Abstract writing workshop CHRIM 2017

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Learning objectives

- How to write your best abstract
- How to get this abstract accepted

What do you want to know when reading an abstract?

- Why did they do it?
- What design did they use?
- Who did they study (P)?
- What did they do (I/E)?
- Who did they compare it to (C)?
- What did they measure (O)?
- How well did they do it?
- What did they find?

When do people read your abstract?

Designing a Research Hypothesis

Target Population

Exposure to risk factors

Outcomes

Designing a Research Hypothesis

Target Population

Independent Variable

Dependent variable

Designing a Research Hypothesis

Children with Diabetes

Resveratrol

Liver fat content

Designing a Research Hypothesis

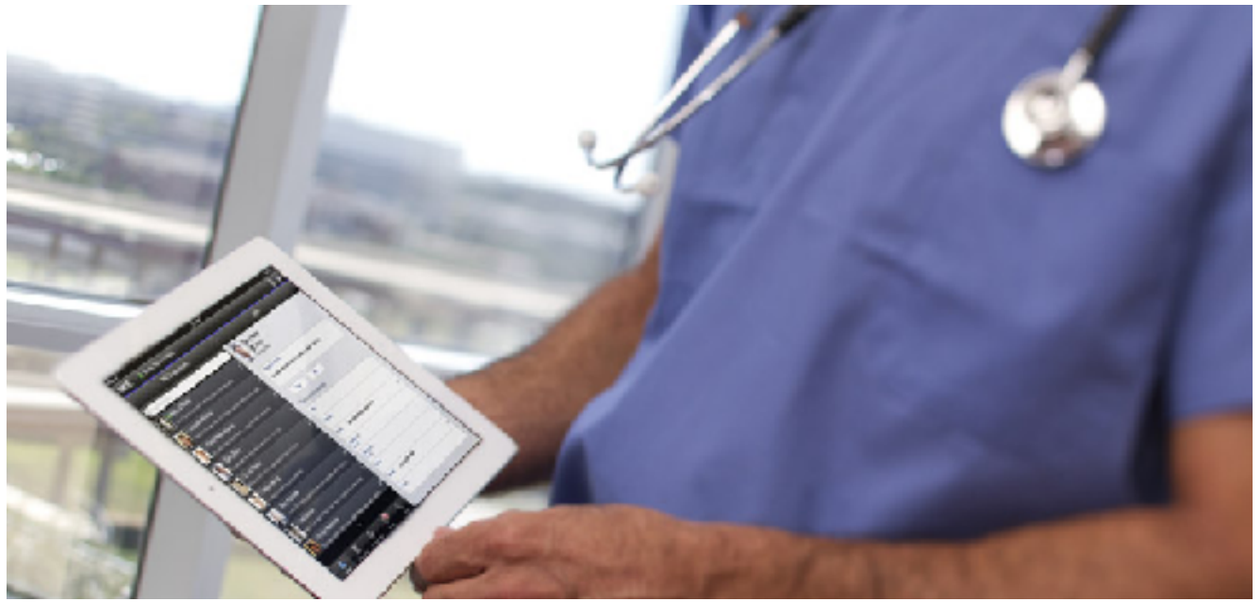
Children 10-15 years

Cigarette Smoking

Asthma

Clinical Research Paradigm

- Research Design
- **P**opulation
- **I**ntervention/Exposure
- **C**omparison Group
- **O**utcomes of Interest
- Time
- Source of Bias
- Strategies to overcome bias



How should you set up your abstract?

Introduction:

- Why did you do the study? - 1 line

  include a hypothesis and aims/objectives

Methods:

- How did you test the hypothesis? (DESIGN)
- Who did you study? (POPULATION)
- What did you do? (INTERVENTION/EXPOSURE)
- Compared to what? (COMPARISON)
- What did you measure? (OUTCOME)

How should you set up your abstract?

Results:

- How many participants were in the study and what did they look like?

- Provide as much RELEVANT data as possible

- DO NOT provide results without numbers

- What were the results of your primary hypothesis

  Present means and SD, point estimates and CI with significance for **PRIMARY** and **SECONDARY** outcomes!

EXAMPLES

Objective: To determine the association between physical activity (PA) intensities and cardiometabolic risk factors in youth.

Design: Cross-sectional study using data from the 2008 Healthy Hearts Prospective Cohort Study of Physical Activity and Cardiometabolic Health in Youth.

Setting: Rural and urban communities in Alberta, Canada.

Participants: A convenience sample of 605 youth aged 9 to 17 years. Youth were on average aged 12.1 years, 248 were boys (41%), and 157 were overweight or obese (26%).

Main Exposure: Actical accelerometer–measured PA intensity.

Main Outcomes Measures: The primary outcome was body mass index (calculated as weight in kilograms divided by height in meters squared) *z* score. Secondary outcome measures included waist circumference, systolic blood pressure, and cardiorespiratory fitness (maximal oxygen consumption [$\dot{V}O_{2max}$]).

Results: Body mass index *z* score, waist circumference, and systolic blood pressure decreased and $\dot{V}O_{2max}$ increased in a dose-response manner across tertiles of vigorous PA (adjusted $P<.001$). No significant differences in cardiometabolic risk factors were seen across tertiles of moderate or light PA in multivariable analyses. Achieving more than 7 minutes of vigorous PA daily was associated with a reduced adjusted odds ratio of overweight status (0.56; 95% CI, 0.33-0.95) and elevated systolic blood pressure (0.36; 95% CI, 0.16-0.79). The odds of overweight status and elevated blood pressure decreased with increasing time and intensity of PA.

Conclusions: Only vigorous PA was consistently associated with lower levels of waist circumference, body mass index *z* score, systolic blood pressure, and increased cardiorespiratory fitness in youth. These findings underscore the importance of vigorous PA in guidelines for children and adolescents.

Arch Pediatr Adolesc Med. 2012;166(11):1022-1029.
Published online September 10, 2012.
doi:10.1001/archpediatrics.2012.1028

OBJECTIVES: Comprehensive school health (CSH) is a multifaceted approach to health promotion. A key objective of CSH is to foster positive health behaviors outside of school. This study examined the 2-year change in physical activity during and after school among students participating in a CSH intervention in Edmonton, Alberta, Canada.

METHODS: This was a quasi-experimental, pre–post trial with a parallel, nonequivalent control group. Intervention schools had to be located in socioeconomically disadvantaged neighborhoods. In the spring of 2009 and 2011, pedometer recordings (7 full days) and demographic data were collected from cross-sectional samples of fifth grade students from 10 intervention schools and 20 comparison schools. A total of 1157 students participated in the study. Analyses were adjusted for potential confounders and the clustered design.

RESULTS: Relative to 2009, children in 2011 were more active on schools days (1172 steps per day; $P < .001$) and on weekends (1450 steps per day; $P < .001$). However, the increase in mean steps between 2009 and 2011 was greater in CSH intervention schools than in comparison schools (school days: 1221 steps per day; $P = .009$; weekends: 2001 steps per day; $P = .005$). These increases remained significant after adjusting for gender and overweight status.

CONCLUSIONS: These findings provide evidence of the effectiveness of CSH to affect children's physical activity during and outside of school. Results of this study justify broader implementation of effective CSH interventions for physical activity promotion and obesity prevention in the long term. *Pediatrics* 2014;133:e371–e378

ABSTRACT

BACKGROUND

The benefits of dexamethasone treatment for moderate-to-severe croup are well established. However, most children with croup have mild symptoms, and it is unknown whether they would derive the same degree of benefit from dexamethasone treatment as children with more severe disease.

METHODS

We conducted a double-blind trial at four pediatric emergency departments in which 720 children with mild croup were randomly assigned to receive one oral dose of either dexamethasone (0.6 mg per kilogram of body weight) or placebo. The children had mild croup, as defined by a score of ≤2 on the croup scoring system of Westley et al. The primary outcome was a return to a medical care provider for croup within seven days after treatment. The secondary outcome was the presence of ongoing symptoms of croup on days 1, 2, and 3 after treatment. Other outcomes included economic costs, hours of sleep lost by the child, and stress on the part of the parent in relation to the child's illness.

RESULTS

Baseline clinical characteristics were similar in the two groups. Return to medical care was significantly lower in the dexamethasone group (7.3 percent vs. 15.3 percent, $P<0.001$). In the dexamethasone group, there was quicker resolution of croup symptoms ($P=0.003$), less lost sleep ($P<0.001$), and less stress on the part of the parent ($P<0.001$).

CONCLUSIONS

For children with mild croup, dexamethasone is an effective treatment that results in consistent and small but important clinical and economic benefits. Although the long-term effects of this treatment are not known, our data support the use of dexamethasone in most, if not all, children with croup.

OBJECTIVE: The goal of this study was to assess the efficacy of an after-school, peer-led, healthy living program on adiposity, self-efficacy, and knowledge of healthy living behaviors in children living in a remote isolated First Nation.

METHODS: A quasi-experimental trial with a parallel nonequivalent control arm was performed with 151 children in Garden Hill First Nation during the 2010–2011 and 2011–2012 school years. Fourth grade students were offered a 5-month, peer-led intervention facilitated by high school mentors between January and May of each school year; students in the control arm received standard curriculum. The main outcome measures were waist circumference (WC) and BMI *z* score. Secondary outcome measures included healthy living knowledge and self-efficacy.

RESULTS: Fifty-one children (mean ± SD age: 9.7 ± 0.4 years; BMI *z* score: 1.46 ± 0.84) received the intervention, and 100 children were in the control arm. At baseline, WC (79.8 vs 83.9 cm), BMI *z* score (1.46 vs 1.48), and rates of overweight/obesity (75% vs 72%) did not differ between arms. After the intervention, the change in WC (adjusted treatment effect: −2.5 cm [95% confidence interval (CI): −4.1 to −0.90]; $P = .002$) and BMI *z* score (adjusted treatment effect: −0.09 [95% CI: −0.16 to −0.03]; $P = .007$) were significantly lower in the intervention arm compared with the control arm. The intervention arm also experienced improvements in knowledge of healthy dietary choices (2.25% [95% CI: −0.01 to 6.25]; $P = .02$). Self-efficacy was associated with the change in WC after the intervention ($\beta = -7.9$, $P = .03$).

CONCLUSIONS: An after-school, peer-led, healthy living program attenuated weight gain and improved healthy living knowledge in children living in a remote isolated First Nation. *Pediatrics* 2014;133:1–8

LESS STELLAR EXAMPLES

AIM: The objective of this study was to describe the relationship between age at onset, with no age limits, and glycaemic control evolution from the time of onset in patients with type 1 diabetes (T1D).

METHODS: This observational retrospective follow-up study included 716 patients with T1D onset between 1990 and 2008 treated at the Navarre Hospital Complex. The mean (SD) follow-up lasted 10.1 (5.3) years. Information on their HbA(1c) levels was collected at onset and every year thereafter. Generalized additive mixed models and linear models were used, with patients' annual HbA1c levels as the response variable and the number of years since onset together with age at onset as covariates.

RESULTS: The evolution of glycaemic control is not linear and differs across all age groups. Children reach their highest values in adolescence, while patients with onset at ages 10-15 years stabilize their HbA(1c) values after 7 or 8 years. In adults, it is notable that an age of onset ≥ 45 years is associated with the worst control.

CONCLUSION: A non-linear increase in HbA(1c) levels can be observed from the time of T1D diagnosis, with significant differences across all age groups.

LESS STELLAR EXAMPLES

Chronic low-grade inflammation represents a likely intermediary in the relation between carbohydrate nutrition and both type 2 diabetes and cardiovascular disease. This study assessed the prospective association between carbohydrate quantity and quality [dietary glycemic index (GI), glycemic load (GL), and added sugar, fiber, and whole-grain intake] during puberty, a potentially critical period for later disease, and low-grade inflammation in younger adulthood. The analysis was based on 205 participants (113 girls and 92 boys) from the DONALD (Dortmund Nutritional and Anthropometric Longitudinally Designed) study with at least 2 3-d weighed dietary records during puberty (girls: 9-14 y, boys: 10-15 y) and blood samples in younger adulthood (18-36 y). Multivariable linear regression models were used to analyze the associations between carbohydrate nutrition and circulating concentrations of pro- and anti-inflammatory immune mediators [high-sensitivity C-reactive protein (hs-CRP), interleukin (IL) 6, IL-18, and adiponectin]. A higher intake of carbohydrates during puberty (P-trend = 0.005), particularly from higher-GI food sources (P-trend = 0.01), was prospectively related to higher concentrations of IL-6 in younger adulthood, independently of baseline BMI and early life, socioeconomic, and other nutritional factors. Furthermore, a higher dietary GL (P-trend = 0.002) and a lower intake of whole grains (P-trend = 0.01) were independently associated with higher IL-6 concentrations in adults. Dietary GI and added sugar and fiber intakes were not independently associated with IL-6 (P-trend ≥ 0.09). Carbohydrate nutrition during puberty was not independently related to hs-CRP, IL-18, and adiponectin concentrations (all P-trend > 0.1). During puberty, a higher intake of carbohydrates from higher-GI food sources and lower whole-grain consumption prospectively predict greater IL-6 concentrations in young adulthood. These data support the hypothesis that diet during puberty influences later inflammation and metabolic dysfunction.

Use guidelines

- STROBE (Observational studies): http://www.strobe-statement.org/index.php?id=strobe-home

- CONSORT (RCT's): http://www.consort-statement.org

- PRISMA (Systematic reviews): http://prisma-statement.org/PRISMAStatement/Checklist.aspx

- ARRIVE (Animal studies): https://www.nc3rs.org.uk/arrive-guidelines

Item	Description
Title	Identification of the study as randomised
Authors*	Contact details for the corresponding author
Trial design	Description of the trial design (eg, parallel, cluster, non-inferiority)
Methods	
Participants	Eligibility criteria for participants and the settings where the data were collected
Interventions	Interventions intended for each group
Objective	Specific objective or hypothesis
Outcome	Clearly defined primary outcome for this report
Randomisation	How participants were allocated to interventions
Blinding (masking)	Whether or not participants, care givers, and those assessing the outcomes were blinded to group assignment
Results	
Numbers randomised	Number of participants randomised to each group
Recruitment	Trial status
Numbers analysed	Number of participants analysed in each group
Outcome	For the primary outcome, a result for each group and the estimated effect size and its precision
Harms	Important adverse events or side-effects
Conclusions	General interpretation of the results

Item	Recommendation
Title	Indicate the study's design with a commonly used term in the title (e.g cohort, case-control, cross sectional)
Authors	Contact details for the corresponding author
Study design	Description of the study design (e.g cohort, case-control, cross sectional)
Objective	Specific objectives or hypothesis
Methods	
Setting	Description of setting, follow-up dates or dates at which the outcome events occurred or at which the outcomes were present, as well as any points or ranges on other time scales for the outcomes (e.g., prevalence at age 18, 1998-2007).
Participants	*Cohort study*—Give the most important eligibility criteria, and the most important sources and methods of selection of participants. Describe briefly the methods of follow-up *Case-control study*—Give the major eligibility criteria, and the major sources and methods of case ascertainment and control selection *Cross-sectional study*—Give the eligibility criteria, and the major sources and methods of selection of participants *Cohort study*—For matched studies, give matching and number of exposed and unexposed *Case-control study*—For matched studies, give matching criteria and the number of controls per case
Variables	Clearly define primary outcome for this report.
Statistical methods	Describe statistical methods, including those used to control for confounding
Results	
Participants	Report Number of participants at the beginning and end of the study
Main results	Report estimates of associations. If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period Report appropriate measures of variability and uncertainty (e.g., odds ratios with confidence intervals
Conclusions	General interpretation of study results

General writing tips

- Start early, give your supervisor enough time!
- Get a good successful abstract as an example
- Prevent vague words, acronyms, negatives
- Read the instructions!!!!!!!!!!!!!!
- Try to write in an active voice
- Write to engage, not to bore!
- Learn how to cut
- KISS


WHAT'S YOUR
STORY

Tell a good story!

Tell your story!

<u>Compare:</u>

- Incidence of CDH is 1 in 3000 newborns

Tell your story!

<u>Compare:</u>

- Every 10 minutes a baby with CDH is born
- More than 50,000 babies are born with CDH each year
- CDH is as common as Cystic Fibrosis or Spina Bifida

Tell your story!

<u>Compare:</u>

- Mortality of CDH is 10-20%

Tell your story!

<u>Compare:</u>

- During this workshop one CDH baby died of abnormal lung development

- Since the year 2000, over 300,000 CDH babies have died worldwide from this disease

Prewriting 70%

- Collect, synthesize, organize
- Brainstorm the take home message
- Work out the ideas away from the computer

First draft 10%

- Just get it on paper
- Do not worry about style yet
- Do not be a perfectionist
- Focus on logical organization

Revisions 20%

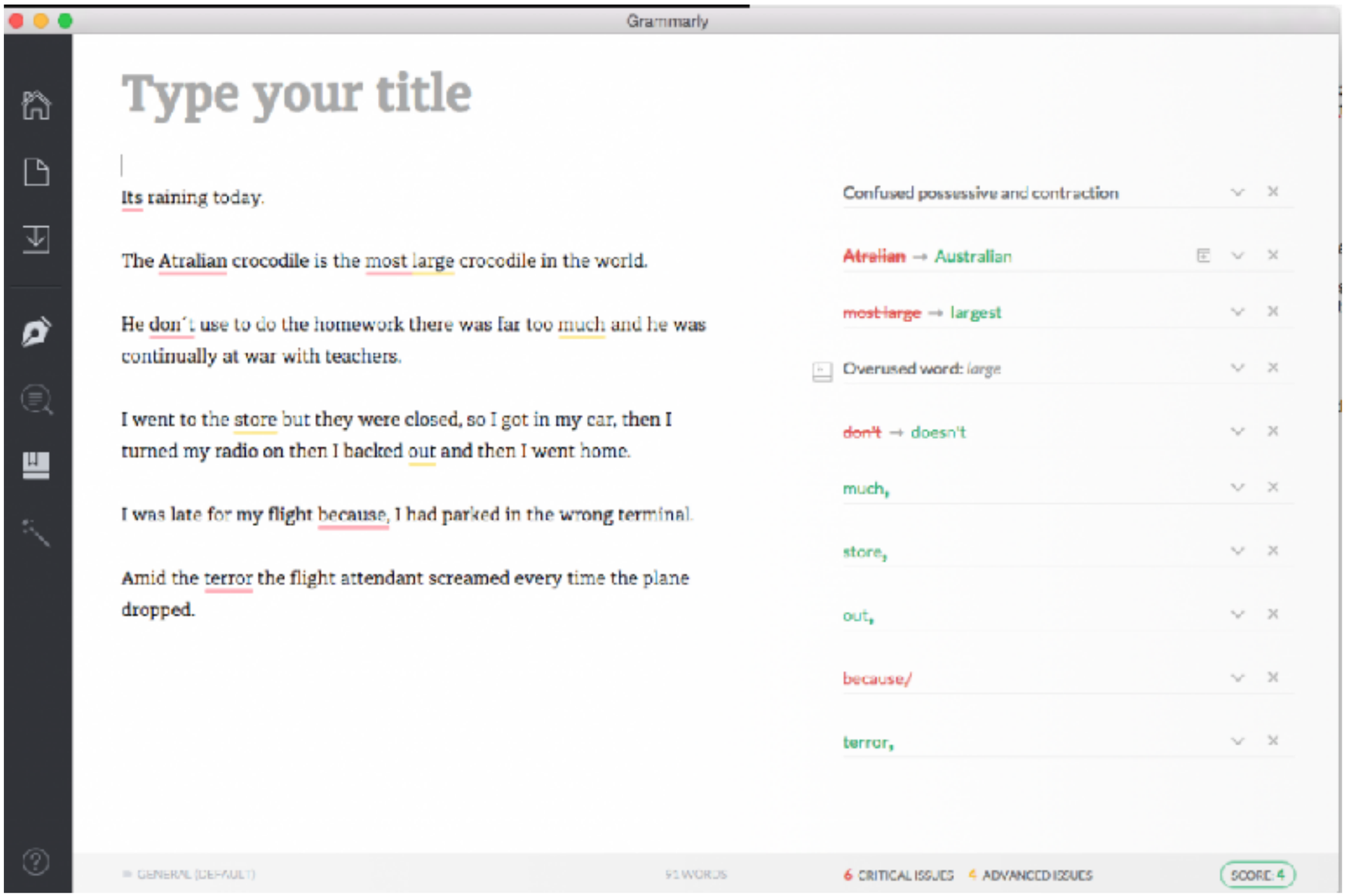
- Read out loud
- Get rid of clutter
- Do not be afraid to cut
- Get good feedback

Final version

- Make sure you adhere to instructions
- All elements are included in your abstract (background, hypothesis, objectives, methods, main results, conclusion)
- Not too many words?
- Does it state why your research is important?

No spelling mistakes!

grammarly.com



Writing course Stanford

https://lagunita.stanford.edu/courses/Medicine/SciWrite-SP/SelfPaced/about

Basic Science examples

Due to the combination of improved prenatal diagnosis of congenital anomalies such as congenital diaphragmatic hernia (CDH) and the recently achieved major advancement in (stem) cellular therapy, new (prenatal)treatment modalities are on the horizon. However, the promising bench results in the stem cell research field have not yet been translated to the clinic. Therefore, the aim of this project is to investigate the potential of stem cells obtained from primary human patient cells, induced Pluripotent Stem (iPS) cells, in prenatal (cellular) therapy. First, the generation of a cell line from human primary lung fibroblasts from children with CDH and normal fetuses will be evaluated. Second, the generation of iPS cells will be tested in a mesenchymal stromal cell line and from cord blood cells from CDH patients and age-matched controls. Finally, a protocol will be designed to use these cells for prenatal cellular therapy in the Nitrofen rat model of CDH. In conclusion, we aim to design a protocol for the generation of human patient iPS cells that can subsequently be modificated and then be used for the prenatal modulation of the natural course of congenital anomalies using the patient's own cells.

Basic Science examples

Purpose

We have previously identified microRNA miR-10a to be upregulated in human hypoplastic CDH lungs after birth. We hypothesized that miR-10a expression is disturbed during lung development in the nitrofen rat model of CDH. In this study we aimed to define the role of miR-10a in both normal and abnormal lung development.

Methods

We used the nitrofen rat model of CDH, and used real-time quantitative polymerase chain reaction (RT-qPCR) and fluorescent in situ hybridization to study quantitative and qualitative miR-10a expression during lung development. We then used miR-10a mimics and inhibitors to perform loss- and gain-of function studies in an embryonic lung explant model.

Results

miR-10a expression was reduced in early nitrofen-induced abnormal lung development. We observed most expression in the lung mesenchyme, but concentration of miR-10a expression in nitrofen-induced abnormal lung epithelium towards term. Nitrofen-induced hypoplastic lung branching in the lung explant model could be reversed by increasing miR-10a expression using mimics.

Conclusion

We observed lower miR-10a expression in early nitrofen-induced abnormal lung development. Normalizing this expression in our lung explant model improved nitrofen-induced abnormal lung development. We will explore these potential beneficial effects of prenatal microRNA therapy in future studies.

Basic Science examples

As a pediatric surgeon, I see the breathing difficulties that congenital diaphragmatic hernia (CDH) babies have after I close their diaphragmatic defect. Therefore, the goal of my research is to discover the mechanisms of lung hypoplasia in CDH to develop innovative **prenatal therapies** to prevent the abnormal lung development.

The following discoveries guided the theoretical framework of this proposal:

(1) human CDH lungs have higher miR-200b expression and higher expression is associated with better outcomes;

(2) miR-200b expression fluctuates: early nitrofen-induced abnormal lung development is associated with decreased miR-200b abundance; late lung hypoplasia in CDH is linked to (*compensatory*) upregulation of miR-200b;

(3) increasing miR-200b expression with mimics rescues lung hypoplasia *in vitro*.

The current proposal is designed to study our ***hypothesis that decreased miR-200b expression results in abnormal lung development and that increasing miR-200b expression can correct lung hypoplasia in CDH.***

Our specific aims for this project are:

Aim 1. To investigate if normalizing miR-200b expression can rescue abnormal lung development in CDH.

Aim 2: To determine the specific targets of miR-200b during normal and abnormal lung development.

Aim 3. To develop an innovative prenatal therapy to specifically target the hypoplastic lung cells most in need of miR-200b therapy.

Basic Science examples

Every year, over 50,000 children are born with congenital diaphragmatic hernia (CDH) associated with abnormal lung development resulting in lung hypoplasia and persistent pulmonary hypertension[1–3]. CDH occurs as frequently as cystic fibrosis, but the pathogenesis is poorly understood. Smaller lung size, lower number of airway generations and a thicker mesenchyme characterize the abnormal lungs in CDH[1]. We have previously shown an inherent lung development defect in CDH[4]. We recently reported increased expression of microRNA miR-200b in human CDH lungs[5]. MiR-200b plays a role in epithelial-to-mesenchymal transition (EMT) in cancer[6], but its role in lung development is undefined. Here we show that miR-200b regulates distal airway development. We found reduced distal airway branching and thicker alveolar walls in miR-200b knockout mice resulting in lungs with higher tissue resistance and more lung fibroblasts, thus recapitulating lung hypoplasia as seen in CDH. In the nitrofen rat model of CDH, we observed decreased miR-200b expression in hypoplastic lungs causing disturbed epithelial-mesenchymal interactions via SMAD-driven TGF- signaling. This resulted in decreased airway branching. Our results demonstrate that miR-200b regulates distal airway development through maintaining the epithelial integrity that is disturbed in pulmonary hypoplasia associated with CDH.

Tom Jessel, Columbia

The precision of skilled forelimb movement has long been presumed to rely on rapid feedback corrections triggered by internally directed copies of outgoing motor commands, but the functional relevance of inferred internal copy circuits has remained unclear. One class of spinal interneurons implicated in the control of mammalian forelimb movement, cervical propriospinal neurons (PNs), has the potential to convey an internal copy of premotor signals through dual innervation of forelimb-innervating motor neurons and precerebellar neurons of the lateral reticular nucleus. Here we examine whether the PN internal copy pathway functions in the control of goal-directed reaching. In mice, PNs include a genetically accessible subpopulation of cervical V2a interneurons, and their targeted ablation perturbs reaching while leaving intact other elements of forelimb movement. Moreover, optogenetic activation of the PN internal copy branch recruits a rapid cerebellar feedback loop that modulates forelimb motor neuron activity and severely disrupts reaching kinematics. Our findings implicate V2a PNs as the focus of an internal copy pathway assigned to the rapid updating of motor output during reaching behaviour.

Last words

- Make it easy for the reviewers
- No spelling mistakes!
- No abbreviations
- No references
- Start early
- Do not duplicate

Bonus tip

- Try an **ABSTRACT WRITING SPRINT**
- Get together with your research team and write the abstract together
- Come prepared, set agenda
- Whiteboard and Google Docs
- Democratic process, learn from each other

Good luck!

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