WHAT MAKES A GOOD ABSTRACT

(1)Sorting the chaff from the wheat

(2)Core elements of an abstract

(3)Where to start the process

WHEAT FROM CHAFF

WHEAT OR CHAFF?

Type 2 diabetes is associated with hypertension and an increased risk of cardiovascular disease. In adults, blood pressure (BP) responses to exercise are predictive of these complications. To determine if the hemodynamic response to exercise is exaggerated in youth with dysglycemia (DG) compared with normoglycemic over-weight/obese (OB) and healthy weight (HW) controls a cross-sectional comparison of BP and heart rate (HR) responses to graded exercise to exhaustion in participants was performed. DG and OB youth were matched for age, BMI z-score, height and sex. Systolic (SBP) and diastolic BP (DBP) were measured every 2 min, and HR was measured every 1 min. SBP was higher in OB and DG compared with HW youth at rest ($p < .001$). Despite working at lower relative workloads compared with HW, the BP response was elevated during exercise in OB and DG. For similar HR and oxygen consumption rates, BP responses to exercise were slightly higher in OB and DG compared with HW. OB and DG youth both display elevated resting and exercise BP relative to HW peers. Obesity may play a greater role than dysglycemia in the exaggerated BP response to exercise in youth.

WHEAT OR CHAFF?

Abstract

BACKGROUND: Few studies have examined anti-inflammatory effects of pomegranate juice (PJ). The present study aimed to evaluate the effect of PJ on nuclear factor kappa B (NF-κB) p65 and sirtuin1 in peripheral blood mononuclear cell (PBMC), and plasma vascular inflammation biomarkers.

METHODS: Patients with type 2 diabetes were randomly assigned to either the PJ (n – 22) or the placebo group (n – 22). The patients in the PJ group received 250 ml of PJ daily for 12 weeks, whereas the placebo group received corresponding control beverages of similar color and energy content. At baseline and at the end of week 12, fasting plasma concentrations of soluble intercellular adhesion molecule type 1 (sICAM-1), soluble vascular cell adhesion molecule type 1 (sVCAM-1), and soluble E-selectin (sE-selectin) were measured. NF-κB p65 and SIRT1 were measured in the PBMC.

RESULTS: Plasma sE-selectin concentration decreased significantly in the PJ group at the end of week 12 compared to baseline (P < 0.001 for treatment effect), and the reduction was significant in comparison with the placebo group (P < 0.05 for treatment effect). There were no significant differences between the two groups in plasma sICAM-1 and sVCAM-1. At the end of the study, compared with the placebo group, NF-κB p65 in PBMC was significantly lower (P < 0.01 for treatment effect) and SIRT1 was significantly higher (P < 0.0001 for treatment effect) in the PJ group.

CONCLUSION: This study supports the PJ consumption as a food with potential benefits in individuals with type 2 diabetes as evidenced by improvements in NF-κB and SIRT1 levels in PBMC of study participants.

KEYWORDS: NF-κB; pomegranate juice; sirtuin1; type 2 diabetes

DEVOTION
Developmental Origins of Chronic Diseases in Children Network

The Children's Hospital Research Institute of Manitoba

UNIVERSITY of MANITOBA
Rady Faculty of Health Sciences

WHICH ON IS BETTER?

SUMMARY

Intermittent fasting (IF) improves cardiometabolic health; however, it is unknown whether these effects are due solely to weight loss. We conducted the first supervised controlled feeding trial to test whether IF has benefits independent of weight loss by feeding participants enough food to maintain their weight. Our proof-of-concept study also constitutes the first trial of early time-restricted feeding (eTRF), a form of IF that involves eating early in the day to be in alignment with circadian rhythms in metabolism. Men with prediabetes were randomized to eTRF (6-hr feeding period, with dinner before 3 p.m.) or a control schedule (12-hr feeding period) for 5 weeks and later crossed over to the other schedule. eTRF improved insulin sensitivity, β cell responsiveness, blood pressure, oxidative stress, and appetite. We demonstrate for the first time in humans that eTRF improves some aspects of cardiometabolic health and that IF's effects are not solely due to weight loss.

SUMMARY

The Diabetes Remission Clinical Trial reported return and persistence of non-diabetic blood glucose control in 46% of people with type 2 diabetes of up to 6 years duration. Detailed metabolic studies were performed on a subgroup (intervention, $n = 64$; control, $n = 26$). In the intervention group, liver fat content decreased ($16.0\% \pm 1.3\%$ to $3.1\% \pm 0.5\%$, $p < 0.0001$) immediately after weight loss. Similarly, plasma triglyceride and pancreas fat content decreased whether or not glucose control normalized. Recovery of first-phase insulin response ($0.04[-0.05-0.32]$ to $0.11[0.0005-0.51]$ nmol/min/m^2, $p < 0.0001$) defined those who returned to non-diabetic glucose control and this was durable at 12 months ($0.11[0.005-0.81]$ nmol/min/m^2, $p = 0.0001$). Responders were similar to non-responders at baseline but had shorter diabetes duration (2.7 ± 0.3 versus 3.8 ± 0.4 years; $p = 0.02$). This study demonstrates that β cell ability to recover long-term function persists after diagnosis, changing the previous paradigm of irreversible loss of β cell function in type 2 diabetes.

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BACKGROUND

Childhood overweight is associated with an increased risk of type 2 diabetes in adulthood. We investigated whether remission of overweight before early adulthood reduces this risk.

METHODS

We conducted a study involving 62,565 Danish men whose weights and heights had been measured at 7 and 13 years of age and in early adulthood (17 to 26 years of age). Overweight was defined in accordance with Centers for Disease Control and Prevention criteria. Data on type 2 diabetes status (at age ≥30 years, 6710 persons) were obtained from a national health registry.

RESULTS

Overweight at 7 years of age (3373 of 62,565 men; 5.4%), 13 years of age (3418 of 62,565; 5.5%), or early adulthood (5108 of 62,565; 8.2%) was positively associated with the risk of type 2 diabetes; associations were stronger at older ages at overweight and at younger ages at diagnosis of type 2 diabetes. Men who had had remission of overweight before the age of 13 years had a risk of having type 2 diabetes diagnosed at 30 to 60 years of age that was similar to that among men who had never been overweight (hazard ratio, 0.96; 95% confidence interval [CI], 0.75 to 1.21). As compared with men who had never been overweight, men who had been overweight at 7 and 13 years of age but not during early adulthood had a higher risk of type 2 diabetes (hazard ratio, 1.47; 95% CI, 1.10 to 1.98), but their risk was lower than that among men with persistent overweight (hazard ratio [persistantly overweight vs. never overweight], 4.14; 95% CI, 3.57 to 4.79). An increase in body-mass index between 7 years of age and early adulthood was associated with an increased risk of type 2 diabetes, even among men whose weight had been normal at 7 years of age.

CONCLUSIONS

Childhood overweight at 7 years of age was associated with increased risks of adult type 2 diabetes only if it continued until puberty or later ages. (Funded by the European Union.)

BACKGROUND

Asthma exacerbations occur frequently despite the regular use of asthma-controller therapies, such as inhaled glucocorticoids. Clinicians commonly increase the doses of inhaled glucocorticoids at early signs of loss of asthma control. However, data on the safety and efficacy of this strategy in children are limited.

METHODS

We studied 254 children, 5 to 11 years of age, who had mild-to-moderate persistent asthma and had had at least one asthma exacerbation treated with systemic glucocorticoids in the previous year. Children were treated for 48 weeks with maintenance low-dose inhaled glucocorticoids (fluticasone propionate at a dose of 44 μg per inhalation, two inhalations twice daily) and were randomly assigned to either continue the same dose (low-dose group) or use a quintupled dose (high-dose group; fluticasone at a dose of 220 μg per inhalation, two inhalations twice daily) for 7 days at the early signs of loss of asthma control ("yellow zone"). Treatment was provided in a double-blind fashion. The primary outcome was the rate of severe asthma exacerbations treated with systemic glucocorticoids.

RESULTS

The rate of severe asthma exacerbations treated with systemic glucocorticoids did not differ significantly between groups (0.48 exacerbations per year in the high-dose group and 0.37 exacerbations per year in the low-dose group; relative rate, 1.3; 95% confidence interval, 0.8 to 2.1; P=0.30). The time to the first exacerbation, the rate of treatment failure, symptom scores, and albuterol use during yellow-zone episodes did not differ significantly between groups. The total glucocorticoid exposure was 16% higher in the high-dose group than in the low-dose group. The difference in linear growth between the high-dose group and the low-dose group was −0.23 cm per year (P=0.06).

CONCLUSIONS

In children with mild-to-moderate persistent asthma treated with daily inhaled glucocorticoids, quintupling the dose at the early signs of loss of asthma control did not reduce the rate of severe asthma exacerbations or improve other asthma outcomes and may be associated with diminished linear growth. (Funded by the National Heart, Lung, and Blood Institute; STICS ClinicalTrials.gov number, NCT02066129.)
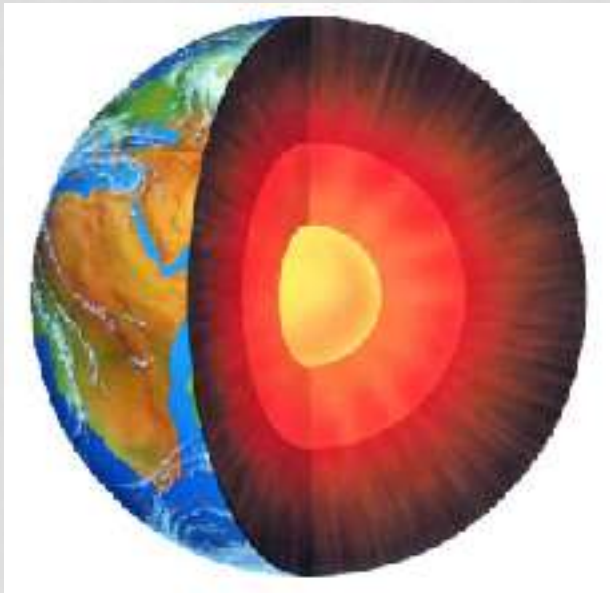
THE CORE ELEMENTS

CLINICAL RESEARCH PARADIGM

- Study Hypothesis
- Research Design
- **P**opulation
- **I**ntervention/Exposure
- **C**omparison Group
- **O**utcomes of Interest
- **T**ime
- Bonus - Sources of Bias
- Double Bonus - Strategies to overcome bias

HOW SHOULD YOU SET UP YOUR ABSTRACT?

INTRODUCTION

- Why did you do the study? – 1 line
  - Ideally include the study hypothesis.

METHODS

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

INTRO & METHODS

ABSTRACT

BACKGROUND

Uncontrolled hypertension is a major problem among non-Hispanic black men, who are underrepresented in pharmacist intervention trials in traditional health care settings.

METHODS

We enrolled a cohort of 319 black male patrons with systolic blood pressure of 140 mm Hg or more from 52 black-owned barbershops (nontraditional health care setting) in a cluster-randomized trial in which barbershops were assigned to a pharmacist-led intervention (in which barbers encouraged meetings in barbershops with specialty-trained pharmacists who prescribed drug therapy under a collaborative practice agreement with the participants' doctors) or to an active control approach (in which barbers encouraged lifestyle modification and doctor appointments). The primary outcome was reduction in systolic blood pressure at 6 months.

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HOW SHOULD YOU SET UP YOUR ABSTRACT?

RESULTS

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

- What were the results of primary hypothesis?
  - Present values, rates for main outcomes
  - Effect Size: point estimates and CI with significance for:
  - MUST include: Primary and secondary outcomes

- Provide as much RELEVANT data as possible.

- DO NOT provide results without numbers

RESULTS

RESULTS

At baseline, the mean systolic blood pressure was 152.8 mm Hg in the intervention group and 154.6 mm Hg in the control group. At 6 months, the mean systolic blood pressure fell by 27.0 mm Hg (to 125.8 mm Hg) in the intervention group and by 9.3 mm Hg (to 145.4 mm Hg) in the control group; the mean reduction was 21.6 mm Hg greater with the intervention (95% confidence interval, 14.7 to 28.4; P<0.001). A blood-pressure level of less than 130/80 mm Hg was achieved among 63.6% of the participants in the intervention group versus 11.7% of the participants in the control group (P<0.001). In the intervention group, the rate of cohort retention was 95%, and there were few adverse events (three cases of acute kidney injury).

HOW SHOULD YOU SET UP YOUR ABSTRACT?

CONCLUSIONS

- Short

- Precise

- Not too overblow

- Don't waste time on "more research is needed"….we all know that

CONCLUSIONS

CONCLUSIONS

Among black male barbershop patrons with uncontrolled hypertension, health promotion by barbers resulted in larger blood-pressure reduction when coupled with medication management in barbershops by specialty-trained pharmacists. (Funded by the National Heart, Lung, and Blood Institute and others; ClinicalTrials .gov number, NCT02321618.)

WHAT'S MISSING?

Type 2 diabetes is associated with hypertension and an increased risk of cardiovascular disease. In adults, blood pressure (BP) responses to exercise are predictive of these complications. To determine if the hemodynamic response to exercise is exaggerated in youth with dysglycemia (DG) compared with normoglycemic overweight/obese (OB) and healthy weight (HW) controls a cross-sectional comparison of BP and heart rate (HR) responses to graded exercise to exhaustion in participants was performed. DG and OB youth were matched for age, BMI z-score, height and sex. Systolic (SBP) and diastolic BP (DBP) were measured every 2 min, and HR was measured every 1 min. SBP was higher in OB and DG compared with HW youth at rest ($p < .001$). Despite working at lower relative workloads compared with HW, the BP response was elevated during exercise in OB and DG. For similar HR and oxygen consumption rates, BP responses to exercise were slightly higher in OB and DG compared with HW. OB and DG youth both display elevated resting and exercise BP relative to HW peers. Obesity may play a greater role than dysglycemia in the exaggerated BP response to exercise in youth.

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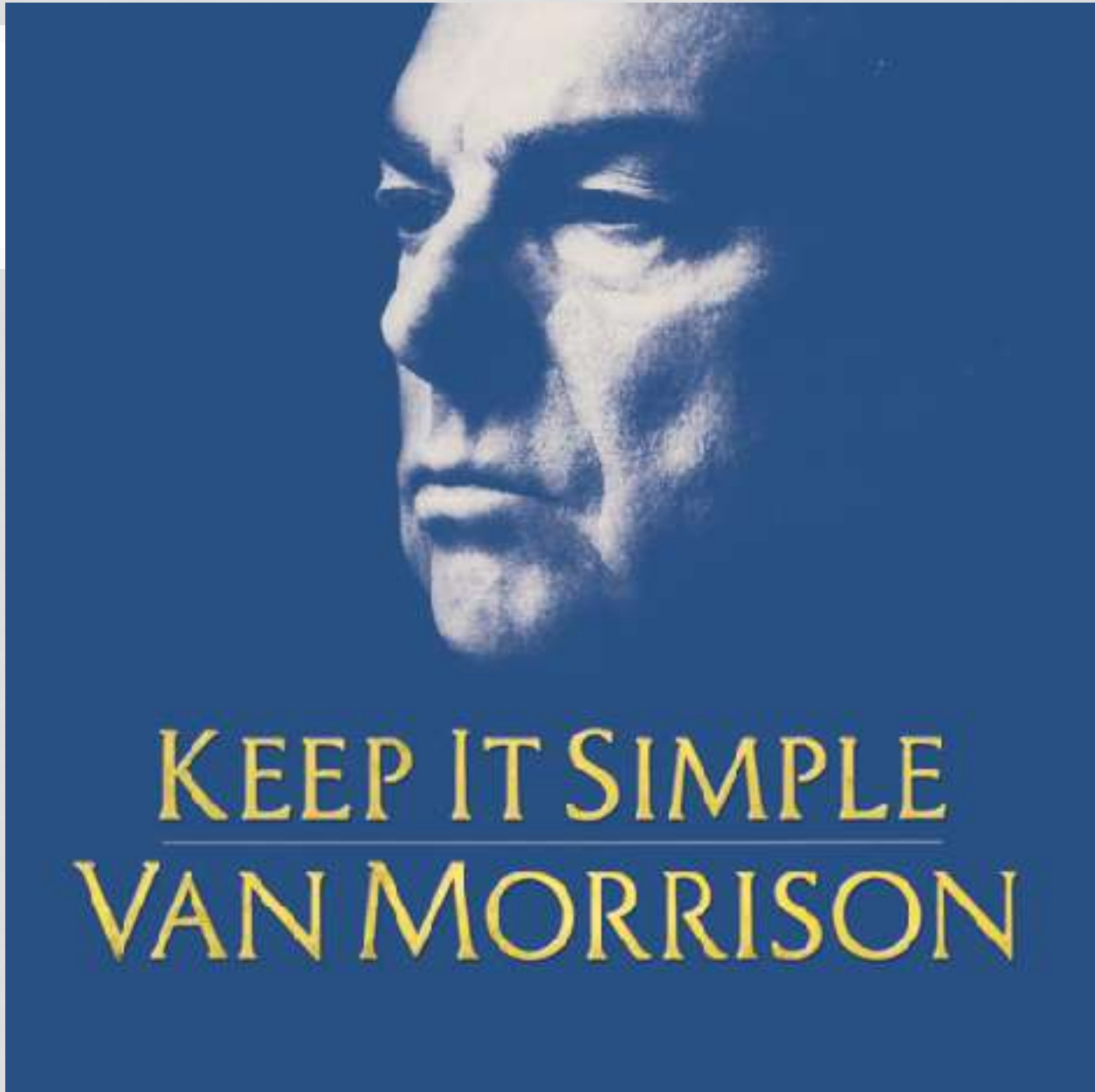
WHERE DO I START?

CONSULT STATEMENTS

- **STROBE (Observational)**: http://www.strobe-statement.org/index.php?id=available-checklists
- **CONSORT (RCTs)**:
- http://www.consort-statement.org
- **PRISMA (Meta-analyses)**:
- http://www.prisma-statement.org/statement.htm

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

FIND YOUR HEROES
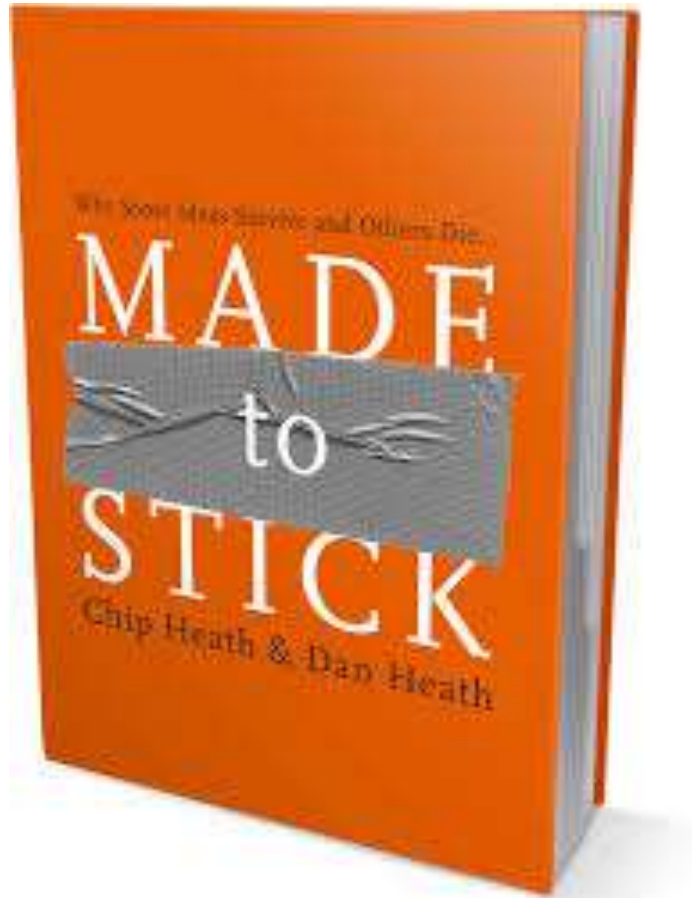
General writing tips

- 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

Tell a good story!

Tell your story!

Compare:

- Incidence of CDH is 1 in 3000 newborns

Tell your story!

Compare:

- 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!

Compare:

- Mortality of CDH is 10-20%

Tell your story!

Compare:

- 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

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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!

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!

jmcgavock@chrim.ca and rkeijzer@chrim.ca