the number of complications and number of reinterventions.

Main results: Five patients were included, age varying from six to twenty years at the time of subtotal colectomy. Prior to subtotal colectomy, all patients had an ileostomy and underwent two to twelve reinterventions for major enterostomy-related complications. Four patients were dependent on Total Parenteral Nutrition (TPN) preoperatively. After subtotal colectomy with ileorectal anastomosis, four patients experienced a total of six complications, four of which required surgical reintervention (Table 1). None of the patients required replacement of their enterostomy. Follow-up period after subtotal colectomy ranged from 23 to 48 months.

Conclusion: Subtotal colectomy with ileorectal anastomosis could be an option for PIPO patients experiencing major enterostomy-related complications.

Table 1. Complications after subtotal colectomy with ileorectal anastomosis

Patient	**Postoperative complications**		**Number of reinterventions**	**Follow-up duration (months)**
	Early (<30 days)	***Late (>30 days)***		
#1	Anastomotic stenosis (CM: 3B)	-	1	48
#2	-	Internal herniation, small bowel obstruction	2	40
#3	-	-	0	24
#4	Subcutaneous hematoma (CM: 1B)	Incisional hernia	0	23
#5	-	Incisional hernia	1	46

LONG TERM GASTROINTESTINAL OUTCOMES IN PATIENTS WHO UNDERWENT SURGERY FOR CONGENITAL DUODENAL OBSTRUCTION COMPARED TO HEALTHY CHILDREN

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Background Duodenal obstruction (DO) is a congenital anomaly which requires surgery in the first days of life. However, the long-term gastrointestinal (GI) outcomes in these patients remain unknown. Therefore, the aim of this study is to determine the long-term GI outcomes using the Pediatric Quality of Life Inventory™ (PedsQL™) GI module in patients with DO and compare these to healthy controls.

Methods We performed a prospective cohort study between September and December 2023. The PedsQL™ GI module questionnaire was sent to all patients who underwent DO surgery between 2007 and 2022. Data from the PedsQL™ GI module were compared with scores of a published healthy control group of 384 patients.

Results In total, 24 out of 55 patients completed the PedsQL™ GI module questionnaire. The majority of the patients was female (N=13/24) with a mean age of 10.0 years (±3.8). Trisomy 21 was diagnosed in five out of 24 patients. The mean total score was 84.3 (±10.5) which was significantly lower than the healthy control group (88.0±13.7). The mean scores for constipation (78.1±23.9 vs 86.9±17.2), diarrhea (87.9 ±17.6 vs 93.7±12.7) and worry about when going to poop (87.7±23.5 vs 94.1±13.6) were all significantly lower compared to the healthy control group, whilst all other scales in the PedsQL™ GI module were similar for DO and healthy controls. Three patients were using laxatives.

Conclusion The results showed that the long-term GI outcomes were lower in patients who underwent DO surgery early in life compared to the healthy control group. Notably, scores related to defecation were lower in the DO group, emphasizing the need for attention during follow-up.

LONG-TERM BOWEL FUNCTION OUTCOMES IN ADOLESCENTS AND YOUNG ADULTS WITH ANORECTAL MALFORMATIONS

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Aim of the study To provide an overview of the bowel function outcomes of adolescents and young adults (AYA)with an anorectal malformation (ARM).

Methods Data from all patients participating in the Lifelong guidance program were prospectively gathered. Patients enrolled in this program from January 2021 to December 2023 were eligible for inclusion. For this study, data on the gastrointestinal function obtained from 3 questionnaires (i.e. physical health, incontinence, and Groninger DeFeC) were analysed. Main outcomes were gastrointestinal outcomes such as potential problems with defecation and/or accidental stool loss (e.g., soiling, staining).

Main results Twenty-five patients participated in this project with a median age of 18.0 years (IQR 17.0-18.0). Abdominal pain or cramps were reported in 12/25 patients , of which nine patients experienced this monthly and three weekly. Accidental stool loss occurred in 7/25 patients , of which soiling occurred in 5 patients and solid stool loss in two. Five/25 patients reported monthly loss of diarrhea. Some patients required laxatives (n=4), an enema (n=1), or rectal rinsing (n=5) to properly evacuate stool. Of the patients that experience difficulty losing defecation, n=9/12 talked with someone about it, of which four with family and five with medical specialists.

Conclusions Defecation problems were frequently reported in AYA's with ARM. This emphasizes the need for continuous monitoring and guidance of ARM patients highlighting the importance of a sufficient lifelong guidance and transition of care protocol.

RISK FACTORS FOR 30 DAY MORTALITY AND NEC TOTALIS IN SURGICALLY TREATED NEC PATIENTS - A MULTICENTER RETROSPECTIVE COHORT STUY OF 401 PATIENTS

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Background Necrotizing enterocolitis (NEC) remains the leading cause for mortality in premature neonates. Mortality rate for surgical NEC is estimated at 35%. An aggressive variant of surgical NEC is NEC totalis (NEC-T), known for its rapid onset and lethal outcomes. Specific preoperative risk factors for mortality in surgical NEC patients remain unknown. We aimed to determine preoperative risk factors for 30-day mortality, NEC-T and patients deceased without NEC-T (NEC-non-T) within a cohort of surgical NEC patients.

Methods A retrospective multi-center cohort study was performed between 2008-2022, including surgical NEC patients. NEC-T was defined as necrosis of the majority of small intestines without curative treatment options, leading to 'open-close' procedure. Risk factors for 30-day mortality, NEC-T and NEC-non-T were analyzed using multivariable logistic regression analyses.

Results We included 401 patients. Thirty-day mortality rate was 34.2% (N=137/401), 54.7% had NEC-T (N=75/137) and 45.3% had NEC non-T (N=62/137). Male sex (OR: 1.47; 95%-CI:1.47-3.82), lower birthweight (p/gram higher OR: 0.99; 95%-CI:0.98–0.99), need for inotropic support between NEC diagnosis and surgery (OR: 2.93; 95%-CI:1.87–4.61) and portal gas (OR: 1.81; 95%-CI:1.10–2.99) were significant risk factors for 30-day mortality. Same risk factors were found for NEC-T. For NEC-non-T the need for inotropic support (OR: 2.32; 95%-CI:1.33–4.04) was significant.

Conclusion Male sex, lower birthweight, inotropic support between NEC diagnosis and surgery, and portal gas are preoperative risk factors for 30-day mortality and NEC-T. Need for inotropic support is

the sole risk factor for mortality in NEC-non-T. These preoperative risk factors could be considered in parental counseling and surgical decision making.

SHORT-TERM POSTOPERATIVE COMPLICATIONS IN SURGICALLY TREATED NEC PATIENTS – A MULTICENTER RETROSPECTIVE COHORT STUDY OF 401 PATIENTS

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Introduction Surgical intervention takes place in approximately 60% of patients with necrotizing enterocolitis (NEC). Literature describes a large variation in incidence of postoperative complications, which makes parental counseling difficult. Our aim is to describe short-term surgical complications, short bowel syndrome (SBS) and intestinal failure after surgery for NEC.

Methods We conducted a multicenter cohort study from 2008-2022, including surgically treated NEC patients. Complications <30 days after surgery were classified according to the Clavien-Madadi (CM) as mild (CM<3), severe (CM 3-4), or death (CM5).

Results Of 401 included patients 75 (19%) deceased after an 'open-and-close' procedure due to NEC totalis. Median follow-up was 23.0 [IQR: 6.0-67.0] months. In 326 patients without NEC totalis, an enterostomy was created in 240 and a primary anastomosis in 110 (table 1). Complications developed in 46% (N=144/326) of patients: 13% (N=41/326) CM<3, 13% (41/326) CM 3-4 and 19% (N=62/326) CM5 (death). Most frequent occurring complications were: high output stoma 22% (N=53/240), after primary anastomosis: stricture 18% (N=20/110) or leakage 10% (N=11/110). Acute redo-surgery <30 days took place in 15% (N=20/326). Intestinal failure was seen in 18% (N=57/326) of patients and SBS in 17% (N=54/326), of which 36 patients had both.

Conclusion Postoperative complications <30 days develop in 46% of surgically treated NEC patients, and 15% require multiple surgeries. One-third of patients deceased <30 days – of which 55% after an open-and-close procedure. More insight into patient-specific risk factors for developing NEC

totalis, postoperative complications, and for mortality, is required to optimize parental counseling both pre- and postoperative.

Table 1: Primary surgical treatment for NEC

'Open-and-close' for NEC totalis	75/401 (18.7%)
Primary anastomosis	81/326 (24.8%)
Stoma	207/326 (63.5%)
Anastomosis and stoma	29/326 (8.8%)
Peritoneal drainage without further intervention	1/326 (0.3%)
Peritoneal drainage and stoma	4/326 (1.2%)
Oversticking of perforation (small bowel)	1/326 (0.3%)
No resection	3/326 (0.9%)