Nordic-European Initiative on Colorectal Cancer

The NordICC trial

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STUDY DESIGN
Research question and study aims

- How much can we reduce the incidence and mortality of colorectal cancer by introducing a colonoscopy screening program?
- The **primary aim** is to compare colorectal cancer mortality and incidence between the screening group and the control group under the intention-to-screen principle during 15 years of follow-up.
- The **secondary aims** are: (i) to compare colorectal cancer mortality and incidence between the screening group and the control group after adjustment for imperfect uptake, and (ii) to evaluate mortality from all causes during 15 years of follow-up.
Study design

• Goal: To mimic a population-based screening program
• Method: Pragmatic randomized controlled trial

"Randomize, Then Consent" or "Consent, Then Randomize"?

Revitalizing the Issue of Preconsent Randomization

Magnus Løberg, a,b Mette Kalager, a,b,c and Michael Brethauer a,b,c
Population registries: population aged 55–64 years

- Cancer registries: CRC exclusions
- 3- to 6-month updates

 Eligible population

 Randomization 1:2

 Exclusion of pre-randomization CRCs or deaths detected postfactum

 Screening arm

 Mailed invitation for screening

 Accepted

 Screening procedure

 Refused

 Excluded from screening

 15-year follow-up (through population and cancer registries)

 Linked individuals

 Control arm

 No response

 After 3 weeks
Intervention

Screening group
- One-time colonoscopy screening
- Bowel prep
- Polyp removal during screening procedure
- Polyp surveillance according to ESGE guidelines

Control group
- Standard of care
Quality assurance

• Only centres with QA program eligible for participation
  – Training for endoscopists, pathologists
  – High-quality equipment
  – Continuous monitoring of key performance indicators for colonoscopy

• Trial endoscopists had performed at least 300 colonoscopies before entering the trial and had a minimum workload of 200 colonoscopies per year
Quality assurance

• Online electronic case report form and centralized trial database
• Continuous monitoring of
  – Adenoma detection rates
  – Cecal intubation rates
  – Perceived pain and discomfort during and after the screening examination
  – Satisfaction with the screening center personnel
• Complications and adverse effects
• Screen-positive individuals with no scheduled appointments for adequate follow-up
• Missing, inadequate or illogical registration of histopathological findings
BASELINE RESULTS
NordICC inclusions

Poland
Netherlands
Norway
Sweden

94,959 individuals randomised

Screening group
31,589 individuals

Control group
(care as usual)
63,370 individuals
Results

• Included 2009 to 2014
  – Poland 54,927
  – Norway 26,588
  – Netherlands 9,780
  – Sweden 3,664

• Participation rate 40% (12,574 c’scopies)
  – Poland 33.9%
  – Norway 60.7%
  – Netherlands 22.9%
  – Sweden 39.8%
Results

- Coecum intubation rate 97.2%
- CRC 0.5%
- Adenomas: 30.7%

Complications
- 1 perforation (0.01%)
- 18 bleedings (0.15%)
- 51 vasovagal reactions (0.41%)
So far

- Participation satisfactory, but varying
- High yield
- Variation in performance
- Carbon dioxide reduces pain after procedure
- Will it work? We’ll know in 10 years
- In the meanwhile:
  - Biomarkers, pathology, subgroups (precision)…

Publications
