Funded by the
European Union's
EU4Health
Programme

European Reference Network
for rare or low prevalence complex diseases
Network Paediatric Cancer (ERN PaedCan)

18.03.2026

Malgorzata Styczewska
& Dominik Schneider

Therapeutic challenges in advanced EBV-positive gastric carcinoma in an adolescent patient

Moderation: Andishe Attarbaschi

SIOPE YOUNG
St. Anna Kinderkrebs Forschung

Funded by the
European Union's
EU4Health
Programme

COI declaration

European
Reference
Network
for rare or low prevalence
complex diseases
Network
Paediatric Cancer
(ERN PaedCan)

- The presenters declare no conflict of interest

Funded by the
European Union's
EU4Health
Programme

European
Reference
Network
for rare or low prevalence
complex diseases
Network
Paediatric Cancer
(ERN PaedCan)

17yo male

- weight loss (10 kg in six months), epigastric pain, dyspepsia, fatigue
- **iron defficiency anemia** (Hb 7.3g/dL, MCV 70.1 fl, ferritin 2,5 ng/ml)

- **upper GI endoscopy** – gastritis & duodenitis (biopsies performed), urease test – positive

Funded by the European Union's EU4Health Programme

European Reference Network for rare or low prevalence complex diseases
Network Paediatric Cancer (ERN PaedCan)

17yo male

- weight loss (10 kg in six months), epigastric pain, dyspepsia, fatigue
- **iron defficiency anemia** (Hb 7.3g/dL, MCV 70.1 fl, ferritin 2,5 ng/ml)

- **upper GI endoscopy** – gastritis & duodenitis (biopsies performed), urease test – positive

- treatment: **RBC transfusion, H. pylori eradication, iron supplementation p. o.** → **improvement**

Funded by the
European Union's
EU4Health
Programme

European
Reference
Network
for rare or low prevalence
complex diseases
Network
Paediatric Cancer
(ERN PaedCan)

17yo male

- initial biopsy result – suspicion of **malignancy**

Funded by the European Union's EU4Health Programme

European Reference Network for rare or low prevalence complex diseases
Network Paediatric Cancer (ERN PaedCan)

Q1: What is the most common gastric solid tumor in children & adolescents?

1. Adenocarcinoma
2. Gastrointestinal stromal tumor (GIST)
3. Neuroendocrine tumor (NET)
4. Leiomyoma
5. Inflammatory myofibroblastic tumor (IMT)

Funded by the European Union's EU4Health Programme

Q1: What is the most common gastric solid tumor in children & adolescents?

1. Adenocarcinoma
2. **Gastrointestinal stromal tumor (GIST)**
3. Neuroendocrine tumor (NET)
4. Leiomyoma
5. Inflammatory myofibroblastic tumor (IMT)

Funded by the European Union's EU4Health Programme

European Reference Network for rare or low prevalence complex diseases
Network Paediatric Cancer (ERN PaedCan)

17yo male

- in a biopsy material obtained from the **gastroduodenal junction**: **poorly-differentiated adenocarcinoma**, focally with ulceration – panCK (+), e-cadherin (+), synaptophysin (-), chromogranin (-), CD56 (-), **Her2 (2+)**, **Ki67 40-50%**

- referral to Pediatric Oncology Department

Funded by the European Union's EU4Health Programme

Admission to the clinic

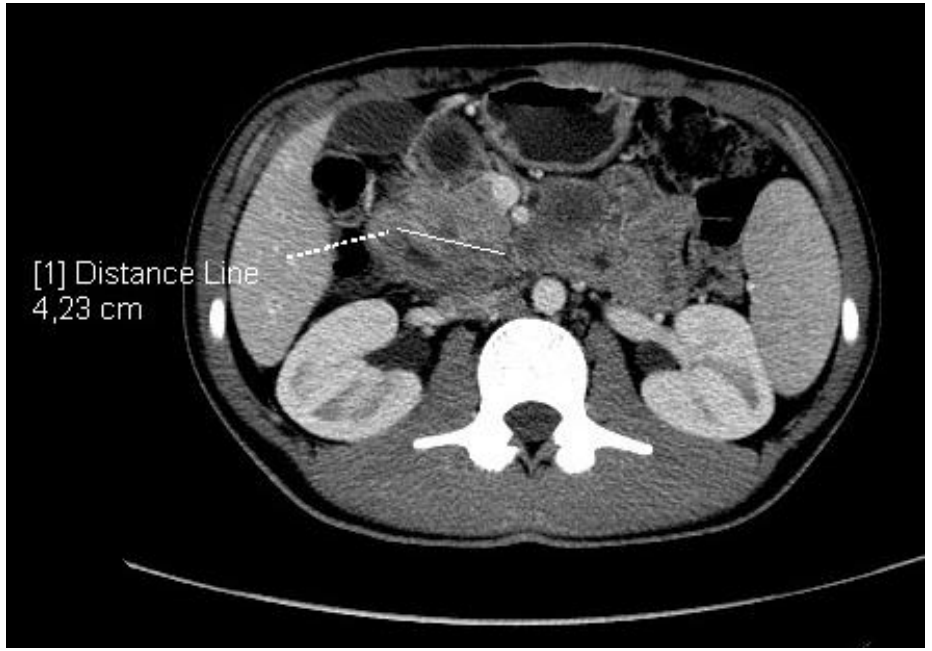
- good general condition, improvement after H. pylori eradication
- slightly decreased appetite
- history of nausea/vomiting episodes, occurring once every 3-4 days

Funded by the European Union's EU4Health Programme

European Reference Network for rare or low prevalence complex diseases
Network Paediatric Cancer (ERN PaedCan)

Admission to the clinic

- good general condition, improvement after H. pylori eradication
- slightly decreased appetite
- history of nausea/vomiting episodes, occurring once every 3-4 days



CT scan:

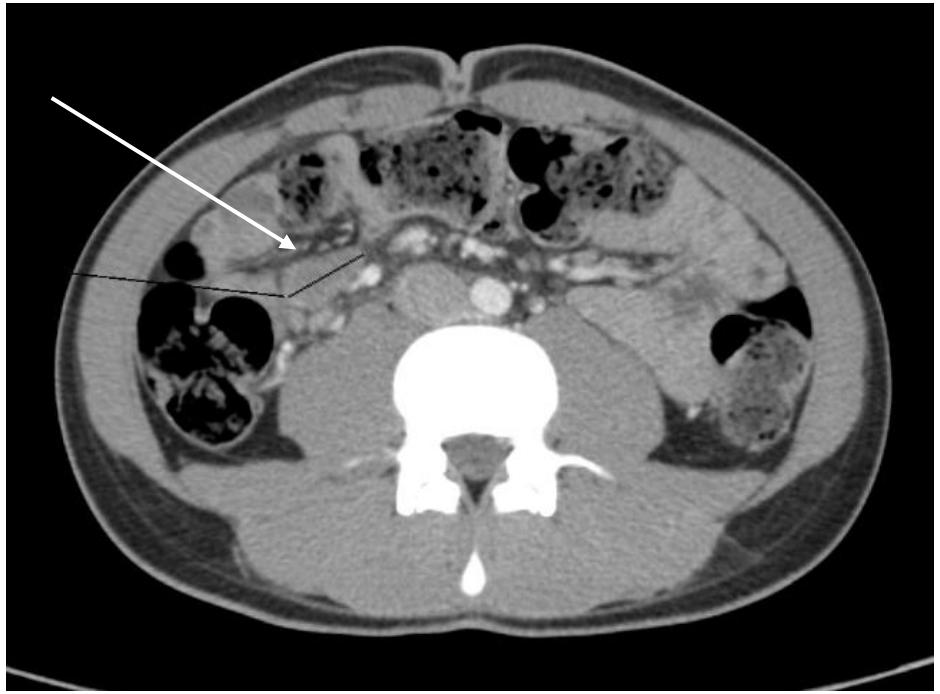
- pathological thickening (up to 11 mm) of the wall of I/II duodenal segments over a length of 4,5 cm, with involvement of the ampulla of Vater
- probable infiltration of the **head of pancreas**

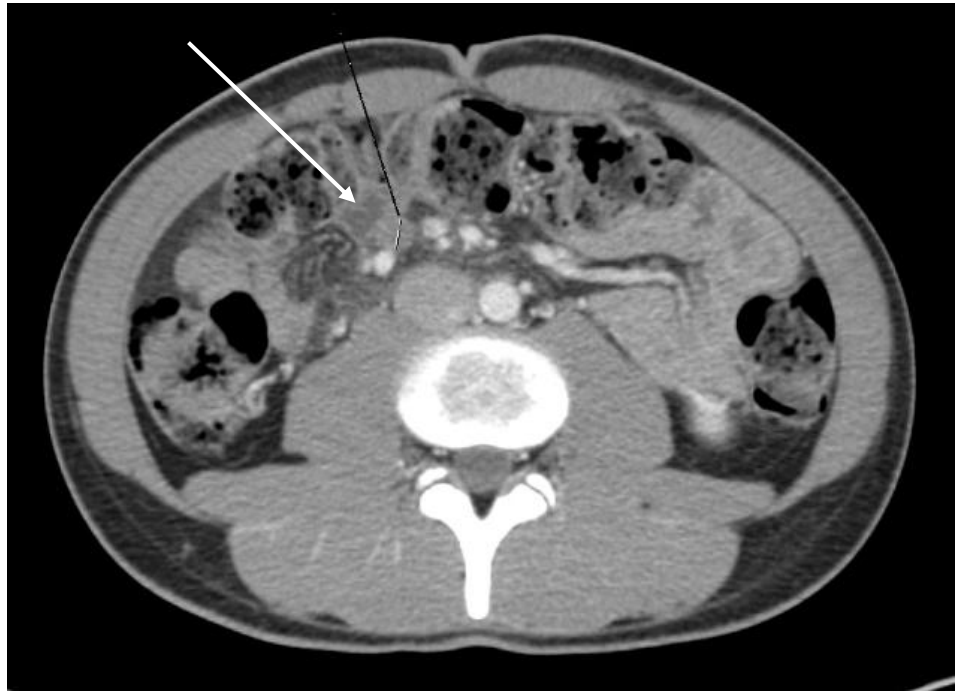
Funded by the European Union's EU4Health Programme

European Reference Network for rare or low prevalence complex diseases
Network Paediatric Cancer (ERN PaedCan)

Admission to the clinic

- pathological lymph nodes: in the **hepatic hilum** (31x26mm), **to the left of the mesenteric vessels** (30x27mm), in the **mesentery** (two up to 13mm), in **the ileocecal region** (up to 27x20mm)





Funded by the European Union's EU4Health Programme

Denial of diagnosis

- repeated upper GI endoscopy with biopsies
- histopathology: confirmed diagnosis of **adenocarcinoma, but....**
  - **„carcinoma with lymphoid stroma"**
  - **EBER +**
  - MLH1+, MSH2+, MSH6+, PMS2+
  - HER2 -

Funded by the European Union's EU4Health Programme

Multidisciplinary tumor board

European Reference Network for rare or low prevalence complex diseases
Network Paediatric Cancer (ERN PaedCan)

- inoperable tumor
- no HER-2 expression ⟶ no indications for trastuzumab
- patient <18yo ⟶ **exclusion criterion in most clinical trials**

Funded by the European Union's EU4Health Programme

Multidisciplinary tumor board

European Reference Network for rare or low prevalence complex diseases
Network Paediatric Cancer (ERN PaedCan)

- inoperable tumor
- no HER-2 expression ⟶ no indications for trastuzumab
- patient <18yo ⟶ **exclusion criterion in most clinical trials**

ESMO GOOD SCIENCE BETTER MEDICINE BEST PRACTICE

ANNALS OF ONCOLOGY driving innovation in oncology

SPECIAL ARTICLE

Gastric cancer: ESMO Clinical Practice Guideline for diagnosis, treatment and follow-up☆

F. Lordick[1], F. Carneiro[2,3,4], S. Cascinu[5], T. Fleitas[6], K. Haustermans[7], G. Piessen[8,9,10,11], A. Vogel[12] & E. C. Smyth[13], on behalf of the ESMO Guidelines Committee*

Funded by the European Union's EU4Health Programme

Multidisciplinary tumor board

European Reference Network for rare or low prevalence complex diseases
Network Paediatric Cancer (ERN PaedCan)

- inoperable tumor
- no HER-2 expression ⟶ no indications for trastuzumab
- patient <18yo ⟶ **exclusion criterion in most clinical trials**

ESMO GOOD SCIENCE BETTER MEDICINE BEST PRACTICE

ANNALS OF ONCOLOGY driving innovation in oncology

SPECIAL ARTICLE

Gastric cancer: ESMO Clinical Practice Guideline for diagnosis, treatment and follow-up☆

F. Lordick[1], F. Carneiro[2,3,4], S. Cascinu[5], T. Fleitas[6], K. Haustermans[7], G. Piessen[8,9,10,11], A. Vogel[12] & E. C. Smyth[13], on behalf of the ESMO Guidelines Committee*

- biopsy material sent for **molecular studies** (TAPISTRY trial, NGS)

Funded by the
European Union's
EU4Health
Programme

Systemic treatment

European
Reference
Network
for rare or low prevalence
complex diseases
Network
Paediatric Cancer
(ERN PaedCan)

- FLOT chemotherapy (1 course) ➡ PROGRESSION

Funded by the
European Union's
EU4Health
Programme

Systemic treatment

European
Reference
Network
for rare or low prevalence
complex diseases
Network
Paediatric Cancer
(ERN PaedCan)

- FLOT chemotherapy (1 course) ➡ PROGRESSION
- FOLFIRI chemotherapy (2 courses) ➡ SHORT STABILIZATION

Funded by the European Union's EU4Health Programme

IHC and NGS studies' results

- IHC **PDL1** expression in 20% of the cells, **CPS=18**
- **BRAF V600E** pathogenic variant
- two pathogenic variants in **PIK3CA**
- no pathogenic variants in NRAS i KRAS

- **germline testing**: no pathogenic variants in cancer predisposition NGS panel and micro-arrays

Funded by the European Union's EU4Health Programme

European Reference Network for rare or low prevalence complex diseases
Network Paediatric Cancer (ERN PaedCan)

Q2: Which of the following CPSs is NOT associated with increased risk of gastric carcinoma?

1. Peutz-Jeghers syndrome
2. Lynch syndrome
3. Familial adenomatous polyposis (FAP)
4. Hereditary diffuse gastric cancer (HDGC)
5. Von Hippel-Lindau disease

Funded by the European Union's EU4Health Programme

European Reference Network for rare or low prevalence complex diseases
Network Paediatric Cancer (ERN PaedCan)

Q2: Which of the following CPSs is NOT associated with increased risk of gastric carcinoma?

1. Peutz-Jeghers syndrome
2. Lynch syndrome
3. Familial adenomatous polyposis (FAP)
4. Hereditary diffuse gastric cancer (HDGC)
5. **Von Hippel-Lindau disease**

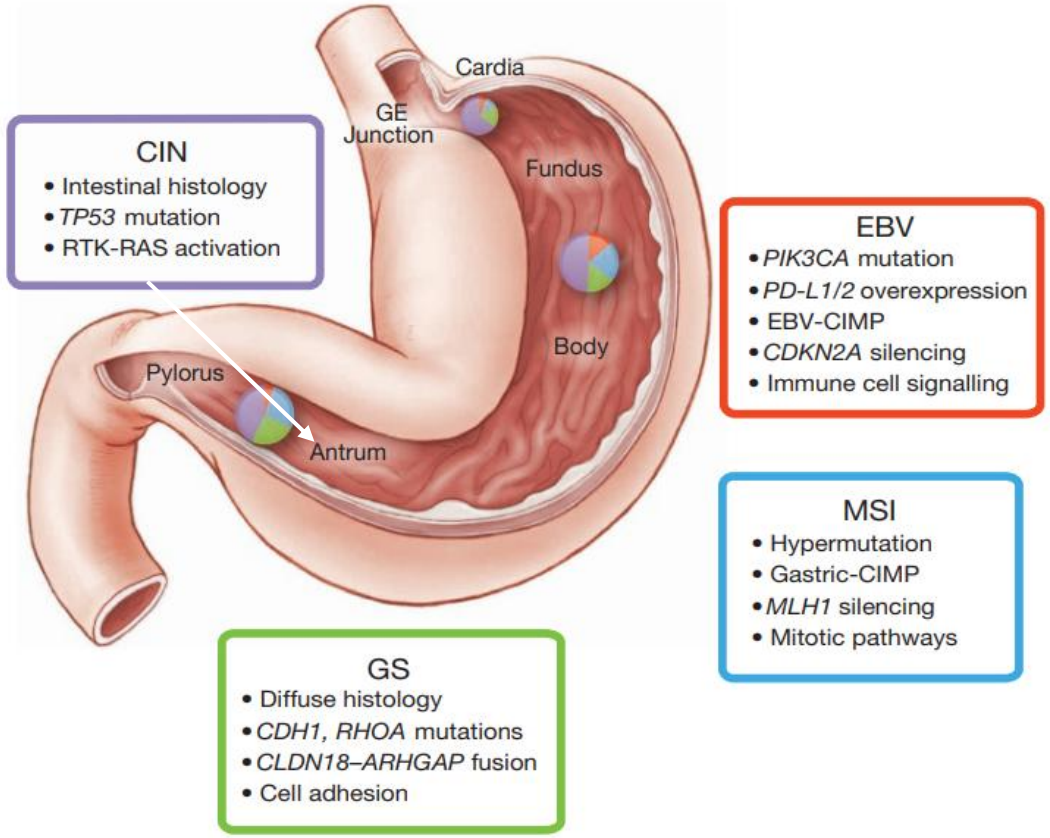
Funded by the European Union's EU4Health Programme

European Reference Network for rare or low prevalence complex diseases
Network Paediatric Cancer (ERN PaedCan)

IHC and NGS studies' results

- IHC **PDL1** expression in 20% of the cells, **CPS=18**
- **BRAF V600E** pathogenic variant
- two pathogenic variants in **PIK3CA**
- no pathogenic variants in NRAS i KRAS

- **germline testing**: no pathogenic variants in cancer predisposition NGS panel and micro-arrays



Cancer Genome Atlas Research Network. Comprehensive molecular characterization of gastric adenocarcinoma. Nature. 2014 Sep 11;513(7517):202-9. doi: 10.1038/nature13480

Funded by the European Union's EU4Health Programme

European Reference Network
for rare or low prevalence complex diseases
Network Paediatric Cancer (ERN PaedCan)

Epstein–Barr Virus Positive Gastric Cancer: A Distinct Subtype Candidate for Immunotherapy

Marina Alessandra Pereira, MSc,[a,b,] Daniel Amadeus Molon Batista, MD,[a] Marcus Fernando Kodama Pertille Ramos, MD, PhD,[b] Leonardo Cardili, MD,[a] Renan Ribeiro e Ribeiro, MD,[a] Andre Roncon Dias, MD, PhD,[b] Bruno Zilberstein, Ulysses Ribeiro Jr, MD, PhD,[b] Ivan Cecconello, MD, PhD,[b] Venâncio Avancini Ferreira Alves, MD, PhD,[a] and Evandro Sobroza de Mello, M*

[a] *Department of Pathology, Instituto do Cancer do Estado de São Paulo, Hospital das Clinicas HCFMUSP, Faculdade de Medicina, Universidade de Sao Paulo, Sao Paulo, Brazil*
[b] *Department of Gastroenterology, Instituto do Cancer do Estado de São Paulo, Hospital das Clinicas HCFMUSP, Faculdade de Medicina, Universidade de Sao Paulo, Sao Paulo, Brazil*

PD-L1 expression in EBV associated gastric cancer: a systematic review and meta-analysis

Áurea Lima[1,2,3] · Hugo Sousa[3,4,5] · Rui Medeiros[3,4] · Amanda Nobre[1] · Manuela Machado[1]

MSI and EBV Positive Gastric Cancer's Subgroups and Their Link with Novel Immunotherapy

Maria Grazia Rodriquenz [1], Giandomenico Roviello [2], Alberto D'Angelo [3], Daniele Lavacchi [4], Franco Roviello [5] and Karol Polom [6,*]

1 Division of Medical Oncology, Department of Onco-Hematology, IRCCS-CROB, Referral Cancer Center Basilicata, via Padre Pio 1, 85028 Rionero, Vulture (PZ), Italy; grazia.rodriquenz@gmail.com
2 Department of Health Sciences, University of Florence, viale Pieraccini, 6, 50139 Florence, Italy; giandomenicoroviello@hotmail.it
3 Department of Biology and Biochemistry, University of Bath, Bath BA2 7AY, UK; ada43@bath.ac.uk
4 Azienda Ospedaliera Careggi University Hospital of Florence and University of Florence, 50134 Florence, Italy; daniele.lavacchi@yahoo.it
5 Department of Medical, Surgical and Neuro Sciences, Section of Surgery, Azienda Ospedaliera Universitaria Senese, University of Siena, 53100 Siena, Italy; roviello@unisi.it
6 Department of Surgical Oncology, Gdansk Medical University, 80-210 Gdansk, Poland
* Correspondence: polom.karol@gmail.com

Observational cohort study of clinical outcome in Epstein–Barr virus associated gastric cancer patients

Miao-Zhen Qiu*, Cai-Yun He*, Da-Jun Yang*, Da-Lei Zhou, Bai-Wei Zhao, Xiao-Jian Wang, Li-Qiong Yang, Shi-Xun Lu, Feng-Hua Wang and Rui-Hua Xu

Pereira et al. 2021, Journal of Surgical Research, Lima et al. 2022, Discover Oncology,
Rodriquenz et al. 2020, Journal of Clinical Medicine, Qiu et al. Therapeutic Advances in Medical Oncology 2020,

Funded by the
European Union's
EU4Health
Programme

Systemic treatment

European
Reference
Network
for rare or low prevalence
complex diseases
Network
Paediatric Cancer
(ERN PaedCan)

- FLOT chemotherapy (1 course) → PROGRESSION
- FOLFIRI chemotherapy (2 courses) → SHORT STABILIZATION
- Pembrolizumab immunotherapy (3 courses; simultaneously with 2 subsequent FOLFIRI chemotherapy courses) → MASSIVE PROGRESSION

Funded by the European Union's EU4Health Programme

Pseudoprogression vs hyperprogresssion during immunotherapy

European Reference Network for rare or low prevalence complex diseases
Network Paediatric Cancer (ERN PaedCan)

Editorial

Atypical patterns of response to immune checkpoint inhibitors: interpreting pseudoprogression and hyperprogression in decision making for patients' treatment

Concetta Elisa Onesti[1,2,3], Pierre Frères[2], Guy Jerusalem[2,3]

[1]Laboratory of Human Genetics, GIGA Research Institute, University of Liège, Liège, Belgium; [2]Department of Medical Oncology, University Hospital (CHU Liège), Liège, Belgium; [3]Laboratory of Medical Oncology, GIGA Research Institute, University of Liège, Liège, Belgium
Correspondence to: Concetta Elisa Onesti. Department of Medical Oncology, University Hospital (CHU Liège), Avenue de l'Hôpital 1, 4000, Liège, Belgium. Email: elisaonesti@gmail.com.
Comment on: Ferrara R, Mezquita L, Te
With PD-1/PD-L1 Inhibitors or With S

Review Article

How to differentiate pseudoprogression from true progression in cancer patients treated with immunotherapy

Yiming Ma, Qiwei Wang, Qian Dong, Lei Zhan, Jingdong Zhang

Medical Oncology Department of Gastrointestinal Tumors, Cancer Hospital of China Medical University, Liaoning Cancer Hospital & Institute, No. 44, Xiaohe Road, Dadong District, Shenyang 110042, Liaoning Province, China

Received July 16, 2019; Accepted July 24, 2019; Epub August 1, 2019; Published August 15, 2019

REVIEW ARTICLE

Check for updates

Pseudoprogression and Hyperprogression as New Forms of Response to Immunotherapy

Maxime Frelaut[1] · Pauline du Rusquec[1] · Alexandre de Moura[1] · Christophe Le Tourneau[1,2,3] · Edith Borcoman[1]

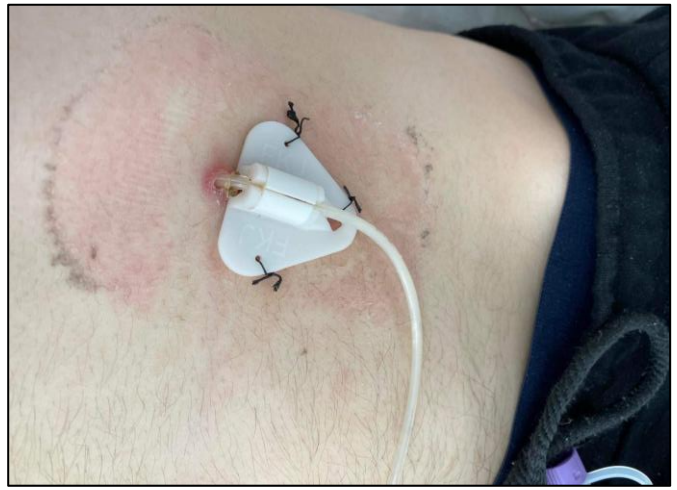
Onesti et al. Journal of Thoracic Disease 2019, Ma et al. American Journal of Cancer Research 2019, Frelaut et al. BioDrugs 2020

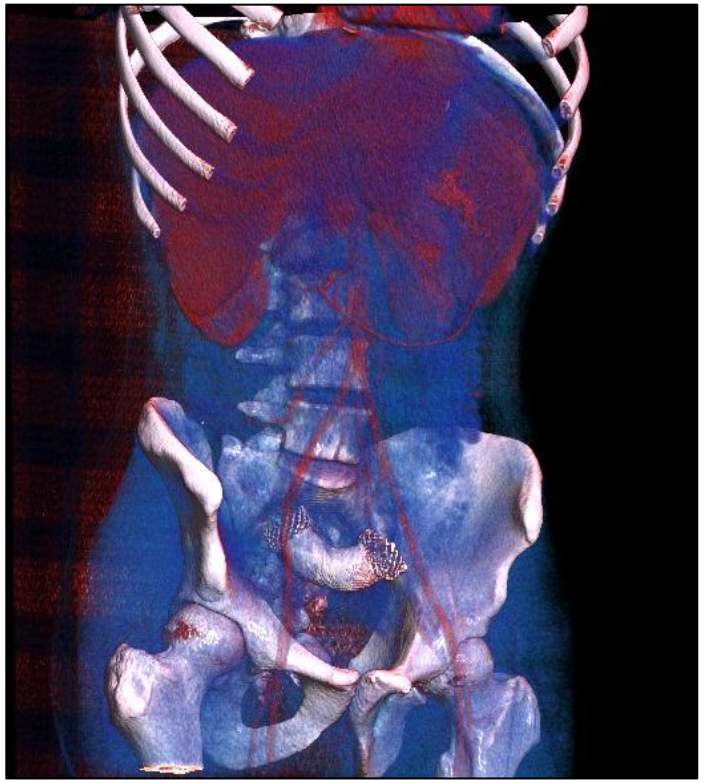
Funded by the European Union's EU4Health Programme

Local interventions

European Reference Network for rare or low prevalence complex diseases
Network Paediatric Cancer (ERN PaedCan)

- GI tract obstruction ➡ 3x DUODENAL STENTING
- cholestasis ➡ hepaticogastrostomy (extra-anatomical drainage of bile into the stomach)
- undernutrition, cachexia ➡ Broviac catheter (parenteral nutrition), jejunostomy (enteral nutrition)



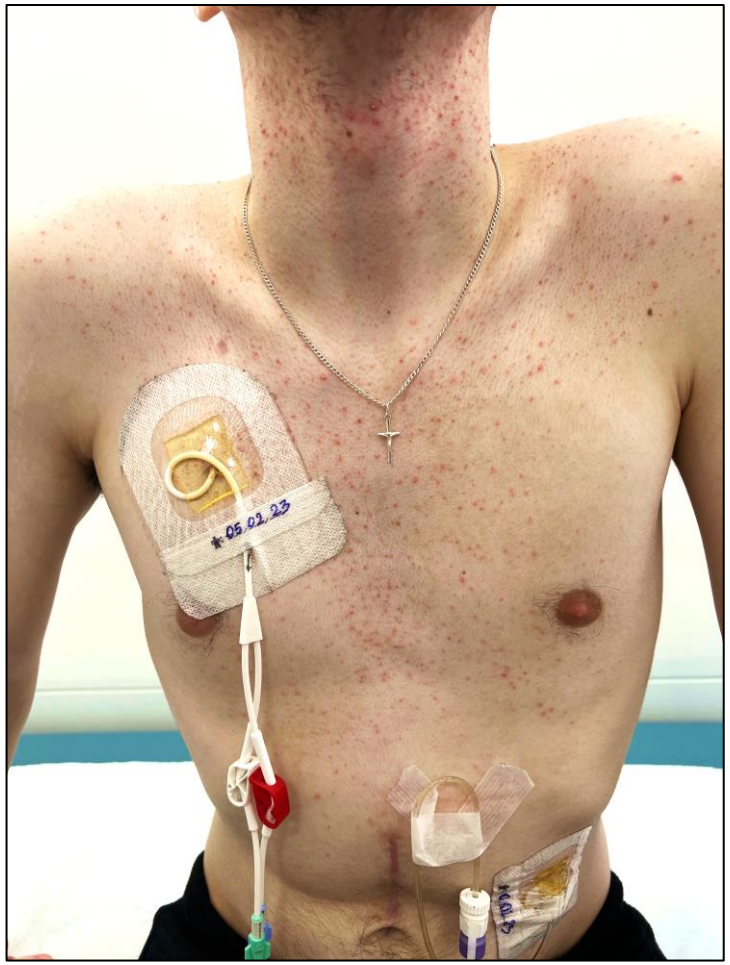


Funded by the European Union's EU4Health Programme

Targeted therapy

- **Dabrafenib (BRAFi) + Trametinib (MEKi)** *off-label*
- treatment complicated with high fevers and rash
- improvement after systemic glucocorticoids

- **PR lasting 5 months**
  - good quality of life, ambulatory treatment



Funded by the European Union's EU4Health Programme

European Reference Network for rare or low prevalence complex diseases
Network Paediatric Cancer (ERN PaedCan)

Q3. What is FALSE regarding BRAFi/MEKi combination therapy?

1. Majority of patients experience cuteneous toxicities
2. BRAFi/MEKi combination treatment is associated with significantly higher overall toxicity burden than BRAFi monotherapy
3. Patients require regular cardiological and ophthalmological assessments
4. Fast tumor regrowth may be observed after therapy cessation
5. All of the above are true

Funded by the European Union's EU4Health Programme

European Reference Network for rare or low prevalence complex diseases
Network Paediatric Cancer (ERN PaedCan)

Q3. What is FALSE regarding BRAFi/MEKi combination therapy?

1. Majority of patients experience cuteneous toxicities
2. **BRAFi/MEKi combination treatment is associated with significantly higher overall toxicity burden than BRAFi monotherapy**
3. Patients require regular cardiological and ophthalmological assessments
4. Fast tumor regrowth may be observed after therapy cessation
5. All of the above are true

Funded by the European Union's EU4Health Programme

Progression of disease

- massive progression with worsening symptoms
- **failure** to enroll the patient to clinical trial with **inavolisib (PIK3CAi)**

- referral for **hospice care** at home
- the patient deceased due to progressive disease in 12.2023 (**OS – 15 months**)

Funded by the
European Union's
EU4Health
Programme

European Reference Network
for rare or low prevalence complex diseases
Network Paediatric Cancer
(ERN PaedCan)

Discussion

Funded by the European Union's EU4Health Programme

Pediatric gastric carcinoma

European Reference Network for rare or low prevalence complex diseases
Network Paediatric Cancer (ERN PaedCan)

- extremely rare (< 0.1% of pediatric malignancies), very limited data
- case-reports, retrospective analyses of population databases (mostly USA data – possible duplication of the patients)
- epidemiological and clinical features similar to the ***early-onset gastric cancer*** **(<45 years old)?**

Funded by the European Union's EU4Health Programme

Pediatric gastric adenocarcinoma: A National Cancer Data Base review☆,☆☆

Robert A. Tessler [a,b,c], Matthew Dellinger [a], Morgan K. Richards [a], Adam B. Goldin [a], Elizabeth A. Beierle [d], John J. Doski [e], Melanie Goldfarb [f], Monica Langer [g], Jed G. Nuchtern [h], Mehul V Raval [i], Sanjeev Vasudevan [h], Kenneth W. Gow [a,*]

European Reference Network for rare or low prevalence complex diseases
Network Paediatric Cancer (ERN PaedCan)

- USA data – National Cancer Database (NCDB), 2004-2014
- **129 patients** ≤21 years (0.1% of all gastric carcinoma patients)
- F:M 1:1 (vs 1:1.8 in adults)

Funded by the European Union's EU4Health Programme

Pediatric gastric adenocarcinoma: A National Cancer Data Base review☆,☆☆

Robert A. Tessler [a,b,c], Matthew Dellinger [a], Morgan K. Richards [a], Adam B. Goldin [a], Elizabeth A. Beierle [d], John J. Doski [e], Melanie Goldfarb [f], Monica Langer [g], Jed G. Nuchtern [h], Mehul V Raval [i], Sanjeev Vasudevan [h], Kenneth W. Gow [a,*]

- USA data – National Cancer Database (NCDB), 2004-2014
- **129 patients** ≤21 years (0.1% of all gastric carcinoma patients)
- F:M 1:1 (vs 1:1.8 in adults)

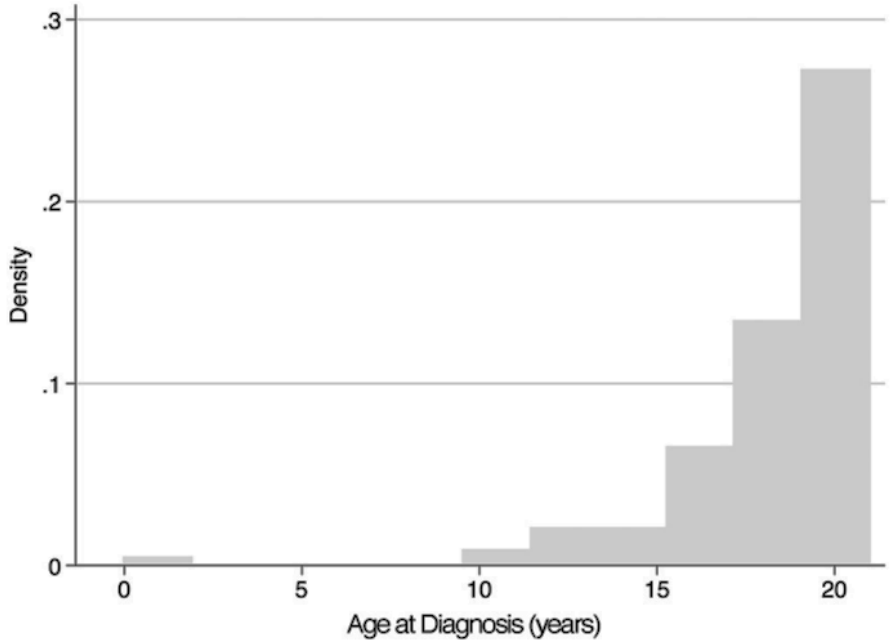


Fig. 1. The distribution of cases according to age in those patients ≤21 years of age. Almost all patients were between 10 and 21 years of age.

Funded by the European Union's EU4Health Programme

Pediatric gastric adenocarcinoma: A National Cancer Data Base review☆,☆☆

Robert A. Tessler [a,b,c], Matthew Dellinger [a], Morgan K. Richards [a], Adam B. Goldin [a], Elizabeth A. Beierle [d], John J. Doski [e], Melanie Goldfarb [f], Monica Langer [g], Jed G. Nuchtern [h], Mehul V Raval [i], Sanjeev Vasudevan [h], Kenneth W. Gow [a,*]

European Reference Network for rare or low prevalence complex diseases
Network Paediatric Cancer (ERN PaedCan)

- more commonly:
  - poorly-differentiated carcinomas
  - „signet ring" histology, diffuse growth (45% vs 20% in adults)
  - **high stage at diagnosis** (st. IV – 56% vs 44% in adults)

Funded by the European Union's EU4Health Programme

Pediatric gastric adenocarcinoma: A National Cancer Data Base review☆,☆☆

Robert A. Tessler [a,b,c], Matthew Dellinger [a], Morgan K. Richards [a], Adam B. Goldin [a], Elizabeth A. Beierle [d], John J. Doski [e], Melanie Goldfarb [f], Monica Langer [g], Jed G. Nuchtern [h], Mehul V Raval [i], Sanjeev Vasudevan [h], Kenneth W. Gow [a,*]

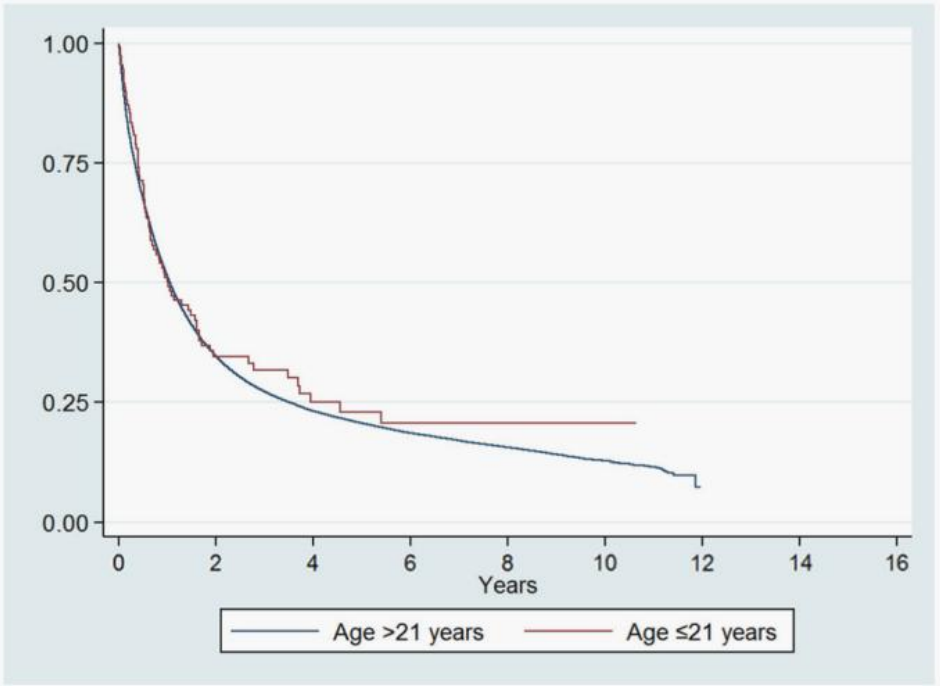


Fig. 2. Unadjusted Kaplan–Meier survival estimate demonstrating similar outcomes between patients ≤21 and > 21 years of age.

Funded by the European Union's EU4Health Programme

Article

Epidemiology and Characteristics of Gastric Carcinoma in Childhood—An Analysis of Data from Population-Based and Clinical Cancer Registries

Michael Abele [1,*,†], Lisa Grabner [1,†], Tabea Blessing [2], Andreas Block [3], Abbas Agaimy [4], Christian Kratz [5], Thorsten Simon [6], Gabriele Calaminus [7], Sabine Heine [8], Selim Corbacioglu [9], Holger Christiansen [10], Dominik T. Schneider [2] and Ines B. Brecht [1]

European Reference Network for rare or low prevalence complex diseases

Network Paediatric Cancer (ERN PaedCan)

- data from the SEER database and German registries (2000-2018)
- **91 patients** <20 years old
- epidemiological data +/- consistent with the publication of Tessler et al.
- 66.7% diagnosed at stage IV
- 38,5% *signet ring carcinoma*

Funded by the European Union's EU4Health Programme

Article

Epidemiology and Characteristics of Gastric Carcinoma in Childhood—An Analysis of Data from Population-Based and Clinical Cancer Registries

Michael Abele [1,*,†], Lisa Grabner [1,†], Tabea Blessing [2], Andreas Block [3], Abbas Agaimy [4], Christian Kratz [5], Thorsten Simon [6], Gabriele Calaminus [7], Sabine Heine [8], Selim Corbacioglu [9], Holger Christiansen [10], Dominik T. Schneider [2] and Ines B. Brecht [1]

European Reference Network for rare or low prevalence complex diseases
Network Paediatric Cancer (ERN PaedCan)

Thorough analysis of 8 patients from the German STEP database:

- in 7 – chronic gastritis (among them, in 6 H. pylori +)
- in 3 – genetic predisposition (2: HDGC, 1: Peutz-Jeghers)
- in 3 – decreased serum IgG, IgA (among them, in 1 diagnosis of agammaglobulinemia)
- no cases with MSI-H (0/4), or with HER2 amplification (0/6)
- no cases of EBV-dependent „carcinoma with lymphoid stroma"

- 4 patients with CR after tumor resection → long-term survival
- 4 patients with disseminated disease and no tumor resection → death/progression

Funded by the European Union's EU4Health Programme

BRAF+ gastrointestinal carcinomas

European Reference Network for rare or low prevalence complex diseases
Network Paediatric Cancer (ERN PaedCan)

- **no specific therapeutic recommendations for upper GI tract carcinomas** (rare)
- $BRAF^{V600E}$-positive colorectal carcinomas:
  - poor prognosis
  - poor response to BRAFi monotherapy
  - metastatic setting: efficacy of **CHT + encorafenib (BRAFi) + cetuximab (EGFRi)** combination treatment

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Encorafenib, Cetuximab, and mFOLFOX6 in *BRAF*-Mutated Colorectal Cancer

E. Elez,[1,2] T. Yoshino,[3] L. Shen,[4] S. Lonardi,[5] E. Van Cutsem,[6,7] C. Eng,[8] T.W. Kim,[9] H.S. Wasan,[10] J. Desai,[11,12] F. Ciardiello,[13] R. Yaeger,[14] T.S. Maughan,[15] V.K. Morris,[16] C. Wu,[17] T. Usari,[18] R. Laliberte,[19] S.S. Dychter,[20] X. Zhang,[21] J. Tabernero,[1,2,22] and S. Kopetz,[16] for the BREAKWATER Trial Investigators*

Funded by the European Union's EU4Health Programme

Take home messages: pediatric gastric carcinoma

- distinct clinical, histological and (probably) molecular characteristics
- possible role of H. pylori infection AND concomitant genetic predisposition /immunodeficiency
- **unfavorable prognosis** (like in adult patients: **5-year OS approx. 20%**)
  – long-term survival only after complete tumor resection
- precise clinical and biological characterization of a larger group of patients is necessary to develop therapeutic guidelines adapted to the distinct biology of tumors in this age group