Diabetisk gastroparese

Fra mistanke til håndtering i praksis

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Landskursus for diabetessygeplejersker, Kolding, 6. november 2026

Case 1: Maria

Maria, 46 år, type 1-diabetes gennem 28 år.

Mæt efter en halv portion og ofte kvalme efter aftensmad.

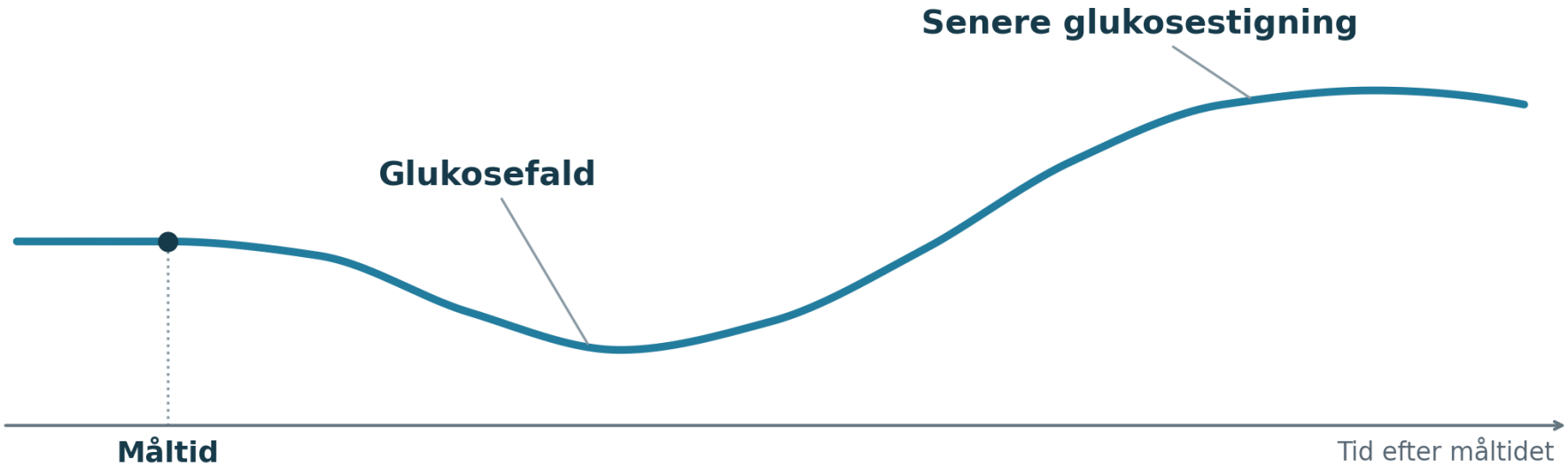
Glukosefald kort efter måltidet, efterfulgt af en sen stigning.

Hun er begyndt at spise mindre og undgå måltider ude.

Maria bliver mæt efter en halv portion – Hvad vil du spørge hende om?

Måltid og glukosemønster

Skematisk eksempel – ingen patientmålinger



Hvilken oplysning mangler I for at forstå kurven?

Det praktiske udbytte

Genkende situationer, hvor gastroparese bør overvejes.

Vide, hvad der kan afdækkes i konsultationen.

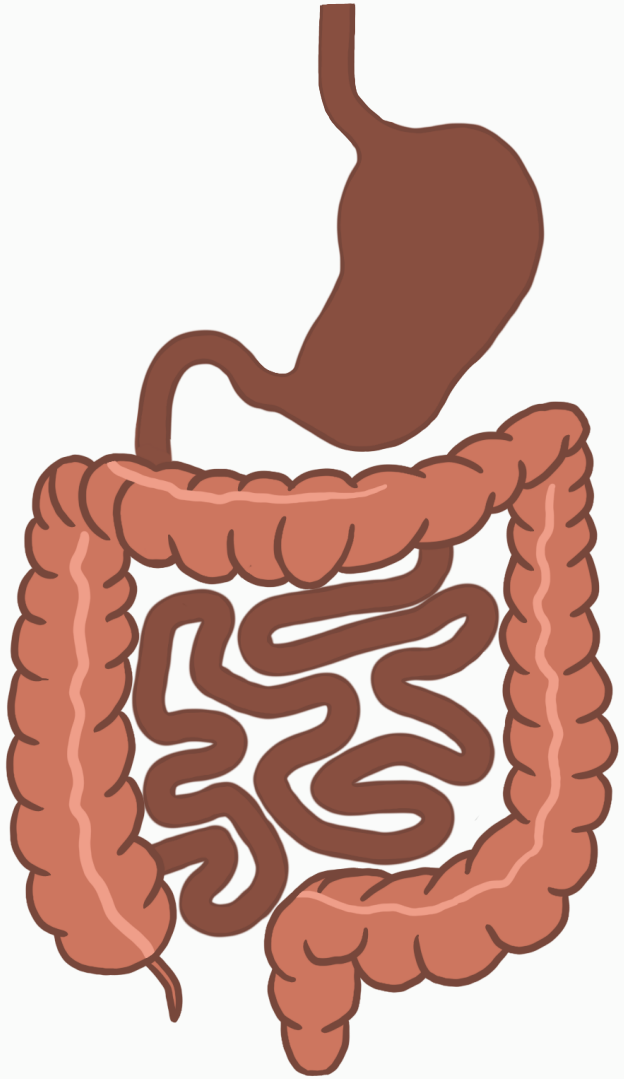
Kende næste skridt og mulighederne for støtte.

Gastroparese og gastroenteropati

Gastroparese

Symptomer og dokumenteret forsinket ventrikeltømning uden mekanisk afløbshindring

Gastroenteropati kan omfatte hele mave-tarm-kanalen

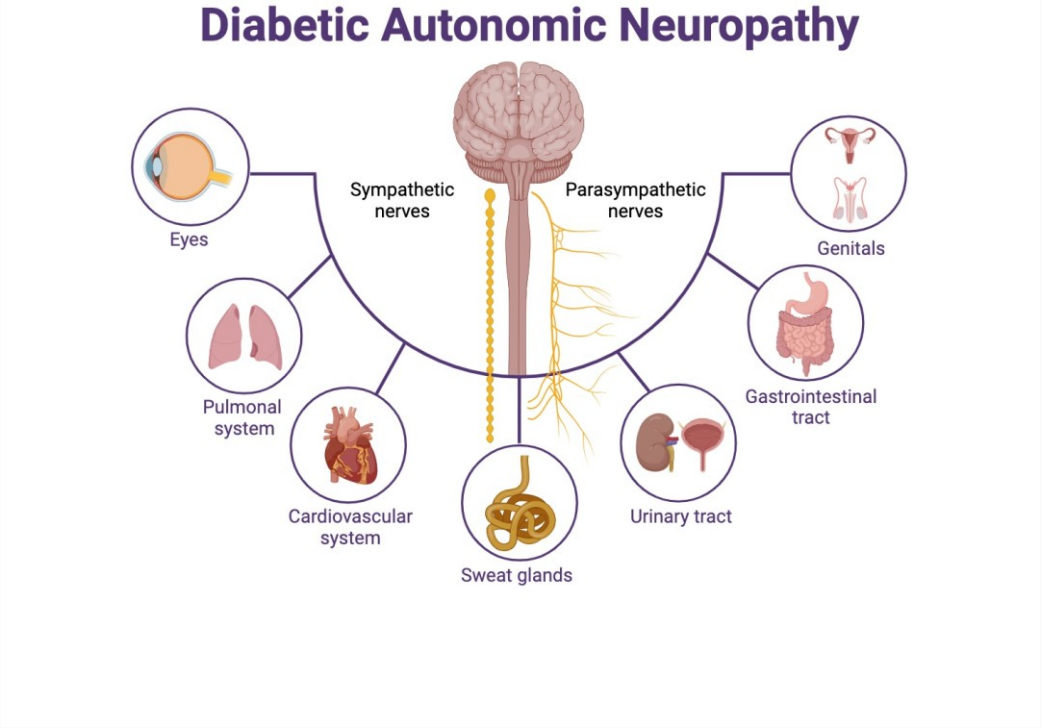


Nerverne styrer fordøjelsen

Vagusnerven fører signaler mellem hjernen og mave-tarm-kanalen.

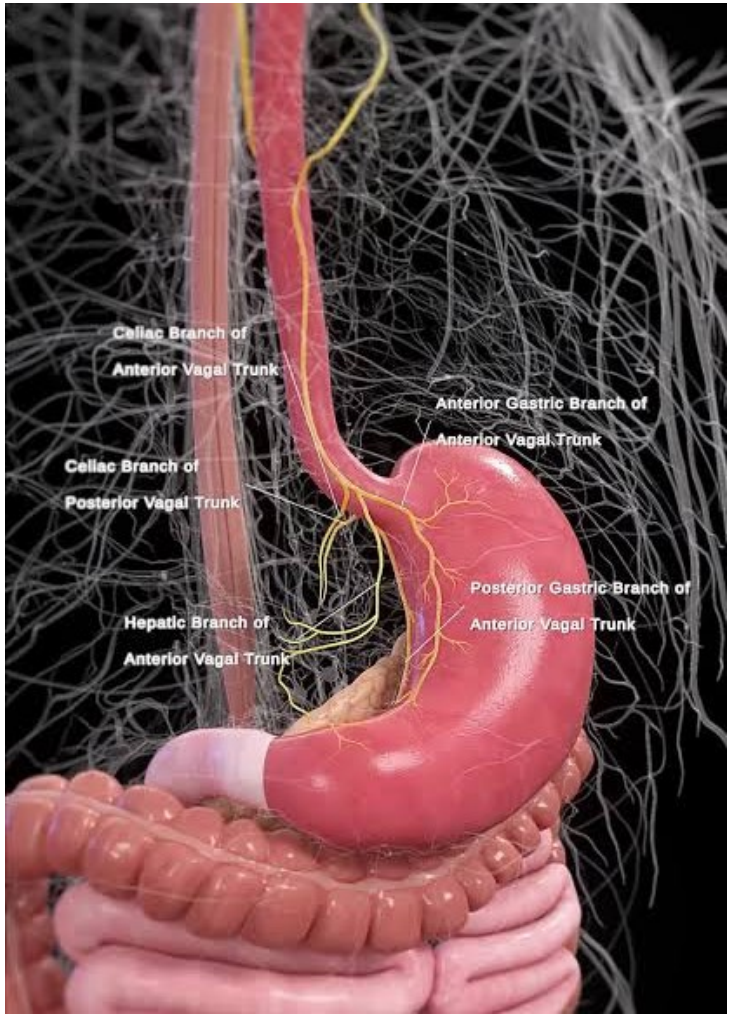
Det enteriske nervesystem er tarmens eget nervenetværk. Det koordinerer blandt andet tarmens bevægelser.

Ved diabetes kan reguleringen af fordøjelsen blive påvirket.



Diabetes kan påvirke bevægelser i mave og tarm

- **Mavesækken** giver plads til måltidet, findeler maden og sender den gradvist videre til tyndtarmen.
- **Tarmen** blander og fører indholdet videre med koordinerede sammentrækninger.
- **Symptomerne** afhænger af, hvor funktionen er påvirket



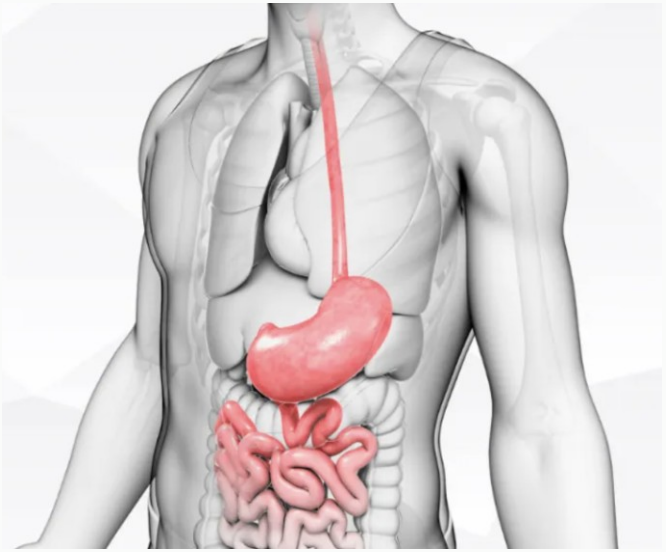
De første tegn kan være beskedne

Tidlig mæthed og langvarig fylde efter måltider.

Kvalme, eventuelt opkastninger.

Ændret spisemønster og mindre indtag.

Uforklarede glukoseudsving omkring måltiderne.



Fem spørgsmål i konsultationen

Bliver du mæt, før du har spist det, du plejer?

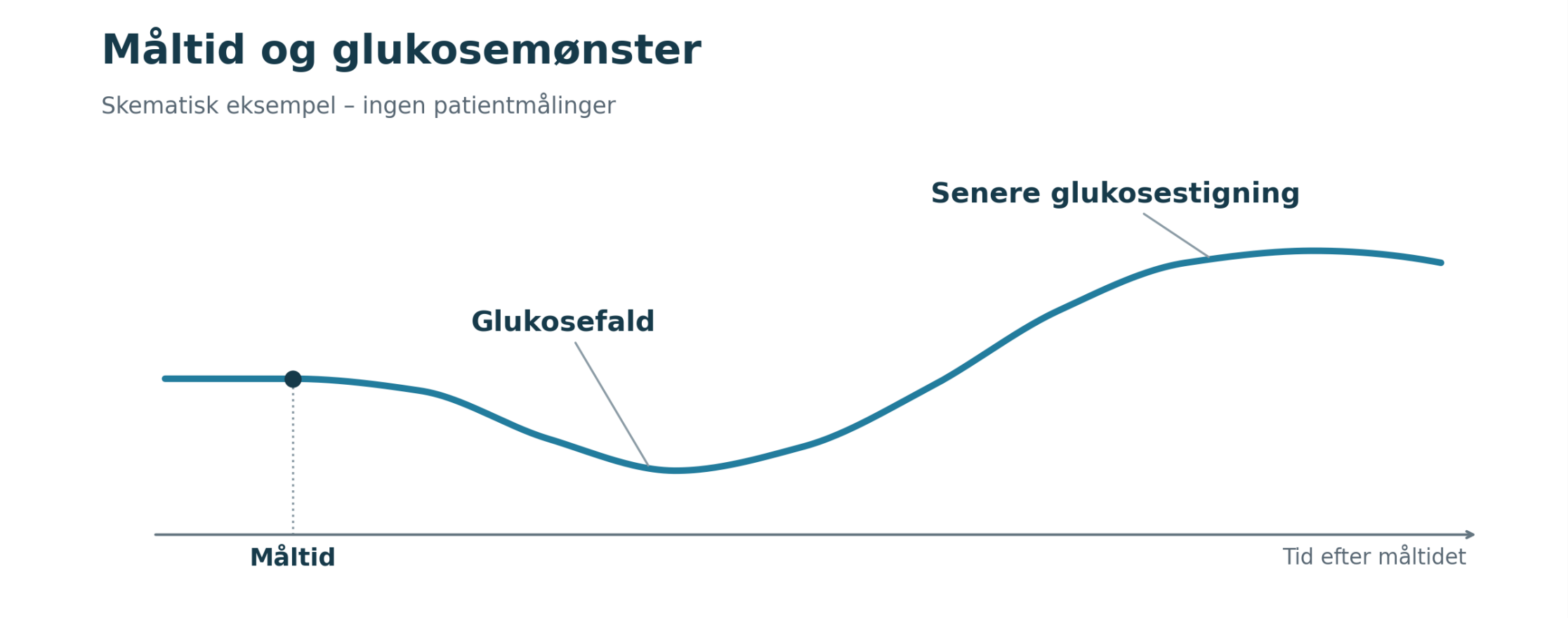
Hvor længe føles maden som om, den ligger i maven?

Har du kvalme eller opkastninger i relation til måltider?

Har generne ændret, hvad eller hvor meget du spiser?

Har din vægt eller dine glukosemønstre ændret sig?

Hvad skete der omkring måltidet?



Hvad spiste Maria? Hvornår tog hun insulin? Hvilke symptomer havde hun?

Case 2: Jens

Jens, 62 år, type 2-diabetes.

Kvalme og tidlig mæthed efter øgning af GLP-1-baseret behandling.

Spiser og drikker mindre end tidligere.

Har Jens diabetisk gastroparese?

Andre forklaringer skal undersøges

Medicin, herunder GLP-1-baseret behandling og opioider.

Strukturel sygdom i øvre mave-tarm-kanal.

Funktionel dyspepsi og andre overlappende tilstande.

Andre årsager afhængigt af symptombilledet.

Alarmsymptomer

Akut vurdering

- Kan ikke holde væske i sig
- Påvirket almen tilstand
- Mistanke om ketoacidose
- Alvorlig hypoglykæmi
- Blødning eller stærke nye smerter

Snarlig lægelig vurdering

- Ufrivilligt vægttab
- Tiltagende spiseproblemer
- Vedvarende opkastninger

Fra mistanke til udredning

Beskriv symptomer, vægtudvikling og indtag.

Gennemgå medicin og alternative forklaringer.

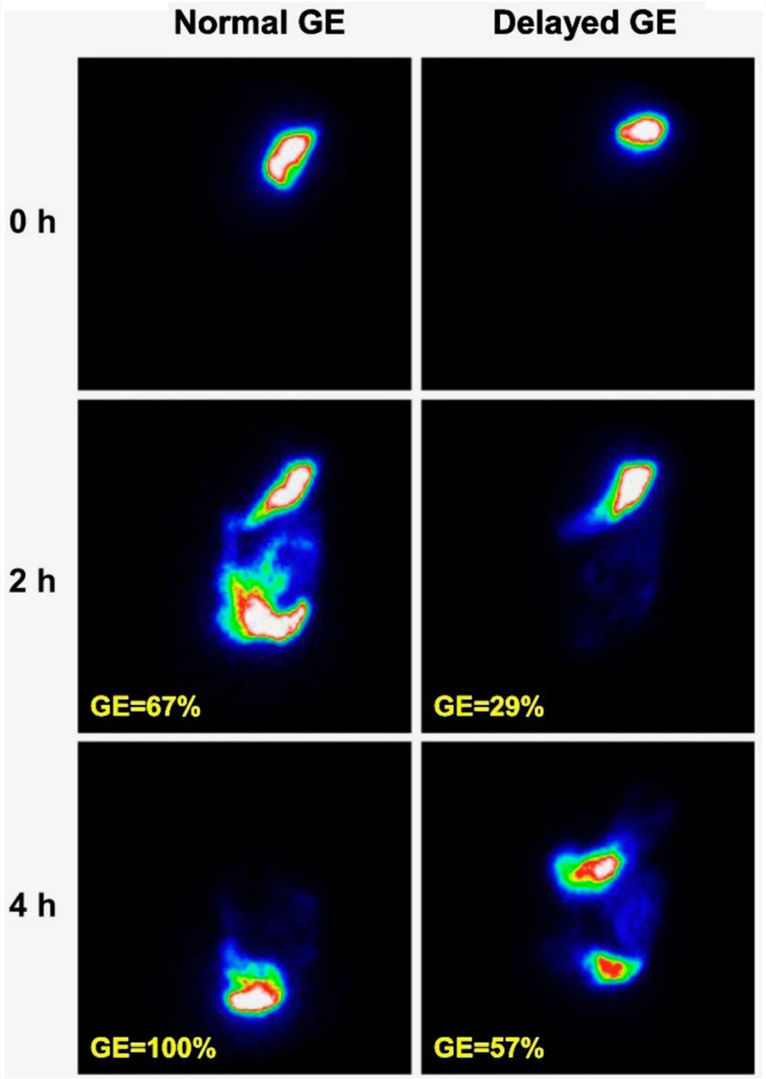
Afklar behov for gastroskopi og øvrig udredning.

Undersøg ventrikeltømning ved relevant mistanke.

Hvordan måles ventrikeltømningen?

Standardiseret ventrikeltømnings skintigrafi med fast måltid.

Medicin og glukoseforhold kan påvirke resultatet.



Krishnasamy S, Abell TL. Diabetes Ther. 2018;9(Suppl 1):1–42, figur 12. © American Diabetes Association, 2013.

Symptomer og ventrikeltømning

Symptombyrde og tømningshastighed kan være forskellige.

Normalt resultat kræver fortsat vurdering af vedvarende gener.

Behandlingsmål omfatter også indtag og hverdagsfunktion.

Behandlingen samles i én plan

Tilstrækkelig ernæring og væske.

Individuel diabetesbehandling.

Lindring af gener og vurdering af medicin.

Aftalt opfølgning med tydeligt ansvar.

Case 3: Lene

Lene, 39 år, type 1-diabetes og bekræftet gastroparese.

Har tabt 6 kg på tre måneder.

Lever mest af små mængder yoghurt og suppe.

Frygter både opkastninger og hypoglykæmi.

Hvad skal prioriteres først?

Hvad spiser man når man både har diabetes og gastroparese?

- **Ved diabetes** anbefales ofte fuldkorn og fiberrige fødevarer.
- **Ved gastroparese** kan grove fibre og store portioner give flere gener. Blød, findelt mad og mindre portioner kan være lettere at spise.
- **I praksis** kan kartoffelmos eller bløde, hvide ris være lettere at tåle end fx groft rugbrød. Servér en lille portion sammen med en proteinkilde, fx mør fisk.
- **Ved vægttab som hos Lene** skal måltiderne samlet give nok energi og protein. Inddrag en klinisk diætist tidligt.

Case 3: Lene fortsat

Lene lever mest af yoghurt og suppe og har tabt seks kilo.

Hvad vil I spørge hende om, før I giver hende et kostråd?

- Hvad fik du spist og drukket i går, fra morgen til aften?
- Hvad får dig til at stoppe med at spise? Er det mæthed, kvalme eller frygt for at kaste op eller få lavt blodsukker?
- Hvad fungerer bedst på en god dag?

Medicin: muligheder og begrænsninger

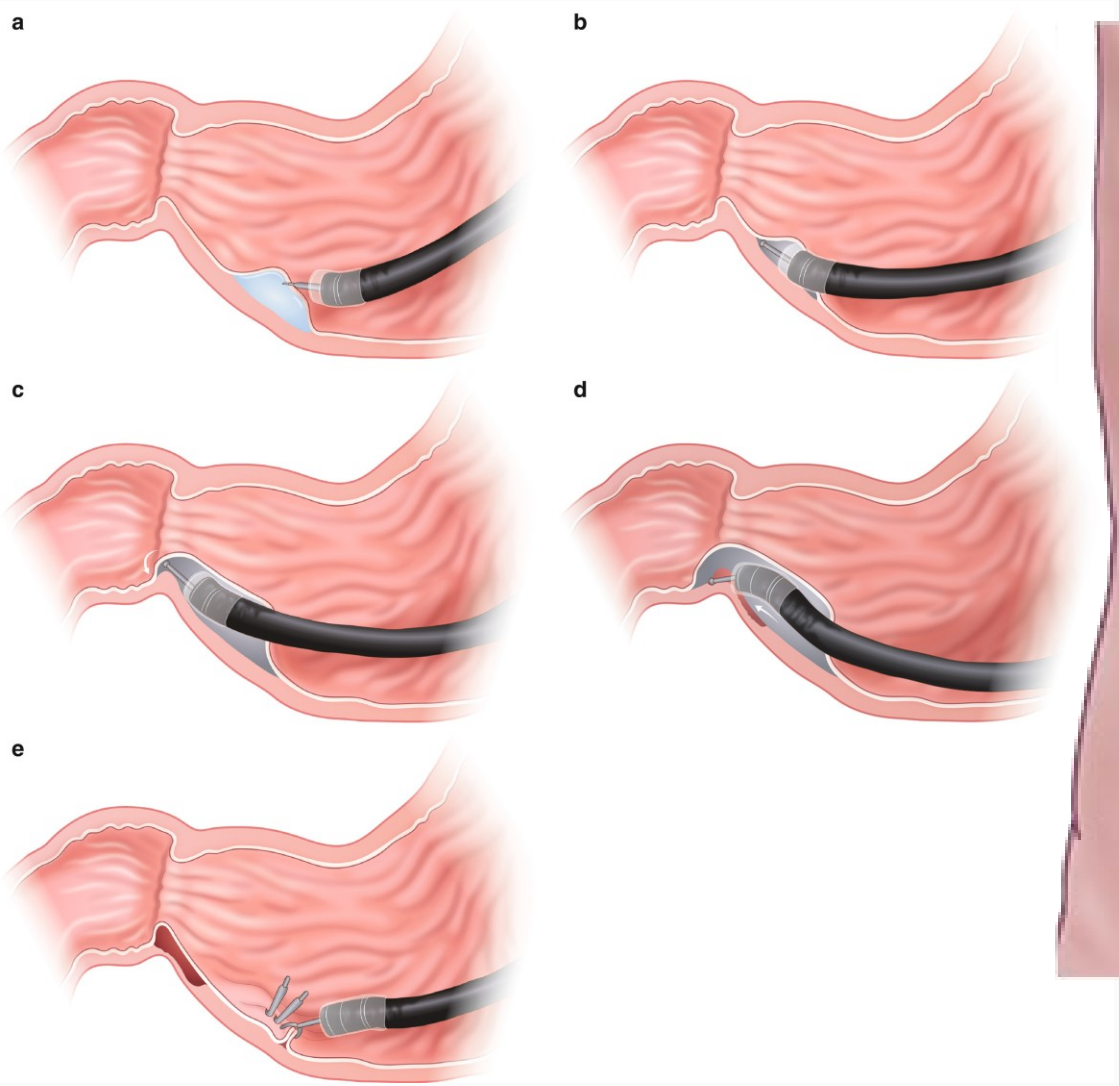
Antiemetika kan lindre kvalme – ex. ondansetron

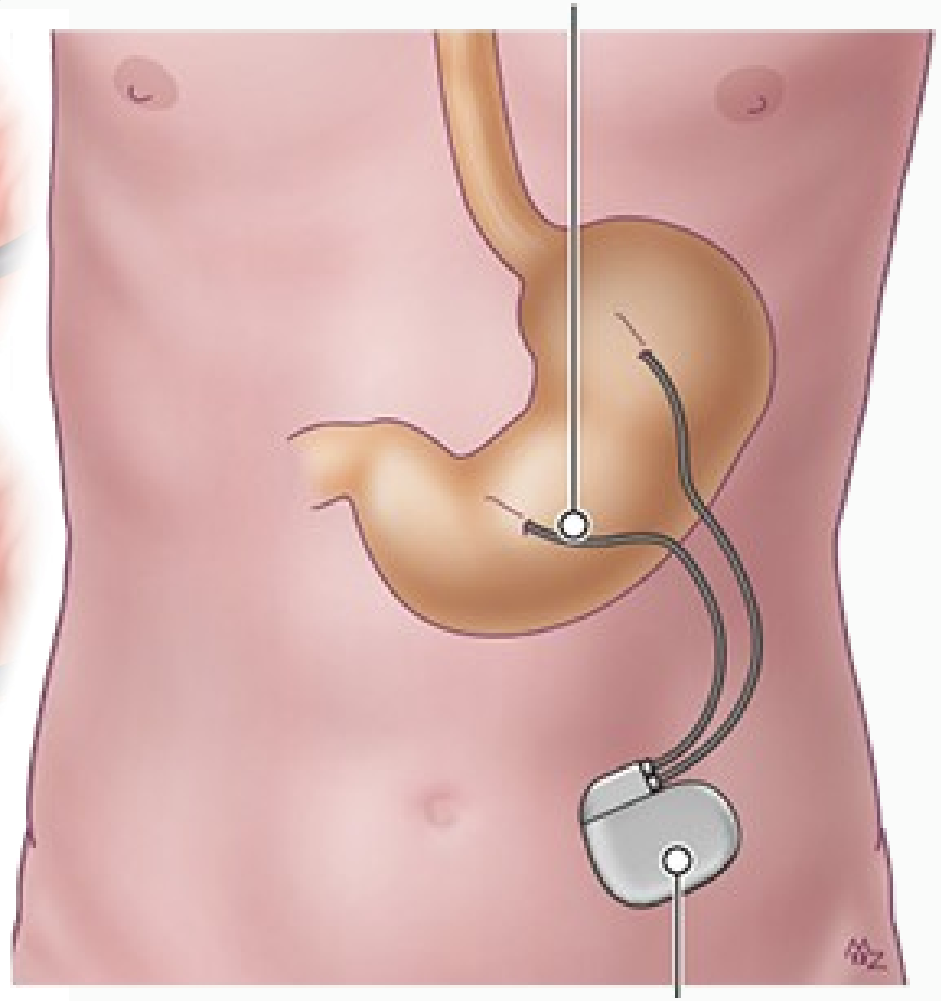
Prokinetika kan fremme ventrikeltømningen – ex. Erythromycin eller Prucaloprid

Metoclopramid virker både kvalmestillende og prokinetisk

Antibiotika ved samtidig bakteriel overvækst – ex rifaximin eller amoxicillin/clavulansyre

Svære og vedvarende gener



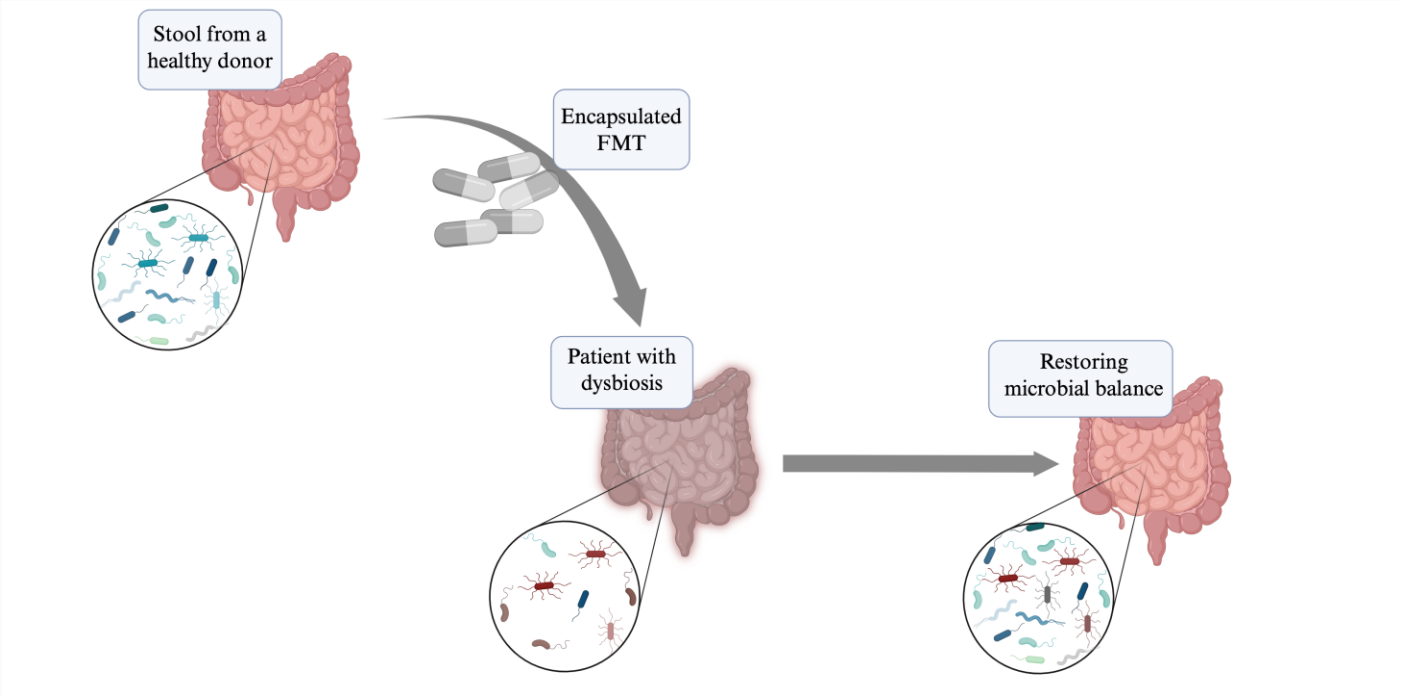


Chung H. *Therapeutic Gastrointestinal Endoscopy*. 2. udg. Springer, 2019, s. 291–296. doi:10.1007/978-981-13-1184-0_17

FMT ved diabetisk gastroenteropati

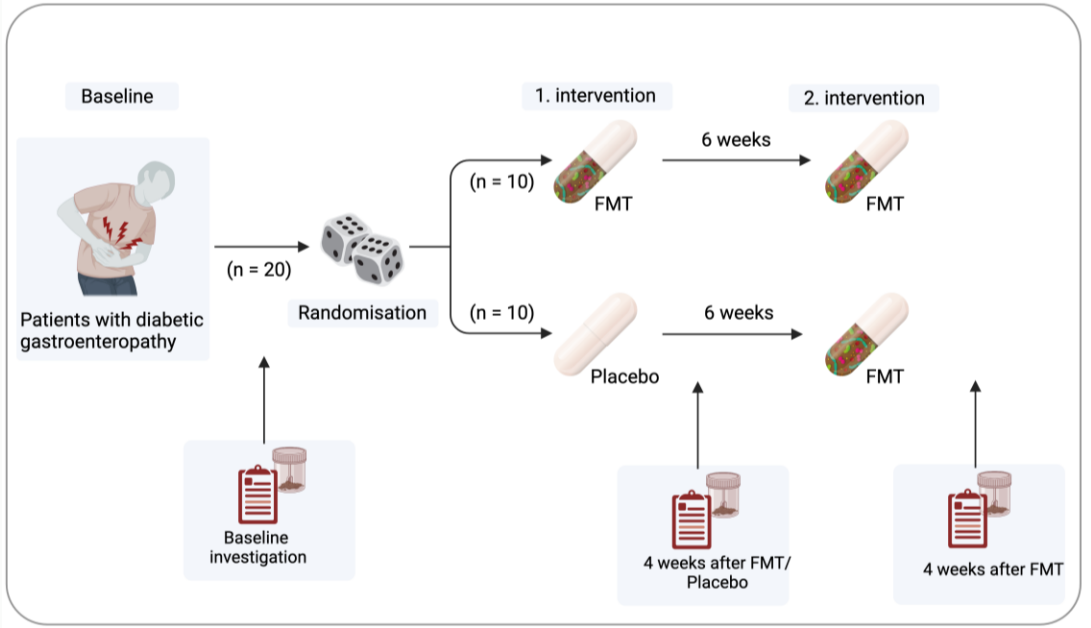
Kan ændringer i tarmens mikrobiota bidrage til symptomerne?

Kan donor-mikrobiota lindre gastrointestinale gener?



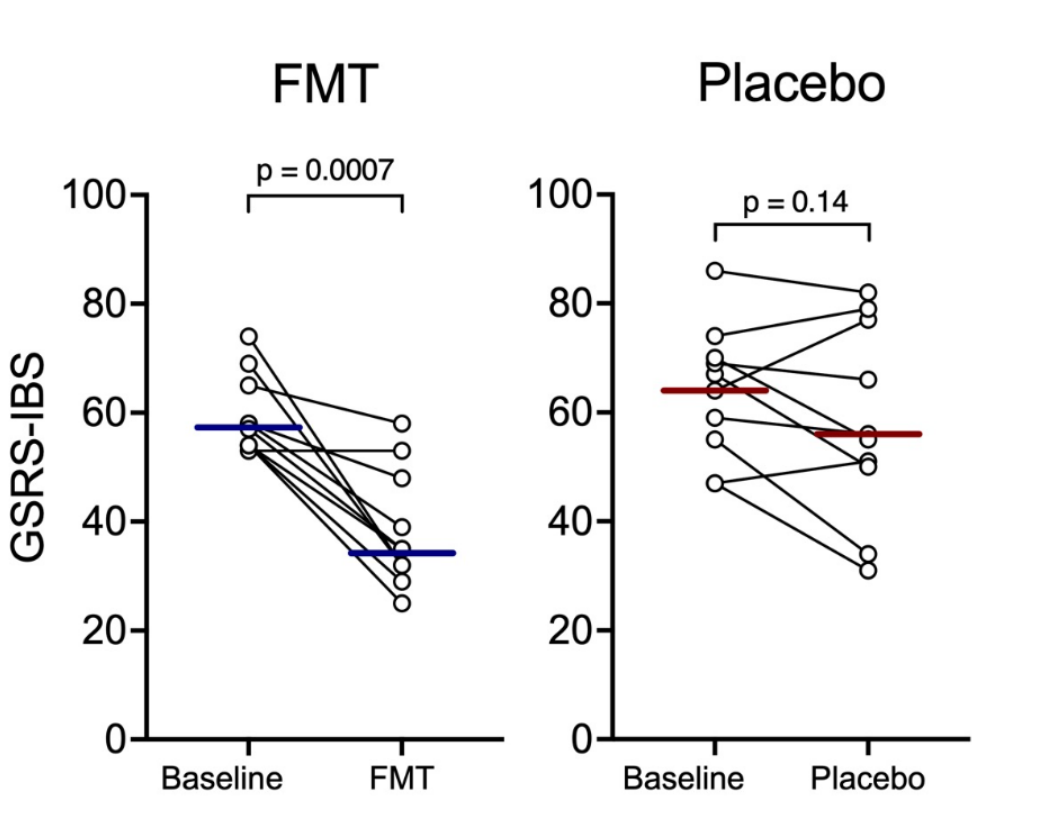
Fadigas: det randomiserede pilotstudie

20 deltagere med type 1-diabetes og svære gastrointestinale symptomer



Dobbeltblindet FMT versus placebo. Primært endepunkt: sikkerhed.

FADIGAS: færre gastrointe



Høyer et al., eClinicalMedicine 2025. Lavere GSRS-IBS angiver færre symptomer.



Articles

Faecal microbiota transplantation for patients with diabetes type 1 and severe gastrointestinal neuropathy (FADIGAS): a randomised, double-blinded, placebo-controlled trial

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Summary

Background Diabetic gastroenteropathy is associated with nausea, vomiting, bloating, pain, constipation, and diarrhoea. Current therapies are scarce. We tested faecal microbiota transplantation (FMT) for patients with type 1 diabetes and gastroenteropathy.

Methods In a randomised, double-blinded, placebo-controlled pilot trial, adults with type 1 diabetes and moderate-to-severe gastrointestinal symptoms were randomised (1:1) to encapsulated FMT or placebo. Each patient received around 25 capsules containing 50 g of faeces, administered in a single dose. The placebo capsules contained glycerol, saline and food colouring. All patients received FMT as a second intervention. The primary endpoint was number of adverse events of severity grade 2 or more assessed by the Common Terminology Criteria for Adverse Events during the week following the first intervention. Secondary endpoints included gastrointestinal symptoms and quality of life assessed four weeks after treatment. Public trial registration, ClinicalTrials.gov NCT04749030.

Findings We randomised 20 patients to FMT or placebo. Following this intervention, 26 adverse events of grade 2 or more occurred. Four patients in the FMT group reported seven adverse events, and five patients in the placebo group reported 19, with no differences between the groups. The most frequent adverse events were diarrhoea, bloating, and abdominal pain. No serious adverse events were related to the treatment. Patients who received FMT reduced their median Gastrointestinal Symptom Rating Scale—Irritable Bowel Syndrome score from 58 (IQR 54–65) to 35 (32–48), whereas patients receiving placebo reduced their score from 64 (55–70) to 56 (50–77) ($p = 0.01$). The Irritable Bowel Syndrome Impact Scale score improved from 108 (101–123) to 140 (124–161) with FMT and 77 (53–129) to 92 (54–142) with placebo ($p = 0.02$). The Patient Assessment of Gastrointestinal Symptom Severity Index declined from a median of 42 (28–47) to 25 (14–31) after FMT and 47 (31–69) to 41 (36–64) after placebo ($p = 0.03$).

Interpretation FMT was safe and improved clinical outcomes for patients with type 1 diabetes suffering from bowel symptoms.

Funding Steno Collaborative Grant.

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Abbreviations: COMPASS31, Composite autonomic symptoms score; CTCAE, Common terminology criteria for adverse events version 5.0; FMT, Faecal microbiota transplantation; GSRS-IBS, Gastrointestinal symptom rating scale, Irritable bowel syndrome; IBS-IS, Irritable bowel syndrome impact scale; PAGI-SYM, Patient assessment of gastrointestinal symptom severity index

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E-mail address: kathoeye@rm.dk (K. Krogh).

Gentagne behandlinger: opfølgning over tid

17 deltagere

95 FMT-behandlinger

Median opfølgning: 33,2 måneder

Median interval: 5,3 måneder

Gentagen symptomlindring, men uden kontrolgruppe

Diabetologia
https://doi.org/10.1007/s00125-025-06544-x

ARTICLE

Repeated faecal microbiota transplantation for individuals with type 1 diabetes and gastroenteropathy

Katrine L. Høyer[1,2,3] · Ditte S. Kornum[1,2,3] · Simon M. D. Baunwall[1,2] · Mette W. Klinge[1] · Asbjørn M. Drewes[4,5] · Knud B. Yderstræde[6] · Susan Mikkelsen[7] · Christian Erikstrup[7] · Klaus Krogh[1,2,3] · Christian L. Hvas[1,2]

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Abstract

Aims/hypothesis Faecal microbiota transplantation (FMT) may alleviate gastrointestinal symptoms in individuals with diabetic gastroenteropathy, as demonstrated in a recent placebo-controlled trial. In most participants, symptom relief was transient, raising the need for repeated treatments. This study assessed the long-term efficacy, safety and feasibility of repeated, on-demand FMT as a maintenance treatment in this patient population.

Methods All 20 participants from the randomised clinical trial were offered extended open-label treatment with FMT. Symptom assessments were conducted by telephone every 2–3 months using the Gastrointestinal Symptom Rating Scale for Irritable Bowel Syndrome (GSRS-IBS). Secondary measures included bowel movement frequency, stool consistency assessed using the Bristol Stool Scale, perceived treatment benefit on a seven-point Likert scale, and adverse events (AEs). FMT was primarily given as oral capsules, and colonoscopy was used for participants who could not swallow capsules.

Results Of the original 20 participants, 17 were included in the present study and followed from September 2021 to December 2024, with a median duration of follow-up of 33.2 months (range 14.7–39.1 months). Participants received a total of 95 FMT treatments, with a median of five per participant and a median interval of 5.3 months between treatments. FMT induced consistent symptom relief, with reduced GSRS-IBS scores across multiple treatments. At the last FMT treatment provided, the mean GSRS-IBS score had decreased from 60 (95% CI 54, 66) at baseline to 35 (95% CI 29, 40), with a mean difference of −25 (95% CI −18, −33). The occurrence of frequent bowel movements 2 weeks after treatment (> 7 per day) decreased from 19% (95% CI 10%, 28%) to 3% (95% CI 0%, 7%). Stool consistency improved after treatment, and the frequency of normal stool types (Bristol Stool Scale score 3–5) increased from 28% (95% CI 18%, 39%) to 76% (95% CI 66%, 86%). Participant satisfaction was high, with 86% reporting considerable benefits (Likert scores 5–7). Repeated FMT was generally well tolerated, with most AEs being mild and self-limiting. Fifteen serious AEs were documented, of which only one was deemed to be possibly related to FMT.

Conclusions/interpretation Repeated, on-demand FMT is effective and safe for long-term treatment of individuals with type 1 diabetes and severe diabetic gastroenteropathy.

Trial registration ClinicalTrials.gov NCT04749030

Funding The study was funded by a Steno Collaborative Grant (no. 0058906)

Keywords Autonomic neuropathy · Diabetic gastroenteropathy · Faecal microbiota transplantation

Abbreviations

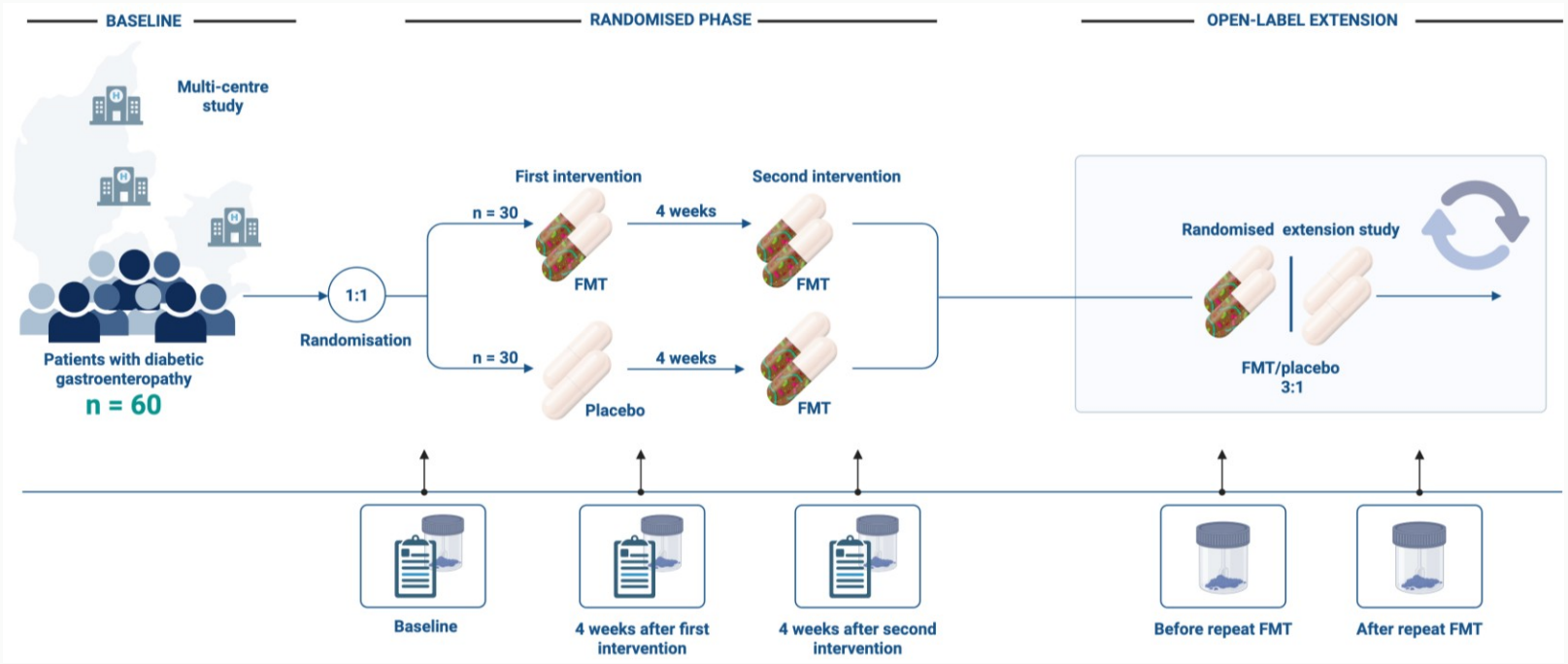
AE	Adverse event
CTCAE	Common Terminology Criteria for Adverse Events
FMT	Faecal microbiota transplantation
GSRS-IBS	Gastrointestinal Symptom Rating Scale for Irritable Bowel Syndrome

Extended author information available on the last page of the article

Published online: 18 September 2025

Fadigas2: et større multicenterstudie

60 deltagere. Tre centre. FMT sammenlignes med placebo.



FMT er endnu ikke etableret behandling af diabetisk gastroenteropati

Det næste patientbesøg

Hvilket symptom generer patienten mest?

Kan patienten spise og drikke tilstrækkeligt?

Hvad viser vægt, måltidsmønster og CGM samlet?

Hvad er næste skridt, hvem gør det, og hvornår følges der op?

Tilbage til Maria

**Vi spørger til måltiderne,
undersøger mistanken
og laver en plan sammen.**

Spørgsmål

Hvilke patienter fra jeres hverdag får oplægget jer til at tænke på?

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