2017 DDW Highlights

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Disclosure

Neither I nor my spouse have a personal financial relationship or any actual, potential or perceived conflict of interests in any manufacturer of products or services related to this course.
Objectives

• Learn different study designs and weaknesses of each

• Get updates on research abstracts presented at DDW 2017

• Learn flaws of research in certain abstracts
INTRODUCTION

• DDW (Digestive Diseases Week) is an annual conference of GI doctors, nurses and researchers

• DDW 2017 was held in Chicago, IL from May 6 to May 9, 2017

• 19,092 attendees from 150 countries
Research Presentations

- Approximately 10,000 abstracts were submitted for review
- Over 5,400 accepted as oral or poster presentations
- I reviewed 1,959 for this talk with 26 undergoing further review
- I selected 6 to discuss
Types of Research Studies

- Controlled Trials
- Observational studies
- Meta-analysis
Controlled Trials

• Study population is split into two groups: control arm and treatment arm

• Treatment arm is exposed, control arm is not (placebo)

• Measure difference in outcomes

• Highest level of evidence
Statistical Significance

• Most studies set the level of significance (or $\alpha$ level) at 0.05

• Based on the number of subjects and the difference between groups, a p value can be calculated

• $p < 0.05$ is “statistically significant”

• Means the odds of this occurring by chance is $< 1$ in 20
Meta-Analysis

• Way of combining multiple studies to resolve conflicting results

• Obtain all studies pertaining to the question (systematic review)

• Use Math

• Perhaps multiple small studies combined will create a p < 0.05
Observational Studies

• Data from a population is reviewed (usually retrospectively)

• Look for risk factors associated with worse outcomes

• Risk factors may be linked to other risk factors

• Association is not causation!
Will coffee make you live longer?
Coffee Drinking and Mortality in 10 European Countries
A Multinational Cohort Study

Marc J. Gunter, PhD*; Neil Murphy, PhD*; Amanda J. Cross, PhD; Lauree Dossus, PhD; Laureen Dartois, PhD; Guy Fagherazzi, PhD; Rudolf Kaaks, PhD; Tilman Kühn, PhD; Heiner Boeing, PhD; Krasimira Aleksandrova, PhD; Anne Tjønneland, MD, PhD; Anja Olsen, PhD; Kim Overvad, MD, PhD; Sofus Christian Larsen, PhD; Maria Luisa Redondo Cornejo, PhD; Antonio Agudo, PhD; María José Sánchez Pérez, MD, PhD; Jone M. Altzibar, PhD; Carmen Navarro, MD, PhD; Eva Ardanaz, MD, PhD; Kay-Tee Khaw, MB BChir; Adam Butterworth, PhD; Kathryn E. Bradbury, PhD; Antonia Trichopoulou, MD, PhD; Pagona Lagiou, MD, PhD; Dimitrios Trichopoulos, MD, PhD†; Domenico Palli, MD; Sara Grioni, BSc; Paolo Vineis, MD, MPH; Salvatore Panico, MD, MSc; Rosario Tumino, MD; Bas Bueno-de-Mesquita, MD, PhD; Peter Siersema, MD, PhD; Max Leenders, PhD; Jolène W. J. Beulens, PhD; Cuno U. Uiterwaal, MD, PhD; Peter Wallström, MD, PhD; Lena Maria Nilsson, PhD; Rikard Landberg, PhD; Elisabete Weiderpass, MD, PhD; Guri Skeie, PhD; Tonje Braaten, PhD; Paul Brennan, PhD; Idilir Licaj, PhD; David C. Muller, PhD; Rashmi Sinha, PhD; Nick Wareham, PhD, MBBS; and Ello Riboli, MD, ScM

Background: The relationship between coffee consumption and mortality in diverse European populations with variable coffee preparation methods is unclear.

Objective: To examine whether coffee consumption is associated with all-cause and cause-specific mortality.

Design: Prospective cohort study.

Setting: 10 European countries.

Participants: 521,330 persons enrolled in EPIC (European Prospective Investigation into Cancer and Nutrition).

Measurements: Hazard ratios (HRs) and 95% CIs estimated using multivariable Cox proportional hazards models. The association of coffee consumption with serum biomarkers of liver function, inflammation, and metabolic health was evaluated in the EPIC Biomarkers subcohort (n = 14,800).

Significant inverse association of coffee drinking with circulatory disease mortality (HR, 0.78 [CI, 0.68 to 0.90]; P for trend < 0.001) and cerebrovascular disease mortality (HR, 0.70 [CI, 0.55 to 0.90]; P for trend = 0.002) and a positive association with ovarian cancer mortality (HR, 1.31 [CI, 1.07 to 1.61]; P for trend = 0.015). In the EPIC Biomarkers subcohort, higher coffee consumption was associated with lower serum alkaline phosphatase; alanine aminotransferase; aspartate aminotransferase; γ-glutamyltransferase; and, in women, C-reactive protein, lipoprotein(a), and glycated hemoglobin levels.

Limitations: Reverse causality may have biased the findings; however, results did not differ after exclusion of participants who died within 8 years of baseline. Coffee-drinking habits were assessed only once.

Conclusion: Coffee drinking was associated with reduced risk for death from various causes. This relationship did not vary by country.
Study

• Prospective, multinational cohort study
• 521,330 subjects enrolled from 10 European countries
• Mean follow up 16.4 years
• Compared to non-consumers, highest quartile consumers had significantly lower mortality
• Men 855 ml/d, Women 684 ml/d
Study Design

• Association, not causation

• Drinking coffee gives you less stress? (hanging out in the break room)

• After running out of coffee, coffee drinkers killed non-coffee drinkers?
DDW 2017 Highlights

• Upper endoscopy
• Lower endoscopy
• First year that ERCP did not have its own category!
Upper endoscopy

1) What is the aspiration risk in upper endoscopy?

2) What are the complications in PEG placement in the elderly?
Aspiration in EGDs

What is the aspiration risk in upper endoscopy?

Abstract Sa1093
Aspiration Incidence in Upper Gastrointestinal Endoscopy, a Retrospective Analysis
Nicholas R. Oblizajek, et al.
Aspiration in EGDs

- Aspiration is a risk of all endoscopy
- What are risk factors in upper endoscopy?
- Retrospective observational study
- EGDs at Mayo Clinic from January 2000 to May 2016
- Cases of aspiration were manually reviewed for verification
Aspiration in EGDs

- 28 definite aspirations (4.61 per 10,000 cases)
- 29 possible aspirations

### Study Patient Demographics

<table>
<thead>
<tr>
<th>Study Patient Demographics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Age (years)</td>
<td>59.84</td>
</tr>
<tr>
<td>Sex (Male %)</td>
<td>54.96</td>
</tr>
<tr>
<td>Race (Caucasian %)</td>
<td>92.21</td>
</tr>
<tr>
<td>ASA Type 1A (% of total)</td>
<td>18.35</td>
</tr>
<tr>
<td>ASA Type II (% of total)</td>
<td>42.00</td>
</tr>
<tr>
<td>ASA Type III (% of total)</td>
<td>33.78</td>
</tr>
<tr>
<td>ASA Type IV (% of total)</td>
<td>1.13</td>
</tr>
<tr>
<td>ASA Type Not Documented (% of total)</td>
<td>4.74</td>
</tr>
</tbody>
</table>
Methodology

- Observational (cross-sectional) study – not sure how to use data
- Atypical population (Mayo clinic)
- IMPORTANT = did NOT include aspirations related to anesthesia
- “Statistics are like bikinis, what they reveal are suggestive but what they conceal is vital.”
PEG Complications

What are the complications in PEG placement in the elderly?

Abstract Mo1206
Safety Profile of Percutaneous Endoscopic Gastrostomy (PEG) in Geriatric Patients: A Retrospective Study
Bijun S. Kannadath, et al.
PEG Complications

• Benefit of PEGs in elderly patients is unclear given reduced lifespan

• Single center, retrospective observational study

• All PEG patients over 65 from January 2013 to December 2015

• 512 PEG placements evaluated
PEG Complications

- Mean patient age: 76.7 years
  M:F ratio = 1.3:1

- 441 (86%) were on uninterrupted anticoagulant therapy

- Mortality:
  - All cause in-hospital: 31 (6%)
  - All cause 30 day: 23 (4.5%)
  - Only one death was PEG-related
PEG Complications

- Total complications: 27 (5.3%)

<table>
<thead>
<tr>
<th>Major Complications</th>
<th>Number of Cases</th>
<th>Percentage (out of 512)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEG site infection</td>
<td>0</td>
<td>1.76%</td>
</tr>
<tr>
<td>Pull Out</td>
<td>6</td>
<td>1.17%</td>
</tr>
<tr>
<td>Significant Bleeding*</td>
<td>1</td>
<td>0.19%</td>
</tr>
<tr>
<td>Perforation</td>
<td>1</td>
<td>0.19%</td>
</tr>
<tr>
<td>PEG Related Mortality</td>
<td>1</td>
<td>0.19%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Minor Complications</th>
<th>Number of Cases</th>
<th>Percentage (out of 512)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leakage</td>
<td>0</td>
<td>1.76%</td>
</tr>
<tr>
<td>Peristomal Pain</td>
<td>1</td>
<td>1.37%</td>
</tr>
</tbody>
</table>

- Higher risk with hyperlipidemia (OR 3.6)
- Lower risk if over 80 y/o
Methodology

- Conclusion: Excellent outcomes in elderly patients
- Retrospective – downplayed mortality and morbidity
- No control group (how would they have done without PEG?)
- Elderly did better – possible selection bias
Lower Endoscopy

1) Can colonic effluent predict prep quality?

2) Which adjunct techniques help find polyps?

3) Does hemoclipping prevent post-polypectomy bleeding?
Colonic Effluent

Can colonic effluent predict prep quality?

Abstract Sa1043
Can Visual Inspection of Colonic Effluent by Healthcare Providers Predict Adequacy of Bowel Preparation for Effective Colonoscopy?
Liam Zacco, et al.
Colonic Effluent

- Colonic effluent = poop juice
- Many endoscopy units use visual (or reported) colonic effluent color to gauge preparation quality
- No data to support this
- Patients asked to bring in samples which were photographed
- 56 samples collected
Colonic Effluent

- 15 GI nurses and 4 second-year fellows assessed effluent
- Asked “based on effluent, is the preparation adequate?”
- Sensitivity of 64%
  Specificity of 71%
  Correlation coefficient of 0.28
  Effectiveness of 69%
- Summary = not very good
Methodology

• Wondered if there was difference between nurses and fellows?

• Instead of binary (adequate/not), correlation with good/fair/poor?

• Correlation with patient’s assessment?

• “Colonic effluent stinks as gauge of preparation”
Adjunct Techniques

Which adjunct techniques help find polyps?

Abstract 150
Devices and Techniques to Improve Colon Adenoma Detection: A Systematic Review and Meta-Analysis
Ali Alali, et al.
Adjunct Techniques

- Several novel techniques have been proposed recently
- Meta-analysis of all studies involving new techniques until June 2016
- 115 studies were included
Imaging

- High-Definition (HD)
- Chromoendoscopy
- NBI (Olympus)
- iScan (Pentax)
- FICE: Flexible spectral imaging color enhancement (Fuji)
- AFI: Auto-fluorescent imaging
Others

- Cap
- Endocuff
- Endoring
- G-Eye (aka “Butt Balloon”)
- Wide-Angle
- FUSE
- Water exchange
- Water immersion
And the winner is...
Methodology

• Some new techniques seem to improve adenoma detection

• Highest effect seen in smallest samples

• Many studies sponsored by companies selling these techniques
Hemoclips and Polyps

Does hemoclipping prevent post-polypectomy bleeding?

Abstract 1004
A Prospective, Randomized Trial
Prophylactic Hemoclipping for Preventing Delayed Post-Polypectomy Bleeding in Patients With Large Colonic Polyps: An Interim Analysis
Linda A. Fagins, et al.
Hemoclips and Polyps

• Most common complication of polypectomy is bleeding (immediate or delayed)
• Common practice to place a clip after removal of a large polyp
• Prospective, randomized trial at 3 VA medical centers
• Polyps > 1cm randomized to clip or no clip
Hemoclips and Polyps

- Patient called 7 and 30 days after polypectomy
- Important bleed: > 2 gm hb drop, hemodynamic instability, repeat colonoscopy/angiography/surgery
- Power calculation = need 1784 patients (interim safety analysis)
- So far 632 patients enrolled with 610 with 30 day follow up
# Hemoclips and Polyps

## Table 2: Rates of Important Delayed PPB

<table>
<thead>
<tr>
<th></th>
<th>Hemoclip (n = 308)</th>
<th>No Hemoclip (n = 302)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>9 (2.9%)</td>
<td>10 (3.3%)</td>
<td>0.82</td>
</tr>
<tr>
<td>Aspirin users</td>
<td>8/144 (5.6%)</td>
<td>6/161 (3.7%)</td>
<td>0.59</td>
</tr>
<tr>
<td>NSAID users</td>
<td>1/49 (2.0%)</td>
<td>2/46 (4.3%)</td>
<td>0.61</td>
</tr>
<tr>
<td>Thienopyridine users</td>
<td>3/19 (15.8%)</td>
<td>1/17 (5.9%)</td>
<td>0.61</td>
</tr>
<tr>
<td>Warfarin or DOAC users</td>
<td>1/33 (3.0%)</td>
<td>3/32 (9.4%)</td>
<td>0.36</td>
</tr>
<tr>
<td>Heparin users</td>
<td>0/10 (0%)</td>
<td>3/12 (25%)</td>
<td>0.22</td>
</tr>
<tr>
<td>Polyp morphology*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pedunculated</td>
<td>5/116 (4.3%)</td>
<td>0/116 (0%)</td>
<td>0.33</td>
</tr>
<tr>
<td>Sessile</td>
<td>8/296 (2.7%)</td>
<td>10/297 (3.4%)</td>
<td>0.80</td>
</tr>
<tr>
<td>Polyp Removal Technique*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hot snare</td>
<td>13/381 (3.4%)</td>
<td>10/389 (2.5%)</td>
<td>0.72</td>
</tr>
<tr>
<td>Cold snare</td>
<td>0/8</td>
<td>0/4</td>
<td>-</td>
</tr>
<tr>
<td>Cold forceps</td>
<td>0/3</td>
<td>0/7</td>
<td>-</td>
</tr>
</tbody>
</table>

*Analyzed with generalized linear mixed models controlling for correlated observations due to multiple polyps
Methodology

• Conclusion: No difference seen at the interim analysis

• Breakdown of humongous polyps (>15mm, >20mm)?

• Is stalk size what’s important rather than polyp size?
Scope Disinfection

1) Is double-washing scopes better than single-washing?
Double-Washing
Does double-washing scopes make a difference?

Abstract 269
A Randomized Trial of Single Versus Double High-Level Disinfection (HLD) of Duodenoscopes and Linear Echoendoscopes Using Standard Automated Reprocessing
Jack Brandabur, et al.
Double-Washing

- Single glutaraldehyde disinfection not adequate for ERCP scopes
- FDA recommended either ETO, culture, liquid disinfectant or double-washing with glutaraldehyde
- No data for any of these methods
- Randomized trial of single- vs. double-disinfection at 4 facilities
Double-Wash

- Cultured scope biopsy and elevator channel for 6 months afterwards

- All High Concern Growth was from the elevator channel

Table 1. Summary of culture positivity rates

<table>
<thead>
<tr>
<th>Specimen-based</th>
<th>Double HLD</th>
<th>Single HLD</th>
<th>Overall</th>
<th>P-value*</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Specimens</td>
<td>3052</td>
<td>2798</td>
<td>5850</td>
<td></td>
</tr>
<tr>
<td>Any Growth</td>
<td>127 (4.2%)</td>
<td>108 (3.9%)</td>
<td>235 (4.0%)</td>
<td>0.60</td>
</tr>
<tr>
<td>High Concern Growth</td>
<td>3 (0.1%)</td>
<td>5 (0.2%)</td>
<td>8 (0.1%)</td>
<td>0.49</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Encounter-based</th>
<th>Double HLD</th>
<th>Single HLD</th>
<th>Overall</th>
<th>P-value*</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Encounters</td>
<td>1526</td>
<td>1399</td>
<td>2925</td>
<td></td>
</tr>
<tr>
<td>Any Growth</td>
<td>122 (8.0%)</td>
<td>102 (7.3%)</td>
<td>224 (7.7%)</td>
<td>0.52</td>
</tr>
<tr>
<td>High Concern Growth</td>
<td>3 (0.2%)</td>
<td>5 (0.4%)</td>
<td>8 (0.3%)</td>
<td>0.49</td>
</tr>
</tbody>
</table>

* Comparing the two randomized arms.
Methodology

- No benefit seen for double-washing
- Culture is not perfect
- Trend towards benefit (high concern growth) with double-washing – but would it be worth it?
  - “Time is money.”
  - “Especially if you’re talking to a lawyer or buying a commercial.”
Summary

• DDW is an excellent venue for learning new ideas and research

• Preliminary data should be viewed with caution

• It is easier to hear this talk than go through thousands of abstracts
Purpose of Research

“The primary purpose for research is discovering, interpreting and the development of methods and systems for the advancement of human knowledge on a wide variety of scientific matters.”
“Well-Duh”

However some research defies explanation as it seems to only prove the obvious.
Abstract Su1660
Midazolam/Fentanyl Sedation Provided by Colonoscopists Improves Polyp Detection Rate Compared to Unsedated Colonoscopy
Chun-Wei Chen, et al.

- **4159 colonoscopies performed over a year in tertiary care hospital in Taiwan**
- Patients either got unsedated colonoscopy or had to self-pay for sedation
- “Pay now or pay later!”
Polyps Detection

- “Seniorities of endoscopists were recorded”
- Selection bias?
Polyps Detection

- Cecal intubation rates and polyp detection were higher in the sedated group.

“Well, Duh!”
And in other news... stories of the odd and bizarre.

Gloria Lan, et al.

• Improved compliance with scope-cleaning protocols may reduce scope infections
• Remote Video Auditing (RVA) to monitor compliance
• Initially without feedback – then had weekly feedback sessions
Remote Video Editing

• Improved compliance from 67% to 93% with RVA with feedback
Abstract 933
Rectal Infusion Based Colon Cleansing Preparation for Colonoscopy Is a Dominantly Cost-Effective Strategy Compared to Standard Oral Preparation
Ananya Das, et al.
Water Irrigation

- Cost-effectiveness study of an FDA approved rectal water irrigation device vs. split Go-lytely prep
- Cost of Go-lytely prep $25
- Cost of Rectal Water Irrigation $250
- Avoidance of humiliation: Priceless
- Can lower costs further with generic water irrigation
Water Irrigation

- Used mathematical mumbo-jumbo to calculate life-years as well as monetary savings
- The cost-savings over the patients’ lifetime was...
- 150 million dollars!
- Hospital of PI had $35 million deficit last year
- Rectal irrigation can flush out 5 years of deficit!
Abstract Sa1755
Privacy Pants in Colonoscopy: A Novel Approach to Enhance Colon Cancer Screening
Ali Aamar, et al.

• “Current standard of practice...is for the patient to wear a one-piece reusable gown.”

• “How is an HMO like a hospital gown?”

• “You only think you’re covered.”

• Exposure of the entire back and pelvis area can cause embarrassment to patient and staff
Privacy Pants

• Pants with zipper in back (rather than front)
• 16 patients offered privacy pants and answered survey
• All patients felt respected (9.5/10) and 56% would definitely ask for privacy pants at the next colonoscopy
Privacy Pants

• No control group – should have compared survey to those with gown

• True scientist would have third arm to study – no gown

• Zipper on both sides – easily reversible!

• Why stop at just privacy pants?
Privacy Box

- Unlike privacy pants, insures total privacy
- Foam insert prevents combative movements
Thank You 2017 Attendees!