제9회 논문작성 워크숍

2017.8.5 (Sat) 9:00–16:45

가톨릭의대 성의교정 성의회관 1층 마리아홀

Main text 작성의 Tip

서동훈

분당서울대학교병원 산부인과

의편협 기획운영위원회 간사, 평가의원

- **Writing is a critical step in science although scientists are not trained to write.**

Even very creative experiments and novel results will have dull impact if the manuscript is not written well.

Manuscripts in high impact journals

- Work of established scientists
- Results of general interest
- Novelty of findings
- Concise and well written

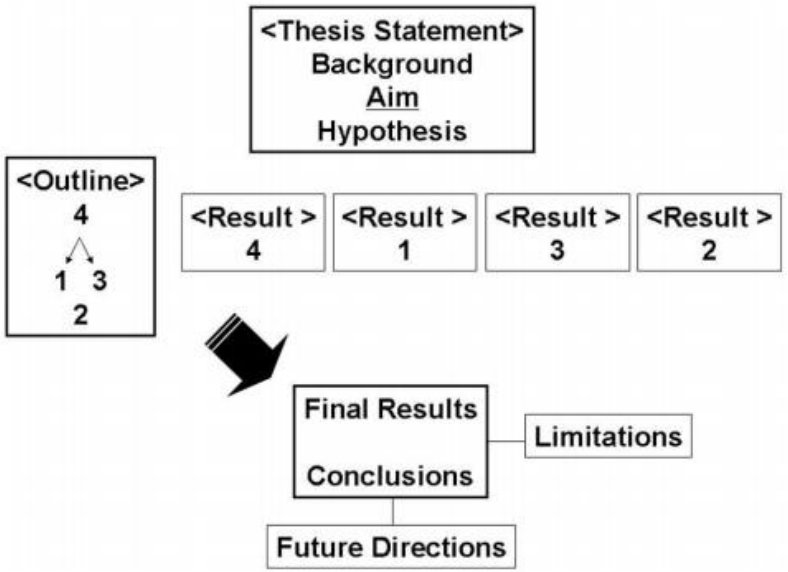
What do editors want?

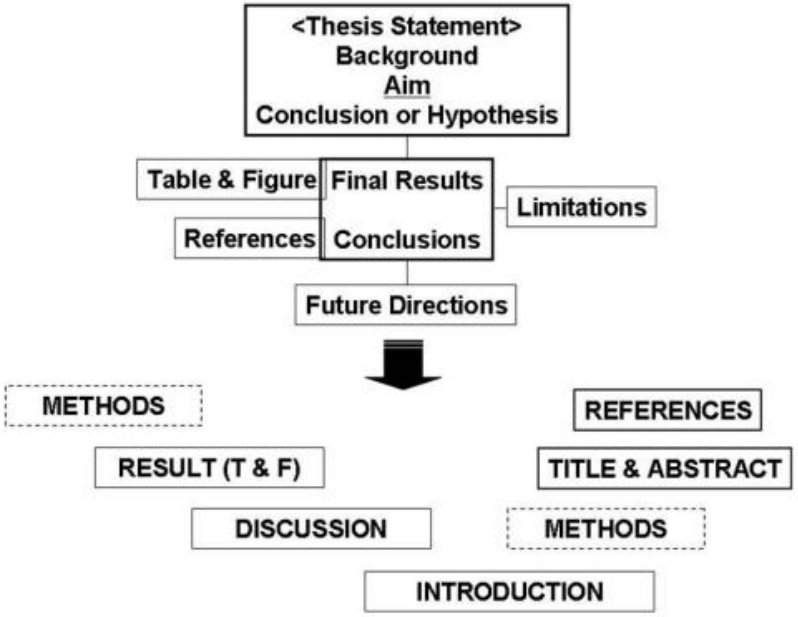
- Excitement "wow"
- Importance
- Originality
- Relevance to the audience
- True
- Clearly written
- Engagingly written

Four questions of manuscript writing

1. Why did I do?	INTRODUCTION
2. What did I do?	METHODS
3. What did I find?	RESULTS
4. What does that mean?	DISCUSSION

Writing sequence





Start with Outline

- Outline each segment of the paper using traditional outline: I, II, III, A, B, 1, 2, a
- Forces logical thought and order
- Eliminates unorganized thinking and writing
- Uncovers flaws in arguments
- Reduces wordiness
- Makes writing easier
- Include your draft figures, tables

Table. Patient characteristics (n=870)

Characteristics	N (%)
Age at diagnosis (yr)	51.7 ± 12.8*
Preoperative serum CA125 (U/ml)	2027.4 ± 11191.9*
Neoadjuvant chemotherapy (%)	84 (9.7)
FIGO stage	
I	254 (29.2)
II	56 (6.4)
III	483 (55.5)
IV	77 (8.9)
Intraoperative findings	
Iatrogenic tumor rupture†	39 (32.8)§
Microscopic intrapelvic lesions‡	11 (34.4)§

2005-0380
2005-0399

Journal of Gynecologic Oncology
JGO

ovarian cancer:
nd intraoperative

n[2], Taek Sang Lee[4], Hyun Hoon Chung[2],

Table 1. Patient distribution between the current and new FIGO staging systems

Current FIGO staging	New FIGO staging														
	Ia	Ib	Ic1	Ic2	Ic3	IIa	IIb1	IIb2	IIc	IIIa1	IIIa2	IIIb	IIIc	IV	Total, n (%)
Ia	128														128 (14.7)
Ib		7													7 (0.8)
Ic			39*	27†	53‡										119 (13.7)
IIa						6									6 (0.7)
IIb							11§	21‖							32 (3.7)
IIc									18						18 (2.1)
IIIa										12					12 (1.4)
IIIb												61			61 (7.0)
IIIc											33¶		377		410 (47.1)
IV														77	77 (8.9)
Total, n (%)	128 (14.7)	7 (0.8)	39 (4.5)	27 (3.1)	53 (6.1)	6 (0.7)	11 (1.3)	21 (2.4)	18 (2.1)	12 (1.4)	33 (3.8)	61 (7.0)	377 (43.3)	77 (8.9)	870 (100)

*Intraoperative tumor rupture; †Capsule ruptured before surgery or tumor on ovarian or fallopian tube surface; ‡Malignant cells in the ascites or peritoneal washings; §Microscopic pelvic peritoneal metastasis; ‖Macroscopic pelvic peritoneal metastasis; ¶Retroperitoneal LN metastasis without extrapelvic involvement.

3c 410 중 LND 227 (55.4%)

Restage 1c1 은 1a 만큼 good prognosis partly due to prophylactic CTX

1a 는 1b or 1c 보다 CTX 비율 의미 있게 적다. ($p<0.001$)

Iatrogenic intraop. tumor rupture 는 CTX 시행하면, 평균 6 회, Ia 와 comparable prognosis

Similar 5yr OS between 2b and 2c. → elimination of stage IIC.....it does not matter any more if cytology is positive or not in this stage.

Sub-analysis of stage IV

Better OS of SCL only stage IV than stage IV with other causes

SCL(+) 인 경우가 abdominal peritoneal metastasis 가 유의하게 적다. (통계다시 확인할 것)

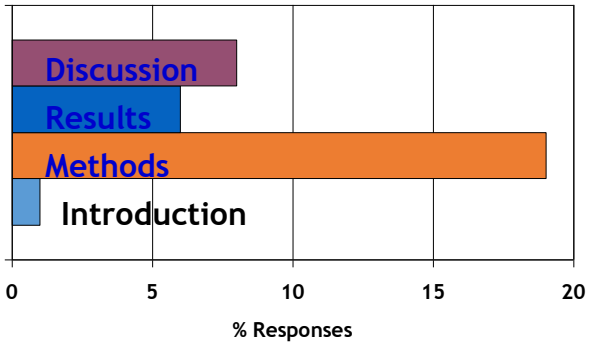
1b, 2 case number 가 작아서 통계결과 문제....

재료 및 방법
(Material & Methods)

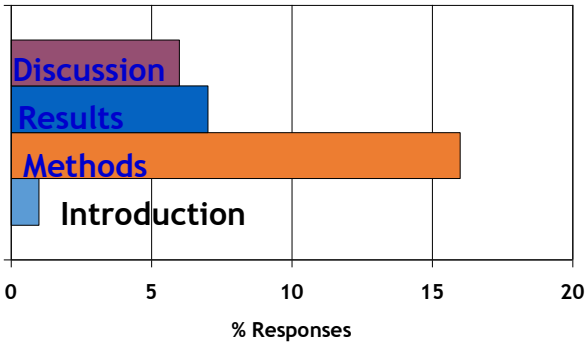
What did I do?

Methods are Critical: Editors' Responses

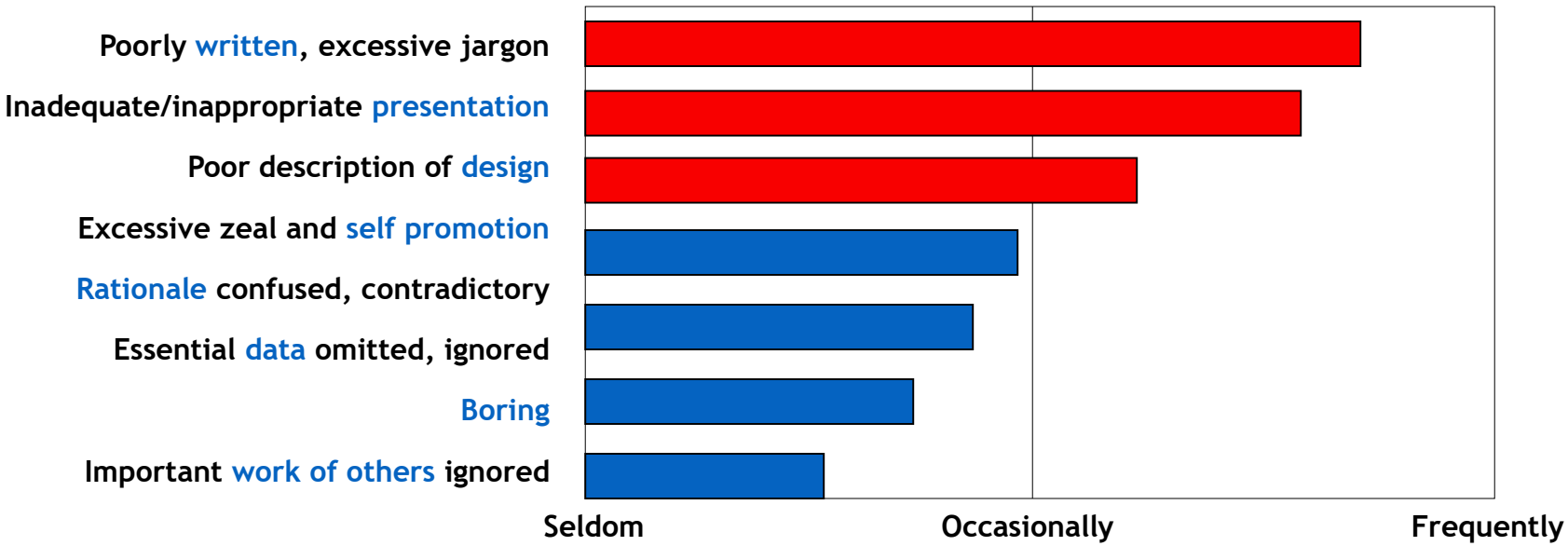
What section contains the most flaws?



What section responsible for outright rejection?



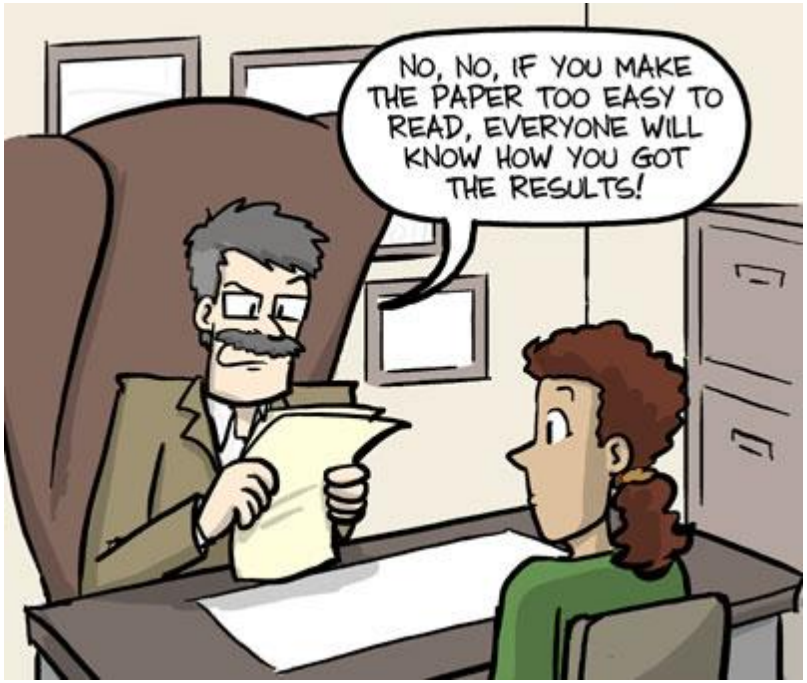
How frequently do Editors encounter manuscript problems?



Byrne DW, Publishing Medical Research Papers, Williams and Wilkins, 1998

재료(대상) 및 방법 작성의 개요

- "아무리 자세해도 지나치지 않다"
  - 다른 연구자가 이 연구를 평가하고 재현할 수 있도록 자세하게 (like a recipe)
  - Vendor and vendor contact information
- 포함될 내용
  - 연구디자인
  - 연구상태나 조건의 정의 (질병, 생리학적 상태..)
  - 연구대상의 정의 (환자, 정상인, 동물, 식물, 세포주..)
  - 연구대상 선정방법 계획
  - 구체적인 실험방법 결정
  - 모든 관찰항목과 관찰방법의 구체적인 결정
  - 자료평가를 위한 통계학적 분석법 선택과 기술



http://www.nature.com/scitable/ebooks/english-communication-for-scientists-14053993/writing-scientific-papers-14239285

재료 및 방법 기술의 지침

1. 연구를 재현하기에 충분한 내용과 참고문헌을 기술하되, 불필요한 세부사항을 포함하지 않는다.
2. 재료 및 방법 이외에 결과를 포함하지 않는다.
3. 긴 설명이 필요한 세부사항은 부록을 활용한다.
4. 적절한 주제 또는 소주제 별로 내용을 정렬한다.
5. 수동태가 바람직하다. (시제는 과거를 주로 사용)
6. 뚜렷한 이유 없이 관점을 바꾸지 않는다.
7. 정확한 단어를 사용한다.
8. 윤리 지침을 따르고, 이에 대해 기술한다. (animal & clinical)
9. 새로운 주제는 적절한 신호를 사용하여 연결한다.
10. 기능이 명확하지 않은 실험절차는 그 목적을 설명한다.

    -(연결절 사용) ***To determine the effect*** of beta-adrenergic agonists on clearance of liquid from the lungs, we instilled…

실험을 시행한 이유에 대한 설명

- 서론에서 제기한 질문과의 연관성이 분명하지 않은 경우 설명이 필요하다. calculate, estimate의 용어 구분
  - To+ 동사 / For + 명사
    - "To evaluate the anti-tumor effect, ..."
    - "For primary culture, the cells were resuspended in...."
  - Because (semicolon [;] 사용하여 생략가능)
    - Bovine serum albumin was included in the binding medium ***because*** albumin reduced...
    - Radiolabeled surfactant protein A was used...***;*** storage for longer periods of time...

정확한 어휘 선택

- Measure, calculate, estimate의 용어 구분
  - "We measured heart rate and ventricular pressure and calculated maximal positive dP/dt."
- Determine; measurement and calculation
  - "We determined heart rate, ventricular pressure, and maximal positive dP/dt."
- Study, experiment, series, group의 용어 구분
  - Study: 현상이나 발달, 질문에 대한 지속적이고 체계적인 조사
  - Experiment: 가설의 타당성을 조사하기 위한 시험 (대상이 인간일 경우 study라고 함)
  - Series: 서로 연관된 2개 이상의 실험
  - Group: 같은 특성을 갖는 실험동물 또는 인간

관점(Point of view)

- **수동태가 많이 쓰임**
  - Materials & methods 강조하기 위해
  - 글의 활력을 주기 위해 능동태를 한 번 정도 사용하기도 한다.

We collected the different fungal species from various tepuis in Venezuela.
Different fungal species were collected from various tepuis in Venezuela.

- **이유 없이 관점을 바꾸지 마라.**
  - The assays were performed for 10 min at room temperature. We then added 10 ml of 95% ethanol. The assays were performed for 10 min at room temperature. The 10 ml of 95% ethanol were added.

관점(Point of view)

- We로 시작하는 문장이 너무 많아지지 않게
  - 하나의 실험의 단계를 한 문장에 넣음.
    - We dehydrated the pellets, cleared them with propylene oxide, and embedded small pieces of each pellet in blocks of Spurr's resin.
  - 앞 부분에 변화를 주는 방법.
    - After 30 s, we centrifuged the samples.
    - Then we centrifuged the suspension as before.
    - To prepare isolated surface layers for electron microscopy, we resuspended the 0.1-ml pellets of packed, …

구성 (Organization)

- 주제별로 구분하고 소제목을 붙임.

Animal Studies	Clinical Studies
Materials	Study subjects
Animals	Inclusion criteria
Preparation & model establishment	Exclusion criteria
Study design	Study design
Interventions	Interventions
Methods of measurement	Methods of measurement
Calculations	Calculations
Analysis of data	Analysis of data

연구의 대상 기술

- 궁극적으로 목표로 하는 질환이나 상태
  - 난소암
    - 난소암 중 mucinous type 만...
    - 난소암 중 advanced stage 만?
  - 자궁경부암?
    - 수술대상의 초기...
    - Recurrent ?
- Example

1. Study subjects

This study was conducted prospectively in patients with cervical cancer the International Federation of Gynecology and Obstetrics (FIGO) stage IB1–IIA.

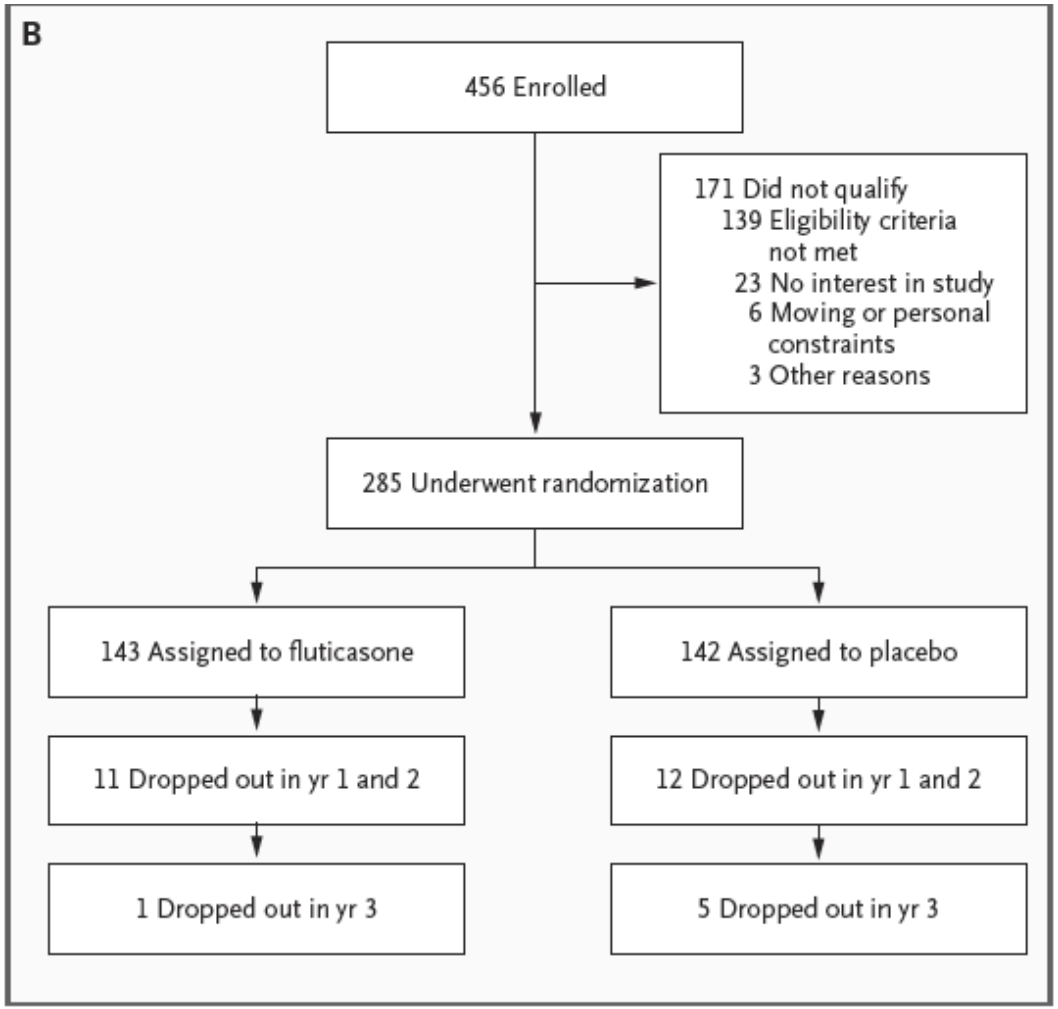
재료(대상)의 채택기준 및 제외기준

- Inclusion c

the cervical s IB1 through stage
IVB cervical c FIGO]) between July
2003 and Dec i, Korea.

- Exclusion cr

Exclusion crite distant metastasis,
history of psy coexisting
malignancy.



동물, 약제, 시료, 기구 등의 기술

- Generic name 사용
  - Paclitaxel, dopamine HCl
  - 시약은 화학명
  - 괄호
    - 상품명, 제조회사명, 제조일시, 제조번호
    - 기계, Kit : 회사이름, 소재도시명, 나라이름
    - 체중, 농도, 용량 등은 괄호로 넣거나, 앞으로 가면 괄호 없이 기술

DMEM culture medium (Gibco BRL, Long Islands, NY)

10 mg nitoglycerine , nitroglycerine (10 mg)

- 동물을 사용할 경우, 어떤 실험동물과 연령을 정확히 기술
  - **Animal (X)**
  - Six weeks old female athymic nude mouse….
- 측정단위 : SI Unit

Study Design

- 연구(실험)의 전체적인 조망 제시 (주제문)
  - 질문 (연구의 목적)
  - 독립변수와 측정값 (종속변수), 대조군(controls)
  - 각 실험의 구성, 순서(개입, 측정, 실험), 기간, 샘플 규모, ***반복실험 (repeats for reproducibility)***

데이터분석

- 어떻게 변수를 계산하였는지
- 데이터를 어떻게 요약하였는지
  - 정규분포: 평균값과 표준편차
  - 비정규분포
    - 중앙값(median)과 범위(range)
    - 중앙값(median)과 사분위수범위(range between the 25th and the 75th percentiles)

통계 분석

- 잘 알려진 방법: 통계 방법만 기술.
  - Student t-test, Chi-square, ANOVA, linear regression, correlation, Wilcoxon
- 잘 알려지지 않은 통계 방법:
  - 논문이나 책을 참고문헌으로 제시.
- 사용한 프로그램 (version, release number 포함)
- 각 통계 방법마다 샘플 크기가 다른 경우, 분명하게.
- 유의한 p 값 또는 95% 신뢰구간

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journal homepage: www.elsevier.com/locate/ygyno

Identifying risk factors for occult lower extremity lymphedema using computed tomography in patients undergoing lymphadenectomy for gynecologic cancers☆

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[c] Gynecologic Cancer Branch and Center for Uterine Cancer, Research Institute and Hospital, National Cancer Center, Goyang, Republic of Korea

2. Methods

2.1. Study population

The medical records of 511 patients undergoing lymphadenectomy for gynecologic cancers in Seoul National University Bundang Hospital between June 2003 and March 2015 were retrospectively reviewed. Of the 511, 131 (25.6%) were diagnosed with lymphedema, whereas 405 (74.4%) were not. Among the 131 subjects with a diagnosis of lymphedema, 25 patients were excluded for having genital lymphedema; thus, a total of 106 patients had a diagnosis of LEL (Table 1 and Fig. 1). Every patient had results of both preoperative and postoperative 1-year (±6 months) abdominopelvic CT. Patients with any cause of LEL

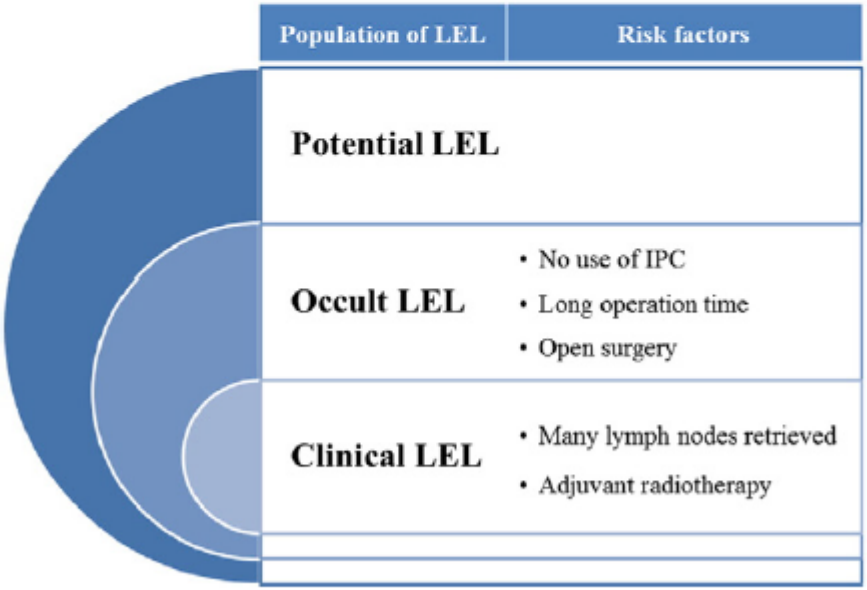


Fig. 1. Determination of computed tomography (CT)-based cut-off value of the difference in subcutaneous layer thicknesses between preoperative and postoperative 1-year CT scans.

2.2. Determination of cut-off value of subcutaneous layer thickness on CT scan of patients with LEL

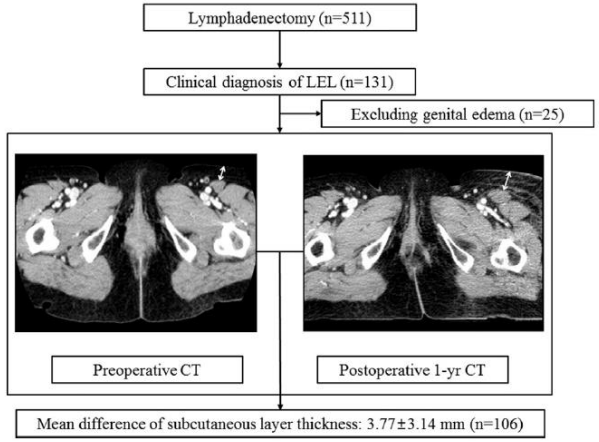


Fig. 2. Conceptual populations of lower extremity lymphedema with corresponding risk factors. LEL, lower-extremity lymphedema. Potential LEL has neither symptom/sign nor diagnosis, but could have risk factors; occult LEL has symptom and/or sign, but does not have diagnosis; clinical LEL has diagnosis of LEL based on obvious symptom and/or sign.

2.3. Surgical procedures

2.4. Assessment of risk factors for LEL

2.5. Statistical analysis

Student's *t*-test and Chi-square test were used for continuous and categorical variables, respectively. For corresponding non-parametric statistics, Mann-Whitney *U* and Fisher's exact test were used, respectively. In this study, variables with $p < 0.2$ in univariate analysis were selected to enter multivariate analysis to identify independent risk factors for LEL. We used SPSS version 22.0 (IBM Inc., Armonk, NY, USA) and $p < 0.05$ was considered statistically significant.

결과
(Results)

What did I find?

결과 작성의 전략 (1)

- 표와 그림을 잘 구성하고, 활용
  - *Tables give the evidence and figures illustrate the highlights.*
- 결과부분은 소제목 (subheadings) 을 활용
- 각 부제목에서 각 표와 그림의 부분을 설명하고, 해당하는 표와 그림을 표기
  - *Introduce each group of tables and figures in a separate paragraph where the overall trends and data points of particular interest are noted.*

결과 작성의 전략 (2)

- 각 소제목에서 각 표와 그림을 언급하여 설명하되, 표와 그림의 내용을 반복하는 것은 최소화
  - *Be sure to include basic descriptive data.*
  - *The text should tell the story.*
- 각 결과가 재료와 방법에서 언급된 연구방법에 의한 결과임을 확인
- Indicate specific statistics including key statistics such as:
  - Number of samples
  - Index of dispersion: SD, SEM
  - Index of central tendency: man, median or mode

“The effect on body weight was discussed.”

“Body weight was increased.”

“Body weight increased 43 ± 2% over a 6-day period.”

결과 작성 요령

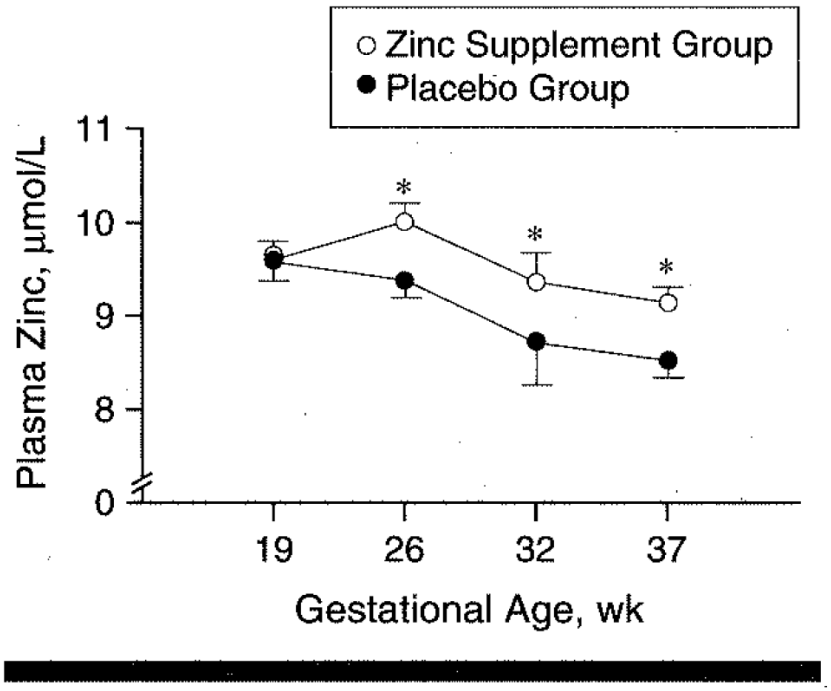
1. **Use past tense**
   - " Within 6 months of withdrawal, DTA decreased by 20 ± 6%."
2. **Do not repeat methods**
3. **Do not interpret in depth**
4. **Use of Figures and Tables**
5. **If data are presented in tables and figures, summarize in the text**
6. **Highlight important findings (with summary / introductory sentence, header)**
7. **Use of "Data Not Shown"**

Results—Don’t Regurgitate Data

- As shown in Table 1, the mean age of participants was 20.4 ± 2 years, and 80% of patients were Caucasian. Treatment group contained 40 patients, whereas control group contained 45 patients. Table 2 shows the demographics of women in these groups. There were 24 women in the control group, and 33 women in the treatment group...

- There were no significant differences in treatment and control patient intake demographics (Table 1), although a significantly greater number of patients in the treatment group dropped from the study for a variety of reasons, mostly relating to adverse reactions. However, analysis of patients in this group later revealed that those dropped patients had significant disease at intake (Table 2). In comparing the two treatment groups (Figure 1), we found that...

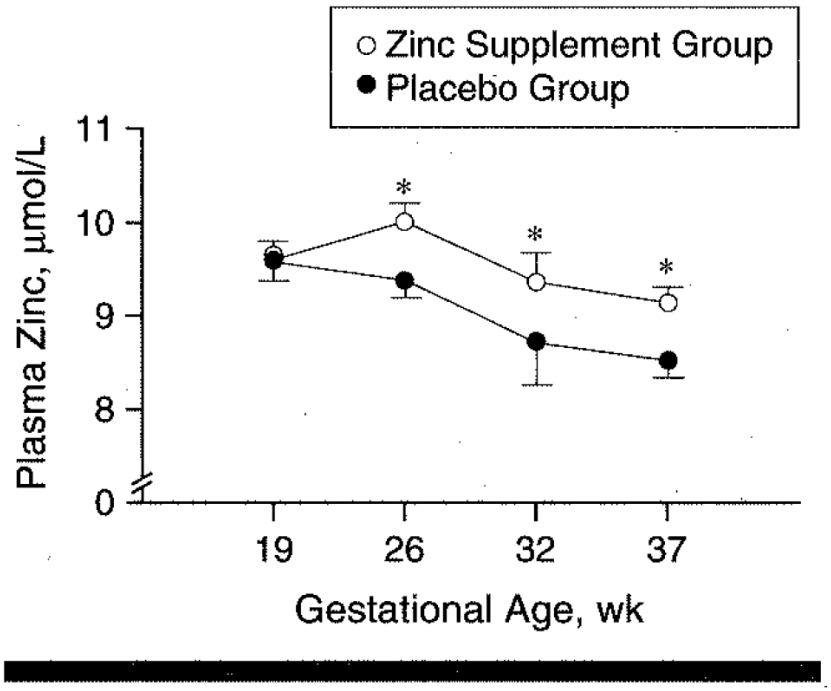
Don’t State the Obvious



Changes in plasma zinc concentrations. Asterisk indicates significant difference between the values of the zinc supplement and placebo groups ($P \leq .05$). Vertical bars indicate SEMs.

Figure 1 is a graph illustrating the plasma zinc levels (µmoL/L) over the 37 weeks versus gestational age in both the zinc supplement group and placebo group. The placebo and the zinc group both decreased over the 37 weeks of the study, but the differences were significant for the zinc group.

State What's Important



Changes in plasma zinc concentrations. Asterisk indicates significant difference between the values of the zinc supplement and placebo groups ($P \leq .05$). Vertical bars indicate SEMs.

We measured mothers' plasma zinc levels before randomization (week 19) and at 26, 32, and 37 weeks' gestational age (Fig 1).

Beginning as early as 26 weeks and at each timepoint, differences in plasma zinc levels between placebo and zinc supplement groups were statistically significant ($P \leq 0.05$) after randomization.

Mistakes to avoid

- This sections lend itself to overwriting, to underwriting, and to giving weight to non-significant results.
- Don’t include just % or p value.
  - *Include confidence interval.*
- ‘What might it mean’ dealt in discussion section.
  - *Avoid beginning to discuss the implications or strengths and weaknesses of your study*
  - *Exception: aid in transition*

    *“*The results of the previous experiment suggested to us that the dopamine released was n ot derived from vesicular stores but from the cytoplasm. To test this possibility…”

P value의 기술

- Only written to three decimal place (eg. $P = .032$)
- When the P value is less than .001 → $P < .001$
- When the *P* value is greater than .999 → $P > .999$
- *P* value is indicated as the actual value (not displayed as “not significant” or “NS”)

Responsible presentation of data

High crimes

- Fabrication: data that are made up
- Falsification: data that are altered
    - data added or moved
    - data deleted without statistical justification
- Plagiarism: using the words or ideas of others without attribution
- Never mislead
    - exaggerate
    - minimize
    - obscure
- Eliminate reasonable sources of confusion
- The responsibility is yours, not the reader's.

토의
(Discussion)

What does that mean?

Discussion: main

- Hardest section to write, but it is also the most important.
- Use descriptive headings that concisely summarize the interpretation of the results.
  - ✓ Should not be a summary of the work done- abstract is doing fine with that.
- Answer the question posed in introduction
- Correlation of your finding with the existing knowledge
- Discrepancies between new results and previously reported results.

Discussion: at the end

- What is new without exaggerating.
- Conclusion/summary, perspectives, implications.
- Research limitations and need for future research.
- Theoretical implications and possible practical applications.

Discussion—common mistakes

1. Unwarranted speculations
2. Injecting tangential issues
3. Conclusions not supported by the data
4. Not suggesting future directions for research

Do not jump to a conclusion !!

서론
(Introduction)

Why is this paper important?

Why did I do it?

Introduction- *Setting the Scene*

- **< 2% readers actually cite your article**
  - **And among these < 2%, approximately 98% reader just read the introduction**
- Significance of your research.
  - ✓Ask question to yourself that why should anyone read your paper amongst the 1000's appearing that month?
- It should introduce the topic and relates to the existing research.
- Capture your audience. Why is your experiment important?

  Avoid comprehensive review, self citations, etc
- Should not be too long (간결하게, 단도직입적으로!)
- Tense
  - 현재형: 명확히 알려진 사실
  - 과거형: 최근 연구된 내용이나 추가적인 연구가 필요한 결과, 타 연구와 배치되는 결론 등

서론에서 쓰여져야 할 내용

1. **연구배경: what is the state of knowledge**
   - 연구의 중요성 부각
   - 지금까지 발표된 연구들을 체계적으로 검토하여 왜 본 연구가 의미를 갖는지, 왜 필요한지 설명 (Brief background information of the current study)
   - 자세한 비교는 고찰에서 시행하고, 서론에서는 과거 연구내용에 대한 상세한 설명 없이 자신의 연구와 가장 유사한 주요 문헌에 초점을 맞추어 작성
2. **연구와 관련된 직접적인 문제점: what is the question**
3. **연구를 통하여 얻고자 하는 목적: hypothesis & purpose**
   - 서론의 마지막 문단으로 가장 중요한 부분

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Identifying risk factors for occult lower extremity lymphedema using computed tomography in patients undergoing lymphadenectomy for gynecologic cancers☆

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관련 연구 검토

There are many studies evaluating risk factors of LEL, such as number of lymph nodes retrieved, removal of distal iliac lymph nodes, and adjuvant radiotherapy [4-8]. Patients with vulvar cancer after inguinal lymphadenectomy frequently suffer from severe lymphedema [3].

문제제기

However, most of the previous reports were based on retrospective study populations, in which patients were not screened for the diagnosis of LEL, and therefore, the diagnosis may have been missed in some patients with symptoms and/or signs of LEL. Salani et al. reported that only 22% of patients who had swelling of the lower limb were diagnosed with LEL [9]. Patients who had symptoms and/or signs of LEL but were not diagnosed were defined as having occult LEL in our study, whereas those who were diagnosed with LEL based on symptoms and/or signs were defined as having clinical LEL. Furthermore, there might be patients who neither had symptoms nor signs of LEL, and who were not diagnosed with LEL, but have some risk factor of LEL; these patients were defined as potential LEL in our study (Fig. 1). Ideal risk factors are the ones identified from the genuine LEL population, including the occult LEL group. Those risk factors could identify potential LEL patients, as well. Therefore, we thought of an objective method to postoperatively monitor every patient who underwent pelvic lymphadenectomy, in order to identify risk factors for postoperative LEL (including occult LEL) more accurately and help in the early detection of LEL before it progressed.

문제해결을 위한 가정

가설 수립과 연구 목적

Computed tomography (CT) is an important follow-up imaging study after surgery for gynecologic cancers. Many patients undergo serial CT scans, which have been shown to provide non-invasive measurements of edema accumulation [10, 11]. Therefore, we conducted this study to identify risk factors for occult LEL using CT scans in patients undergoing lymphadenectomy for gynecologic cancers.

Summary

- 논문의 전체 구성을 늘 생각하고 작성해야 한다.
  - 시작하여 단기간에 초고를 완성하는 것이 바람직하지만, 시간을 갖고 maturation 과정을 거치는 것이 좋다. '조금 지나서 다시 보면 이전에 보이지 않았던 오류나 미처 생각지 못했던 것들이 생각날 때가 있다.'
- Introduction에서 질문하고, 방법과 결과를 통해 근거를 제시하고, discussion에서 답을 하는 큰 흐름을 유지한다.
- 세세한 문법보다는 논리적인 문맥의 흐름에 집중한다. 단, confidence 강도를 결정하는 단어의 선택은 신중하게 (교정으로 바꿀 수 없는 부분들...)
- 게재를 원하는 저널을 미리 선정하고, 유사한 형식의 논문을 많이 읽어, 형식과 경향성을 파악하여 참조한다.

Top 10 Avoidable Reasons manuscripts rejected

1. Wrong journal, format, preparation
2. Disorganized study design
3. Defective tables, figures
4. Poor organization throughout, writing, spelling
5. No hypothesis or problem statement
6. No or insufficient conclusion
7. Overinterpretation of results
8. Article unfocused, too verbose and long
9. Inappropriate statistical methods; methods not sufficient to repeat study
10. Poorly written abstract/title

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