AMSj

Amsterdam Medical Student journal

EDITORIAL UPDATE | NICOLAES TULP SYMPOSIUM WAS A BIG SUCCES!

SURGICAL TECHNIQUES | PERCUTANEOUS CORONARY INTERVENTION IN PATIENTS WITH CHRONIC TOTAL OCCLUSION; A CASE REPORT

EDITION 33 | DECEMBER 2023

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The Amsterdam Medical Student journal (AMSj) is a scientific journal created and published by Amsterdam UMC staff members and students to promote research and to encourage other medical students to publish their clinical observations, research articles and case reports. Go to www.amsj.nl for publication options and to find out how you can contribute to AMSj as reviewer or member of the editorial board.

Editorial

Dear readership,

It is with great pleasure that, on behalf of the editorial board, I extend a warm welcome to you for the final edition of AMSj for the year 2023.

Commencing with the Nicolaes Tulp Symposium, we are thrilled to announce its success. Our heartfelt congratulations go to the winner and all nominees. Anticipation is already building for the next edition, and you can delve deeper into the details of the Nicolaes Tulp Symposium on page 6.

We are excited to introduce a new column, "Surgical Technique." In this section, authors contribute case reports or articles focusing on surgical or interventional techniques, spotlighting the gold standard for specific pathologies or modifications to existing surgical approaches. Derraze & Stiekema have eloquently illustrated advancements in laparoscopic techniques in gastrointestinal surgery on page 9, while Geldof & van Diemen present a compelling case report on chronic total occlusion on page 19.

For those currently engaged in surgical rotations, appendicitis in peripheral hospitals should be a familiar challenge. Khalaf and van Emden delve into the anatomy of McBurney's point, exploring what lies precisely beneath it. Read more about it on page 13. Additionally, van der Wielen provides an insightful read on the most widely used drug in 2021, offering updates on its contraindications on page 23.

Emphasizing the vital aspect of sustainability in healthcare, we urge readers to consider planting the seed for a more sustainable future. The introduction of the Planetary Health curriculum into medical education is a step toward this goal, exposing students early in their medical journey. Kobus & Reichwein et al. share the current progress of this integration in our curriculum and express interest in potential collaborations. For further details, turn to page 15.

AMSj is continually seeking new colleagues, and if you are interested in contributing as an editor or reviewer, keep an eye on our social media channels for frequent vacancies. For general inquiries about AMSj, please feel free to contact the Editors-in-Chief at chief-editor@amsj.nl. We are more than happy to assist.

Thank you for your continued support, and we hope you find this edition informative and engaging.

Warm regards,

Bobby Lam
Editor-in-Chief
Amsterdam UMC, location AMC

WHAT'S NEW

Tapping blood to improve wound healing and bone formation?

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Platelet-rich fibrin (PRF) protocols aim to insert a high concentration of certain serum compounds (most importantly growth factors, thrombocytes, leukocytes, and fibrin) in the wound. To achieve this, the serum layer is extracted after having centrifuged the blood of the patient. Although the concept is fairly simple, the question remains whether or not the PRF graft aids in the healing process and which PRF preparation protocol is most optimal.

A recent meta-analysis[1] included 38 studies in which they looked at pain reduction and improvement of healing (24 studies), alveolar ridge preservation (14 studies), and alveolar osteitis (AO) (2 studies). Some of the standard mean differences favoring the PRF therapy, as opposed to the control group, were less pain (-0.91 [-1.13 - -0.70], p < .001), less swelling (-0.18 [-0.34 - -0.02], p = 0.03), less likely to develop AO (RR = 0.36 [0.24 - 0.55]), less bone resorption (horizontal: -0.46 [-0.70 - -0.23], p = .0001; vertical: -0.51 [-0.75 - -0.26], p = .0001) and more bone formation (12.8% [7.38-17.39], p < .001).

The PRF groups were H-PRF, S-PRF, A-PRF and CGF. For multiple parameters, S-PRF and CGF protocols seem to be the most superior.

1. Al-Badran A, Bierbaum S, Wolf-Brandstetter C. Does the choice of preparation protocol for platelet-rich fibrin have consequences for healing and alveolar ridge preservation after tooth extraction? A meta-analysis. J Oral Maxillofac Surg [Internet]. 2023;81(5):602–21

Could Ketamine be an Alternative Treatment for Major Depressive Disorder?

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Major Depressive Disorder (MDD) causes significant suffering and conventional treatments often fail to relieve symptoms, leaving roughly 30% of MDD patients with treatment-resistant depression. Although effective, electroconvulsive therapy (ECT) remains underused due to accessibility, cognitive side effects, and stigma, highlighting the need for alternatives. Recent studies have focused on the role of glutamate in mood regulation. Ketamine, an N-methyl-D-aspartate receptor antagonist, can rapidly relieve depression symptoms in MDD patients and is typically used as an option for treatment-resistant MDD without psychosis due to its abuse potential.

In an open-label randomized controlled trial, researchers aimed to compare the efficacy of ketamine versus ECT in 403 patients with treatment-resistant MDD without psychosis.1 Over three weeks, patients received either ECT three times per week or intravenous ketamine twice weekly. Patients who responded positively were monitored for six months. Treatment response was assessed using QIDS-SR and MADRS scores, which measure depression severity. Results showed that 55.4% of the ketamine group and 41.2% of the ECT group saw improvement in QIDS-SR-16 (p<0.001). MADRS scores indicated positive responses in 50.8% for ketamine and 41.4% for ECT (difference: 9.3pp; 95% CI:−0.9-19.4). Furthermore, ECT patients reported greater memory declines (3.2±0.1 vs. 4.2±0.1, 95% CI:0.9-1.2), while the ketamine group reported fewer cognitive symptoms (95% CI:5.1-13.0). During follow-up, patients who received ketamine had lower relapse rates than those who received ECT, and both groups maintained quality of life improvements.

In conclusion, ketamine offers promise as an alternative to ECT for treatment-resistant MDD, considering the limitations and potential side effects of conventional treatments.

1. Anand A, Mathew SJ, Sanacora G, et al. Ketamine versus ECT for Nonpsychotic Treatment-Resistant Major Depression. N Engl J Med. 2023 June 22;388:2315-2325.

NeuroGPT-X: large language models to answer expert questions related to vestibular schwannoma management?

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In the past few decades, the way we store and retrieve information in the medical community has transformed tremendously. Online resources provide the medical community with rapid access to an increasing body of knowledge.

Large language models (LLMs) are a type of neural network, which is a programming framework within artificial intelligence (AI). These models can learn from vast quantities of information and can be used to provide human-like answers. ChatGPT, the chat-like interface that was released in November 2022, is based on an LLM.

Guo et al. investigated the potential of LLMs as a clinical tool. They focused on answering medical questions on the management of vestibular schwannoma. Fifteen questions were answered by two models (naive versus content-enriched) and by expert neurosurgeons. The answers to the questions were checked for accuracy, coherence, relevance, thoroughness, speed, and overall rating. The content-enriched model was developed by writing a prompt that asked clinically relevant questions. Afterward, the tool was evaluated on a set of 103 consensus statements on vestibular schwannoma from the 8th Quadrennial International Conference on Vestibular Schwannoma.

Results between the naive and content-enriched models had no significant differences. The time-to-response was significantly lower for both models, compared to the expert neurosurgeons (p<0.01). The content-enriched model agreed with 98 out of 103 (95%) of consent statements.

All experts communicated concerns about the reliability of such models, especially regarding the nuances in the management of vestibular schwannoma.

The naive and content-enriched LLMs show non-inferiority compared to expert neurosurgeons for answering clinical questions on the management of vestibular schwannoma. This article highlights the importance of LLMs in medicine and provides a springboard for further exploration of AI in healthcare!

1. Guo E et al, neuroGPT-X: toward a clinic-ready large language model. J. Neurosurg, October 2023.

Postoperative opioid and methadone use in neonates

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A well-known use of methadone in infants is its application in the treatment of neonatal abstinence syndrome in infants of mothers with chronic opioid use. However, in certain cases, especially after surgery, opioids are directly administered to infants for pain management, and some neonates require the addition of methadone to the treatment regimen to prevent or treat opioid dependence. Notorious complications of prolonged use of opioids in neonates are brain injury and possibly even death.

The researchers of this article investigated postoperative opioid and methadone use in infants admitted to several children's hospitals in the United States, utilizing necrotizing enterocolitis surgery as a case study[1]. They found that the number of patients receiving methadone increased with a longer duration of opioid use. The odds ratio of requiring methadone comparing infants receiving opioids for 1-5 days and infants receiving opioids for 16-21 days was 11.45 (95% CI 6.31-20.77). Additionally, they discovered that methadone administration led to longer postoperative hospitalization (21.41 extra days), ventilation (10.80 extra days), and parenteral feeding (16.21 extra days).

These results indicate the need for a critical eye when it comes to pain management in neonates. Other pain management strategies (in combination with opioids), such as nonopioid pain medication, and eliminating the need for methadone, could potentially ameliorate patient outcomes and reduce hospitalization costs.

1. Keane OA, Zamora AK, Ourshalimian S et al. 2023. Opioid and methadone use for infants with surgically treated necrotizing enterocolitis. JAMA Network Open 6, e231891

Navigating Emergencies with the First Aid Pocketbook

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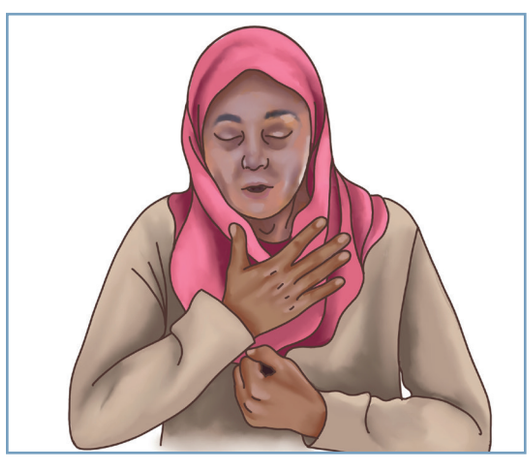
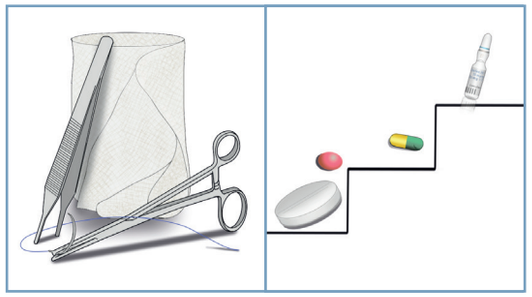
Healthcare workers often find themselves in situations where they are the first to arrive at a medical emergency. This also holds in private situations, as they are often the first point of contact when an emergency occurs. First aid plays a vital role in providing an initial and adequate response to handle acute situations. It follows a structured approach where safety is always the top priority. It is a fundamental component of healthcare education and practice. But what should you be aware of when an emergency occurs? What are the first steps you should take as a healthcare provider?

Consider the following scenario: On the weekend, you are taking a walk in a local park where people are enjoying outdoor activities. Suddenly, a middle-aged woman clutches her chest and begins to struggle for breath. Bystanders notice her distress and call for help. Despite having no medical history for this woman, as a fourth-year medical resident, you are expected to quickly assess the situation and initiate first aid measures. The differential diagnosis for her breathing difficulties remains broad, so what should you do first? How can you stabilize her condition until professional medical assistance arrives? What information should you provide when calling for medical assistance? The answers to these questions can be found in the pocketbook.





To provide healthcare workers, including medical students, nurses, assistants, and medical doctors, with the necessary tools to respond to confidential medical emergencies, we have included a chapter on addressing acute respiratory distress in the First Aid Pocketbook. Breathing problems can result from various mechanisms, such as an anaphylactic reaction, an exacerbation of asthma, or COPD. It is crucial to recognize the importance of maintaining an open airway and monitoring vital signs. In such situations, prioritize addressing what poses the most immediate threat, and maintain a structured safety assessment following the principles of the primary survey, using the ABCDE approach.

The newest product from 'Compendium Geneeskunde' is the perfect resource to prepare you for handling emergency situations. It contains all the essential information and guidelines required to manage medical emergencies effectively. The book is structured according to the ABCDE principle and presents different scenarios based on symptoms, rather than a specific diagnosis, with hand-drawn visual representations.

The complete team behind this paperback consists of 44 individuals, including specialists from various hospitals in the Netherlands and Belgium. We have collaborated with organizations such as Rode Kruis Nederland, de Nederlandse Reanimatieraad, and Koninklijke Nederlandse Vereniging EHBO to ensure quality assurance.

Medical students and the perceived threats of AI

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Dear Editor,

Artificial Intelligence (AI) has brought about a significant revolution in the healthcare industry.[1] The changes that this recent technological advancement will bring to medicine and healthcare are the current topic of conversation. From minimally invasive robotic surgery to advances in radiology to scan and diagnose various maladies, AI is a popular and relevant subject.[2] The healthcare industry and all affiliated fields are concerned that AI will replace human labor. What will physicians, pharmacists, and hospitalists do when AI software reads and monitors each symptom, lab result, prescription, and scan? With a dread of the unknown, medical students must understand how AI will shape their future. The lack of knowledge and information makes things appear enormous and insurmountable. Students from developing nations are significantly less interested in artificial intelligence, oblivious to the fact that it is merely a trendy tool.[3]

However, the students who ought to be more intrigued and enthusiastic about this recent development appear to be inundated by it. Some fear that AI will diminish their opportunity to become a radiologist.[4] Others are reluctant to learn and implement AI's ease of data management, early disease detection and diagnosis, and monitoring of chronic illnesses.

As medical students are a vital part of our workforce, this approach must be revised. As of now, AI is involved in reducing the workload of physicians and early diagnosis, but not in the overall treatment.[5] The curriculum should include machine learning and deep learning modules to help students better comprehend software and generate new ideas. The potential of young minds, which can have a beneficial effect on patients and the healthcare industry, should be unlocked by unleashing the power of imagination.

Thus, physicians who are able to integrate artificial intelligence into their research and clinical practice will be the ones who are irreplaceable by any technology.[6]

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Corneal Transplantation

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CASE

For the past decade, corneal transplantations have been one of the most performed tissue transplantations in the world. Surgeries such as penetrating keratoplasty (PKP), a full-thickness corneal transplantation can improve vision by replacing the full thickness of the cornea. In this case, a then 23-year-old woman known with a genetic eye condition had this procedure done in the 1980s. In 2014, she returned for another corneal transplantation due to the slow progressive clouding of the transplant. This surgery was performed with significantly enhanced techniques and instruments

QUESTION 1

For which disease is PKP usually indicated?

A. Glaucoma
B. Macular corneal dystrophy (MCD)
C. Fuchs endothelial corneal dystrophy (FECD)
D. Optic Neuritis

QUESTION 2

What are the most common early symptoms of this eye disease?

A. Clouded cornea and decreased visual acuity
B. Inflamed and bulging eyes
C. Eye pain and light sensitivity
D. Clouded lens and double vision

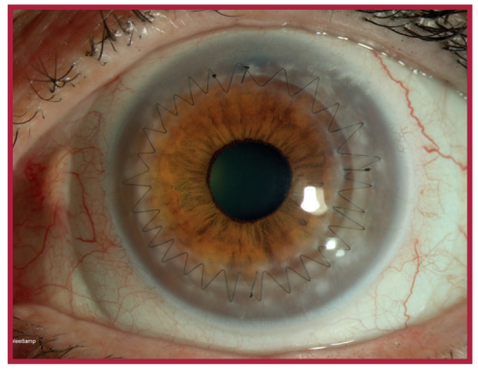

Photo courtesy of: S. Jongsma and dr. M.J.W. Zaal, OMC Zaandam

QUESTION 3

What is NOT an effective treatment option for this patient?

A. Penetrating Keratoplasty (PKP)
B. Descemet Membrane Endothelial Keratoplasty (DMEK)
C. Scleral contact lenses
D. Antihistamines

Answer on page 31

A couple of small toes

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CASE

A 25-year-old female is seen by the doctor due to small toes. She had noticed the abnormalities since she was a teenager and was curious about the possible cause. No other family members had the same problem. Moreover, the woman did not experience issues in her daily life. However, she had some trouble fitting particular shoes and did not like the look of the toes either. Physical examination did not give any abnormalities besides two bilateral small toes at the 4th ray. The picture is given below.

QUESTION 1

What is this phenomenon called?

A. Brachymetatarsia
B. Aplasia
C. Syndactyly
D. Oligodactyly

QUESTION 2

Which syndrome is a possible cause of this phenomenon?

A. Ehler-Danlos syndrome
B. Sjögren syndrome
C. Budd Chiari syndrome
D. Turner's syndrome

QUESTION 3

Which treatment is best suited for this patient?

A. Lengthen toes surgically with distraction osteogenesis
B. Conservative treatment
C. Suppletion of growth hormone
D. Amputation of the two 4th ray toes

FIGURE 1 Two bilateral shortened toes at the 4th ray

Answer on page 32

Innovative Approaches in Minimally Invasive Gastrointestinal Surgery: Advancements in Laparoscopic Techniques

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In this case, we explore a 65-year-old male with a family history of gastrointestinal issues, presenting with chronic abdominal pain, weight loss, and altered bowel habits. Extensive diagnostic investigations, including imaging and laboratory tests, confirmed an obstructive cecal adenocarcinoma. A novel laparoscopic surgical technique was employed based on a set of key steps that resulted in a successful outcome at the 6-month follow-up.

This novel laparoscopic surgical technique was established by research identifying the key steps in laparoscopic right hemicolectomy and laparoscopic sigmoid colectomy. These key steps were established using a Delphi methodology: questionnaires or interviews set out to gather expert opinions and achieve consensus on a certain topic. Furthermore, these steps served as the foundation for a video-assisted teaching curriculum, enhancing the training and skill development of surgical residents.

The key steps in this laparoscopic surgical procedure include organization, access and port insertion, diagnostic laparoscopy, dissection, specimen extraction, anastomosis, and conclusion. Proper setup, including a vacuum mattress, leg holders, surgeon, and assistant placement, and antibiotic prophylaxis, ensures a safe environment.

Next, precise port placement is essential: a 12 mm port in the left paraumbilical region, 5 and 12 mm ports in the left or left lower quadrant, and a 5 mm port in the epigastric region for the assistant. These placements optimize access to the surgical site. Once access is established, diagnostic laparoscopy comes into play. It entails a comprehensive examination of the abdominal cavity using a laparoscope, which allows surgeons to gauge the extent of the disease and identify any irregularities. In the upper abdomen, the omentum and transverse colon are retracted. This step enhances exposure and visualization, laying the groundwork for the subsequent procedures. Identification of the right branch of the middle colic artery is pivotal to maintaining adequate blood supply to the remaining colon. Following this, the omental attachments at the transverse colon are divided. This separation of the omentum from the transverse colon facilitates further dissection and mobilization, marking significant progress in the surgical process. These well-coordinated steps contribute to the overall success of laparoscopic procedures.

Dividing surgical procedures into well-identified segments allows for focused training and assessment which ultimately leads to better outcomes for cancer patients. This is because the structured approach enhances the quality of training and assessment while prioritizing patient safety and procedural consistency. The study also emphasizes the value of obtaining consensus within a specific academic region, as local protocols and practices may differ from international guidelines.

In conclusion, this clinical report sheds light on the key steps in laparoscopic colorectal surgery. The findings contribute to the development of a structured teaching curriculum that can be implemented in various teaching hospitals within a specific region. By incorporating these key steps, the aim is to improve the proficiency and safety of gastrointestinal surgeons in laparoscopic procedures and therefore improve oncologic outcomes for colorectal patients on a national level.

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TriGuard Device for Prevention of Stroke in Transcatheter Aortic Valve Replacement

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2. Darul Qalb, Knoxville, Tennessee

Transcatheter Aortic Valve Replacement (TAVR) has been in practice for many years in patients who cannot undergo Surgical Aortic Valve Replacement (SAVR). Although TAVR has become a very common procedure, the complications that follow it remain a challenge. These complications include paravalvular leakage, thromboembolism, Transient Ischemic Attack (TIA), stroke, and neurocognitive impairment, where stroke, with a rate of 3.3% at 30 days according to the PARTNER trial, is a major concern.[1] These concerns have led to the development of Cerebral Embolism Protection Devices (CEPDs) that aim to reduce these TAVR-related complications, especially stroke.[2]

Many devices have been developed and undergone trials and modifications. The currently approved device is a dual filter system called the Sentinel Cerebral Protection System (CPS).[3] Another device that has been developed for this purpose is a deflector system called the TriGuard (TG) device. This device is placed in the aortic arch at the origin of its three branches i.e. the Brachiocephalic trunk, the left common carotid artery, and the left subclavian artery, using a 9 Fr delivery catheter through the femoral artery. It covers all the arteries taking part in the brain's circulation. The TG device deflects the debris that is mobilized from the site of implantation of the prosthetic valve during the procedure, away from the cerebral arteries.[4]

Many studies and trials have been performed to evaluate the safety and efficacy of this device. Studies have suggested that the TG device is safe to use, remains stable in its position, and does not cause any complications during its use in TAVR, even in elderly patients.[5] During its first trials, the TG device was found to reduce lesion volume but with no significant decrease in stroke (P = 0.59) that follows TAVR in some patients.[6] Various modifications, including a reduction of pore size, have been made to improve the efficacy of the TG device.

The TG device was rejected for use in clinical practice by the FDA in 2022. It was considered safe but not effective. In a small clinical trial, the TG device seemed to be related to the reduced stroke rate in patients after TAVR.[7]

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Challenges and chances of Nipple- or Skin-Sparing Mastectomy Immediate Implant-Based Breast Reconstruction ([N]SSM/IIBR)

Merel Kooijman[1]
1. PhD student Plastic and Reconstructuve Surgery at Antoni van Leeuwenhoek & AmsterdamUMC

In this edition's "Spotlight - (MD)PhD," we introduce Merel Kooijman, a doctor seamlessly integrating her medical journey with a compelling PhD project. Her interest in plastic surgery traces back to high school, and she candidly shares the challenges of balancing MD and PhD pursuits. Most notably, Merel imparts her PEARLS of wisdom—read more about it here.

During my internships, I had the privilege to do research at the Antoni van Leeuwenhoek(AVL) through enrollment in the MD/PhD program to support me in this passion. My PhD focuses on [N]SSM/IIBR and the complexities, complications, and risk factors associated with this procedure to better understand the risks to ultimately better educate patients. For a couple of months, I have been working full-time on my PhD. However, since I love the social aspect of patient care and working in the hospital, I feel quite the computer nerd right now.

BACKGROUND AND PASSION: "LIFE IN PLASTICS, IT'S FANTASTIC!"

In 2014 my research interest originated in the AVL when I conducted a thesis in high school on the significance of the nipple-areolar-complex. From then on, my passion for plastic surgery started to develop. In 2017, I had to choose a subject for my bachelor's thesis and naturally continued this line of research and wrote a literature study on the short-term complications of [N]SSM/IIBR and adjuvant radiotherapy in the AVL. Two years later, it wasn't surprising that I chose to address the lack of available data on my bachelor's thesis topic by collecting my data and analyzing those for my master's thesis, which later became my second article.[1] Just then, I was captivated by the essence of care in plastic surgery and improving the future for women with breast cancer eligible for [N]SSM/IIBR. The first article of my PhD was on the short-term complications of [N]SSM/IIBR in women treated with adjuvant chemotherapy.[2] My third article was on the number of interventions required to finish an IIBR compared to a delayed BR in irradiated women[3], and my fourth was on determinants of refraining from BR in irradiated women.[4] Now, I am working on my last study regarding the risk factors of the outcome of [N]SSM/IIBR.

COMBINING RESEARCH AND INTERNSHIPS

During the internships, I tried to work on my PhD 1,5 days each month and during holidays. Although this wasn't ideal and I did not enjoy it at all times, I managed. After two years of internships, I was allowed to take a break to work full-time on my thesis. I enjoyed that I had undivided focus and thrived on the stability of my working week, but also missed the clinical part of my education. Therefore, these 9 months of doing research gave me perspective: I liked the balance of clinical work and research more. And just like that, three years later I published three original articles and graduated as a medical doctor.

TIPS AND TRICKS

Don't take everything and everyone too seriously: don't compare yourself to others, just have fun doing research. Accept your mistakes (there are gonna be plenty) and learn from them. Go to conferences to present your research, because these are too much fun to miss out on. Ask for help if necessary (use the statistical and library help if available). And at the start of your PhD, really do the practical biostatistics course, it will make your life so much easier.

> "Don't take everything and everyone too seriously"

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DID YOU DO YOUR RESEARCH ABROAD?

What inspired you and what did you learn? Inspire other students. See guidelines for submitting on amsj.nl

McBurney's point

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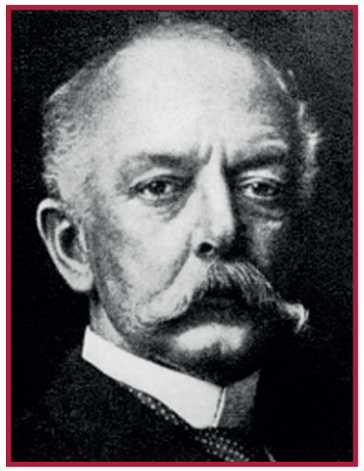
Photo by Anneke Hymmen

FIGURE 1 Charles McBurney[3]



A 25-year-old man visits the emergency room with severe abdominal pain that started around the umbilical area and has moved to the lower right quadrant of the abdomen. The patient is nauseous and has vomited twice. He has no fever but feels unwell and has no appetite. The doctor examines the patient and presses a finger on a specific spot on the patient's abdomen and the patient screams in pain. The doctor writes in the status: McBurney's sign positive and calls radiology for an emergency abdominal ultrasound.

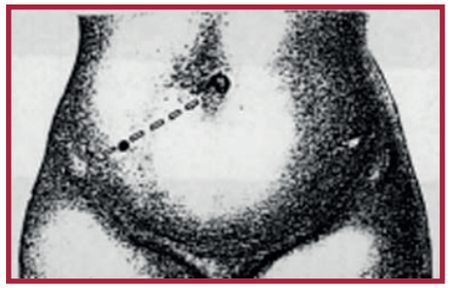
What is a positive McBurney's sign? And what does it mean in this case?

To answer this question, we first want to know who McBurney is, the man this sign is named after. Charles McBurney was an American surgeon who lived between 1845 and 1913 (Figure 1). In 1889, McBurney was appointed professor of surgery and, in the same year, he published his famous article: "Experience with early operative interference in cases of disease of the vermiform appendix" in the New York Medical Journal. In this article, McBurney described an important anatomical reference point that is still used today to assess the likelihood of the diagnosis of acute appendicitis. He wrote the following in his article:

"The exact locality of the greatest sensitiveness to pressure has seemed to me to be usually one of importance. Whatever may be the position of the healthy appendix as found in the dead-house--and I am well aware that its position when uninflamed varies greatly--I have found in all of my operations that it lay, either thickened, shortened or adherent, very close to its point of attachment to the caecum. This, of course, must, in early stages of the disease, determine the seat of greatest pain on pressure. And I believe that in every case the seat of greatest pain, determined by the pressure of one finger, has been very exactly between an inch and a half and two inches from the anterior spinous process of the ilium on a straight line drawn from that process to the umbilicus. This may appear to be an affectation of accuracy, but so far as my experience goes, the observation is correct".[1] (Figure 2)

The point that McBurney described in his article was called McBurney's point and pressure pain at that point was called a positive McBurney's sign. Nowadays, most textbooks indicate McBurney's point as the point located 1/3 of the way between the anterior superior iliac spine and the umbilicus.

FIGURE 2 McBurney's point[3]



Later research has shown that the point of maximum tenderness in appendicitis may vary depending on the location of the appendix, yet a positive McBurney's sign in men with suspected acute appendicitis makes the diagnosis at least 8 times more likely.[2]

> "... a positive McBurney's sign in men with suspected acute appendicitis makes the diagnosis at least 8 times more likely"

McBurney's passed away at the age of 68 due to coronary thrombosis, yet his impact on the medical community continues to live on, and his name will always be associated with the 'McBurney's Point' and 'McBurney's incision', which remain invaluable in modern surgery[3].

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Inventory and Implementation of Planetary Health within the University of Amsterdam Medicine Bachelor Curriculum

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INTRODUCTION

The Lancet and the World Health Organization have identified the climate crisis as the greatest global health threat of the 21st century.[1,2]. Therefore, climate adaptation and mitigation stand as the most promising methods of disease prevention. The multidisciplinary field examining the connection between the health and well-being of humans and animals and the 'health' of the Earth is 'Planetary Health'. Repeated national surveys conducted by De Geneeskundestudent (DG), a Dutch association for medical students, revealed that medical students believe there currently is not enough education on Planetary Health[3]. The most recent Green Deal (2022) has been signed by the Dutch Federation of University Medical Centers (NFU) and states that Planetary Health and sustainable healthcare should be integrated into all healthcare education programs (MBO, HBO, WO, and specializations)[4].

INITIATIVE WITH IMPACT

At the Faculty of Medicine of the University of Amsterdam (UvA), an initiative has been launched to integrate Planetary Health and sustainability into the medical curriculum. This project is a co-creation between educational leadership and students. Involving students has been positively acknowledged as an important method for faster and better implementation[5], and has been recommended by advisory bodies such as IFMSA-NL and GREENER[6]. The authors of this article are 6th-year medical students at the UvA, led in this initiative by the Principal Educator on Sustainable Healthcare (Dr. A. Timmermans), who was assigned by the education management of the UvA.

PERSONAL MOTIVATION

The motivation for this initiative stems from realizing the gap in our education system regarding Planetary Health. Growing up in an era dominated by concerns about the climate crisis, partaking in a bachelor's program where the health impact of climate change was rarely addressed, was paradoxical. There is a discrepancy between primum non nocere and the high CO2 emissions, pollution of water, soil, and air in the healthcare sector. As guardians of health, (future) doctors should be educated on these major topics.

METHOD

This initiative aimed not only to to implement the themes but also to do so in a structured and reproducible manner, to facilitate easier implementation of curriculum changes for other (bio- or para--) medical studies. The implementation process has been based on the 'Evidence-Based road-map to integrate planetary health education into the medical curriculum' by Oudbier et al[5]. and the 'Planetary Health guide' by IFMSA-NL and GREENER.[6]. Figure 1 displays an illustration of the phases described by Oudbier et al. As is shown here, the initial step of the process involved formulating a shared vision. This vision centered on enabling students to comprehend the influence of Planetary Health, fostering awareness of their professional roles, understanding the healthcare system's environmental impact, and equipping them with skills for climate adaptation, mitigation, preventive care, and patient education. A team of both educational management and students was assembled and the process proceeded by evaluating the current representation of 'sustainable healthcare' and 'Planetary Health' in the medicine bachelor's program (curriculum scan). Through a search of 38 course guides and a detailed analysis by two independent student researchers, clear content gaps were identified and potential ways to integrate the previously defined learning goals into the existing curriculum were assessed. The findings were translated into proposal formats, and supported by scientific insights. Through constructive discussions between the principal educator and medical teachers educational content was designed.

RESULTS

The curriculum scan showed that Planetary Health was represented very limitedly in the curriculum. Wherever the relationship between climate and health was acknowledged, there was little effort to achieve a deeper understanding of this relationship or its profound impact.

These past months, this initiative has yielded some remarkable successes. Across various courses new (interactive) lessons have been implemented or are scheduled to be, and within already existent material, slides or focus points on the matters are being created. Special attention was given to the structuring of education. In the initial courses of the first bachelor year, lectures are primarily added to enhance knowledge and awareness. Secondly, students deepen their understanding using an observational task during a first-year internship, where students assess the sustainability of their placement unit. In the second year, students are encouraged to actively contemplate the issue and possible solutions in team-based learning sessions. Simultaneously, education is currently being implemented in the master's that prepares students for this topic in practice and applies the acquired knowledge.

UPCOMING

Swift action and collaboration between students and management have achieved promising results in a short period. But there is still a world to win when it comes to the implementation of Planetary Health and sustainability within the curriculum: the relevance of these themes extends across all medical disciplines; hence, the subjects within the medical curriculum should reflect this in representation across all courses. Through this initiative, the authors endeavor to demonstrate both within the UvA and towards other faculties that quick change is possible and necessary.

If you are an educator or student interested in collaborating, please email the corresponding authors.
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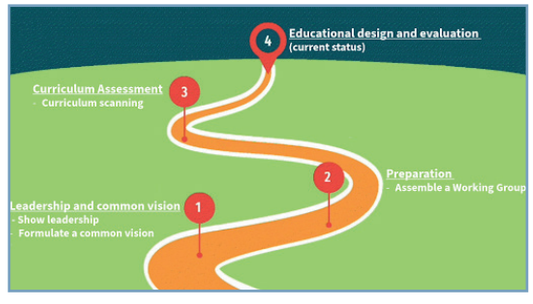
FIGURE 1 Illustration of the followed steps and current status. This figure is based on the figure presented in "An evidence-based roadmap to integrate planetary health education into the medical curriculum." by Oudbier et al.[6] to illustrate which steps of their roadmap we have specifically named in this article.

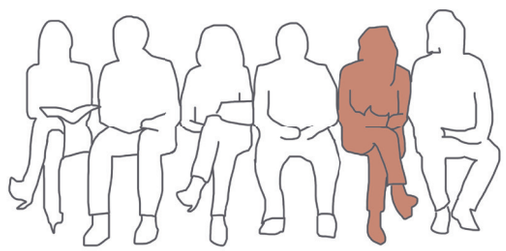


MEET OUR TEAM

Aemun Ahmad, Native Editor

My name is Aemun Ahmad, and I'm pursuing a Master's degree in General Linguistics at the University of Amsterdam. I recently took on the role of the Native Editor for the AMSj. I came across the AMSj when the editor-in-chief, Tina, asked me whether I would be interested in this role due to my background in Linguistics. After going through some previous editions, I felt that this would be an excellent chance to branch out and learn more about the medical field. Despite not pursuing medicine as a study, I have always been interested in this field. This may be the perfect opportunity to expand my knowledge!

As a native editor, my primary responsibilities include refining the linguistic aspects of our submitted articles, as well as ensuring coherence throughout the content. Although I just joined the team, being a part of the AMSj team is bound to provide me with invaluable knowledge and insight into how the publishing and editing world works. The articles submitted by individuals from various backgrounds and fields are certain to expand our worldview and understand each other and the medical and research field better!



Beyond my involvement with the AMSj, I am highly interested in languages and linguistics, especially language technology and neurolinguistics. This is just one area where linguistics and medicine intersect! I look forward to reading all your submissions for this journal. I believe it is an invaluable resource for students who wish to find easily accessible research, and one day would like to see their writing published!

MEET OUR TEAM

Tjeerd van der Wielen, Student Reviewer

Greetings, I'm Tjeerd van der Wielen, a first-year MSc student in Pharmacy at Leiden University, building upon my background in Chemistry (BSc) and Linguistics (BA). Also, I have a fantastic job at the Amsterdam UMC trial pharmacy (Kenniscentrum Geneesmiddelenonderzoek). Beyond academia, my other interests are windsurfing and playing the piano. What brought me to write as a student reviewer for AMSj was a vacancy post on Instagram. I enjoy diving deeply into specific subjects and to elucidate the mechanisms behind pharmacological and physiological phenomena. This is an excellent opportunity for me to share some topics to the scientific student community that are worth knowing about. Pleasure to meet you all!

Percutaneous coronary intervention in patients with chronic total occlusion; a case report

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2. Department of Cardiology, Amsterdam UMC, Location VUmc

CENTRAL MESSAGE

Chronic total occlusion (CTO) is relatively common in patients undergoing invasive coronary angiography (ICA), with a prevalence of 16-18% in patients with coronary artery disease (CAD).[1] Treatment methods for this condition varied widely in recent years whereby percutaneous coronary intervention (PCI) was performed in a small percentage of CTO patients.[2] Technical CTO PCI success rates have increased as a result of improved techniques and expertise, subsequently improving cardiovascular outcomes and quality of life.[3,4] This report describes the case of a 59-year-old male undergoing successful CTO revascularization by PCI.

CASE PRESENTATION

A 59-year-old male presented at the emergency department with complaints of chest pain and three syncope episodes. Physical examination revealed hypertension of 183/95 mmHg and a tachycardia of 134/min. Moreover, an electrocardiogram (ECG) showed atrial fibrillation, without any other abnormalities found on the ECG. In addition, the laboratory results detected an increased high-sensitive troponin concentration of 66 ng/L. Transthoracic ultrasound (TTE) showed left ventricular hypertrophy with asynchronous contraction and decreased left ventricular ejection fraction of 39%. Invasive coronary angiography (ICA) demonstrated a CTO in the proximal right coronary artery (RCA) and the mid ramus circumflex (RCx). The patient was diagnosed as having unstable angina pectoris due to obstructive coronary artery disease (CAD). The patient was referred for PCI CTO to restore blood flow to the myocardium subtended by the occluded epicardial coronaries. A successful PCI CTO RCA by using an antegrade approach was performed (Figure 1). In case of refractory anginal complaints, PCI CTO of the RCx may be considered.

SURGICAL TECHNIQUE

CTO PCI technique is based on either anterograde or retrograde wiring of the complete coronary occlusion. Based on multiple factors, including proximal cap morphology, lesion length, healthy zone for re-entry, and adequate collaterals, it is determined which approach is preferred and how to cross the occlusion in each patient. The rapid conversion between different techniques is captured in the hybrid algorithm (Figure 2). To obtain a clear visualization of the coronary anatomy, simultaneous contralateral injection of intravenous contrast fluid is administered through two catheters in the CTO vessel and donor artery. An armamentarium of CTO-dedicated wires and microcatheters with unique properties are available to aid in the crossing of the occlusion, after which angioplasty and stent implantation will be performed.[4]

FIGURE 1 Pre- and postprocedural percutaneous coronary intervention of chronic total occlusion in the right coronary artery

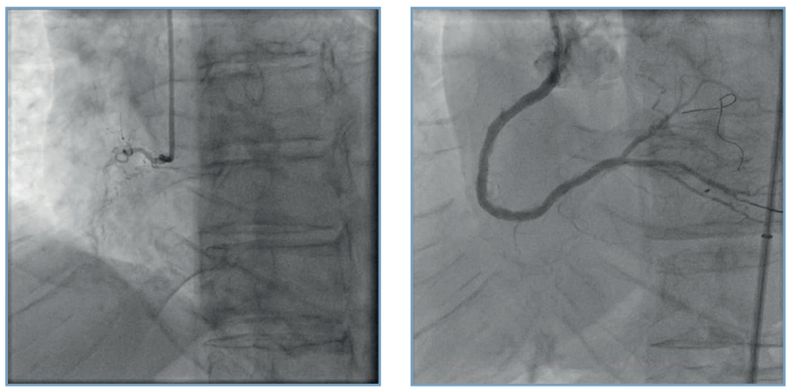
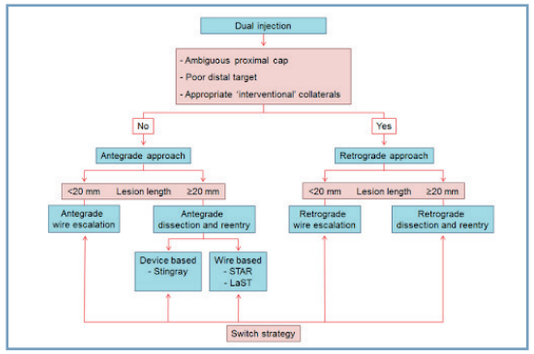


FIGURE 2 Hybrid algorithm for approach and crossing of chronic total occlusion



From: Schumacher SP, Stuijfzand WJ, Opolski MP, van Rossum AC, Nap A, Knaapen P. Percutaneous coronary intervention of chronic total occlusions: when and how to treat. Cardiovasc Revasc Med. 2019 Jun;20(6):513-522.

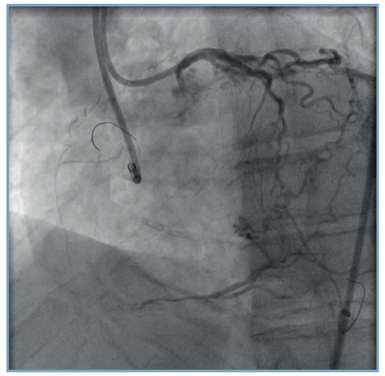
DISCUSSION

CTO is defined as a complete coronary artery occlusion with thrombolysis in myocardial infarction (TIMI) 0 flow for a duration of ≥ 90 days.4 Coronary artery disease is the result of an atherosclerotic process that increases over time and which can ultimately lead to complete occlusion of a coronary artery. This atherosclerotic process is accompanied by low-grade intima inflammation and will occur more quickly due to risk factors such as hypertension and hypercholesterolemia.[5] As a response to ischemia, the coronary vascular system will form collateral connections in most CTO patients, whereby these collaterals prevent myocardial necrosis.[6] Figure 3 shows the collateral connections of this case report, vascularizing the distal RCA through collaterals from the left anterior descending artery (LAD).

Although a high CTO prevalence of 16-18% in coronary artery disease (CAD) is reported, a wide variety of treatment strategies have been applied in recent years.1 Due to improved techniques and expertise, the PCI success rate in CTO has increased to a percentage of approximately 90% in dedicated centers.[2,4] The European Society of Cardiology recommends the consideration of percutaneous coronary intervention in CTO patients with a large ischemia area of the occluded coronary or in patients who do not respond to medical therapy (ESC class IIa).[7]

Consent statement. Written informed consent from the patient was completed before the publication of this case report in Amsterdam Medical Student Journal.

FIGURE 3 Collateral connections from left anterior descending artery to right coronary artery



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The 9th edition of the TNM classification for Thoracic Cancers

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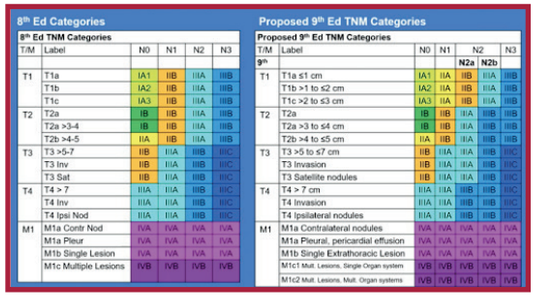
FIGURE 1 Overview of TNM categories of the 8th and proposed 9th edition



8th Ed Categories					
8th Ed TNM Categories					
T/M	Label	N0	N1	N2	N3
T1	T1a	IA1	IIB	IIIA	IIIB
	T1b	IA2	IIB	IIIA	IIIB
	T1c	IA3	IIB	IIIA	IIIB
T2	T2a	IB	IIB	IIIA	IIIB
	T2a >3-4	IB	IIB	IIIA	IIIB
	T2b >4-5	IIA	IIB	IIIA	IIIB
T3	T3 >5-7	IIB	IIIA	IIIB	IIIC
	T3 Inv	IIB	IIIA	IIIB	IIIC
	T3 Sat	IIB	IIIA	IIIB	IIIC
T4	T4 > 7	IIIA	IIIA	IIIB	IIIC
	T4 Inv	IIIA	IIIA	IIIB	IIIC
	T4 Ipsi Nod	IIIA	IIIA	IIIB	IIIC
M1	M1a Contr Nod	IVA	IVA	IVA	IVA
	M1a Pleur	IVA	IVA	IVA	IVA
	M1b Single Lesion	IVA	IVA	IVA	IVA
	M1c Multiple Lesions	IVB	IVB	IVB	IVB

Proposed 9th Ed TNM Categories					
Proposed 9th Ed TNM Categories					
T/M	Label	N0	N1	N2	N3
9th				N2a N2b	
T1	T1a ≤1 cm	IA1	IIA	IIB IIIA	IIIB
	T1b >1 to ≤2 cm	IA2	IIA	IIB IIIA	IIIB
	T1c >2 to ≤3 cm	IA3	IIA	IIB IIIA	IIIB
T2	T2a	IB	IIB	IIIA IIIB	IIIB
	T2a >3 to ≤4 cm	IB	IIB	IIIA IIIB	IIIB
	T2b >4 to ≤5 cm	IIA	IIB	IIIA IIIB	IIIB
T3	T3 >5 to ≤7 cm	IIB	IIIA	IIIA IIIB	IIIC
	T3 Invasion	IIB	IIIA	IIIA IIIB	IIIC
	T3 Satellite nodules	IIB	IIIA	IIIA IIIB	IIIC
T4	T4 > 7 cm	IIIA	IIIA	IIIB IIIB	IIIC
	T4 Invasion	IIIA	IIIA	IIIB IIIB	IIIC
	T4 Ipsilateral nodules	IIIA	IIIA	IIIB IIIB	IIIC
M1	M1a Contralateral nodules	IVA	IVA	IVA IVA	IVA
	M1a Pleural, pericardial effusion	IVA	IVA	IVA IVA	IVA
	M1b Single Extrathoracic Lesion	IVA	IVA	IVA IVA	IVA
	M1c1 Mult. Lesions, Single Organ system	IVB	IVB	IVB IVB	IVB
	M1c2 Mult. Lesions, Mult. Organ systems	IVB	IVB	IVB IVB	IVB

The International Association for the Study of Lung Cancer (IASLC) has recently updated the proposals of the TNM classification for thoracic cancers during the last World Conference on Lung Cancer (WCLC) in Singapore in September 2023[1]. TNM staging is a strategy to classify cancers by staging the extension of disease in the tumor itself (T stage), lymph nodes (N stage), and distant metastases (M stage). This is used in standard clinical practice as an indication for prognosis and clinical decision-making in almost all cancer types. In addition, TNM staging helps to unify cancer staging worldwide and supports adequate communication between health professionals.

For thoracic cancers, the currently used IASLC TNM classification concerns the 8th edition. This edition was published in 2017 and was based on an analysis of a total of 77,000 patients. The 9th edition, which was presented at this year's WCLC, will be published officially in 2024. The analysis of the updated 9th edition was performed on more than 87,000 lung cancer patients who received several types of treatments. Survival outcomes from each stage were compared to determine whether an update of staging is needed. In terms of T staging of disease, there are no changes proposed between the 8th and 9th editions. However, for the N stage, N2 disease will be subdivided into N2a and N2b. N2 stage indicates metastasis in ipsilateral, mediastinal, and/or subcarinal lymph nodes, which will be divided into N2a) single N2, and N2b) multiple N2 station involvement. A similar change has been proposed for the M stage: the current M1c stage, indicating multiple extrathoracic metastases, will be divided into M1c1: metastasis in a single organ system, and M1c2: metastasis in multiple organ systems. Figure 1 shows the differences in the TNM staging between the 8th edition and the proposed 9th edition.

These changes in staging will have consequences for the proposed treatment strategy for thoracic cancers. For example, the N2 stage was considered as at least stage IIIA when approached from the 8th edition of TNM staging. In the case of non-small cell lung cancer, stages I and II are considered resectable. However, stage III is not considered primarily resectable and will therefore be treated with neoadjuvant chemoradiotherapy with surgery or immunotherapy afterward. Now, with the division of N2 into N2a and N2b in the 9th edition, N2a will probably be considered primarily resectable (stage IIB) and N2b unresectable (stage IIIA). Therefore, changes in TNM staging of cancers should always be followed closely due to the changes in treatment approaches for several stages of disease.

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The Expert's View – Marcel Levi[1]

1. President Dutch Research Council (NWO) and Professor of Medicine, University of Amsterdam and University College London

Little Eureka in today's science?

Every few months an article appears somewhere stating that no major scientific discoveries have been made in recent decades. Even the top scientific journal Nature published a rather dubious (and certainly tendentious) analysis of citations of scientific articles earlier this year, concluding that the value of science for solving major societal problems has gone downhill rapidly.

This is complete nonsense. In the biomedical discipline alone, there are so many scientific breakthroughs every year that it is difficult for a generally interested doctor to keep up. New treatment methods have led to an extreme reduction in mortality from acute cardiovascular disease, there are spectacular improvements in cancer treatment every few months, treatment of major infectious diseases such as chronic hepatitis C or HIV has been dramatically improved, and transplant outcomes are making giant steps forward due to increasingly better immune suppression. Even in the extremely complex field of neurobiology, severe Parkinson's disease patients can be spectacularly helped by the placement of small electrodes in their brains, and deaf-mute children can develop hearing and speech through implants in their ears.

On the other hand, the glorification of discoveries from the old days is grossly romanticized. Of course, Alexander Fleming's identification of penicillin was important, but it was mainly an accidental discovery because he made such a mess of his laboratory bench. Wilhelm Conrad Röntgen discovered X-rays because he accidentally allowed the electrical voltage in his gas development tube to rise much too high. Many great discoveries can be attributed to chance observations, often in combination with brilliant researchers who knew how to recognize their significance.

People who worry so much about the lack of major discoveries nowadays may be overlooking another crucial fact. Let's look at the example of sepsis, a very serious, sometimes fatal, infection in which bacteria or other pathogens enter the bloodstream and cause a myriad of problems compromising the function of various organs. Thousands of researchers worldwide are looking for a drug to improve sepsis outcomes. Very frustratingly, however, so far none of these new treatments have proven effective in placebo-controlled studies.

But if you look closely at all these 'failed' randomized controlled trials, mortality from sepsis in the placebo group has been declining rapidly for years, even halving from 40% to 20% in the last twenty years. Without that famous fantastic discovery. However through an accumulation of small scientifically substantiated steps, such as better forms of ventilation, better methods of dialysis, better nutritional methods, better medicines to control blood clotting, better metabolic control, and better nursing protocols. All not very compelling and ingenious perhaps, but all in all extremely effective for better treatment and outcome of a serious disease. Hence, not only glamorous inventions help us move forward, but also combinations of accumulating little bits of new knowledge and insight. That requires patience, endurance, and constant creativity. And these are precisely the characteristics of many successful researchers.

What you must know about the most used drug of 2021

Tjeerd van der Wielen[1,2]
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2. Kenniscentrum Geneesmiddelenonderzoek, Amsterdam UMC, location VUmc

Macrogol, also known as polyethylene glycol (PEG), is a polymer with various medical uses. It serves as a common pharmaceutical excipient, for example in vaccines, suppositories, and skin products, but is most importantly used as a laxative.[1] It is sold under generic names or as branded products such as Movicolon® or Klean-Prep®. According to Stichting Farmaceutische Kengetallen, macrogol preparations were the primary most used drugs in 2021.[2] Macrogol functions as an osmotic laxative, meaning that it works by drawing water from the gut. As a consequence, feces become softer and more mobile. Secondly, the increase in stool volume stimulates stretch receptors in the myenteric plexus, enhancing gut motility in the area of the stool. The numerical value succeeding "macrogol" on its labels refers to the average molecular weight of the polymer.[1] For instance, 'macrogol 3350' has a molecular weight of 3350 g/mol. This size makes it virtually impossible for the macrogol to pass cell membranes in the gut wall and be absorbed into the blood. Thus, macrogol leaves the gut unchanged. Only 0,1% gets absorbed and is excreted renally without undergoing metabolism.[3]

> "…, macrogol preparations were the primary most used drugs in 2021"

Macrogol can be administered orally after dissolving ~13,7 g of granules from a sachet in a glass of water. It should be used once or twice a day for adequate treatment of constipation. Since it needs to pass the whole intestinal tract before finally reaching the colon, an effect can be expected only after 24-48 hours after consumption.[3] This makes it useful as a drug to treat chronic constipation in the elderly or opioid-induced constipation but is less suitable for acute rectal impactions. Rectal preparations containing bisacodyl or dosucate sodium/sorbitol are used in these situations for near-immediate relief. Use of macrogol in case of a suspected intestinal obstruction may aggravate bowel pains and is contra-indicated, since gut motility is being induced whilst frustrated by a blockade.[4] Common side effects of macrogol are abdominal pain, bloating, and diarrhea, all of which can be deducted from the primary mechanism of macrogol: attraction of water.[1]

To avoid large disturbances between the lumen of the gut and the plasma, macrogol is often combined with electrolytes in the same product (isotonic macrogol). For example, Pleinvue® contains sodium and potassium in addition to macrogol 3350. Recently, the Netherlands pharmacovigilance center Lareb received a report of cardiac decompensation following the administration of macrogol/electrolytes as a means of colonic lavage.[5,6] Despite the isotonicity, sodium was absorbed from the gut in too large amounts, followed by hypervolemia. The patient recovered after treatment with furosemide. The incident led to an update in the Farmacotherapeutisch Kompas: caution is advised when using isotonic macrogol when performing colonic lavage in patients with heart failure NYHA class III/IV.[3] Furthermore, macrogol is contraindicated in case of sensitivity to PEG, electrolyte imbalances, and gastrointestinal perforations.

In the Netherlands, macrogol as a laxative is available for €0,18 - €0,26 per sachet (generic, 2023).[7] Despite its overall effectiveness and safety in treating constipation, special consideration should be given when prescribing macrogol to patients with heart failure.

> "…, special consideration should be given when prescribing macrogol to patients with heart failure."

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SHARE YOUR TEACHABLE MOMENT

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SpringLab VU: a student-run educational platform where you can learn what you want!

Lotte L.Y. Hofstee[1] and Robbie R.H.J.M. Grooten[2]
1. Medical Student, Amsterdam UMC location VUmc, Faculteit Geneeskunde Vrije Universiteit (FG-VU)
2. Medical Student, Amsterdam UMC location VUmc, Faculteit Geneeskunde Vrije Universiteit (FG-VU)

INTRODUCTION

We are Lotte Hofstee and Robbie Grooten, medical students and core-team members at SpringLab VU. Joining SpringLab was driven by our passion for education and our belief in the significance of innovation in medicine. SpringLab VU offers the opportunity to work in and innovate medical education by offering a variety of free workshops and courses, designed and developed for and by students.

THE ORGANIZATION

SpringLab VU was founded in 2021, funded by the StudieVoorschotMiddelen (SVM). This initiative responded to students' needs for a more integrative and practical learning approach. The development of a skills lab, where students can explore topics based on their interests, fosters learning through discovery, experimentation and embracing the valuable lessons found in failure. This initiative aligns with FG-VU's vision of stimulating personal and professional development and leadership, empowering students to take charge of their educational journey with an emphasis on 'Student-in-the-Lead' and 'Student Voice.'[1] Being almost completely run by students with a passion for education, SpringLab has created a space where education is provided through co-creation, based on student needs.[2] This environment encourages students to explore different topics, dive deep into the theory and apply this to practical scenarios, thereby stimulating and rewarding their intrinsic motivation and curiosity.[3] At SpringLab VU, students from various academic levels participate in courses developed, divided in ten teams, each with a different topic. Combined, it offers an extensive range of courses that complement the existing curriculum. These courses cover a wide range of areas including Practical Skills, Science and Obstetrics & Gynecology.

THE IMPACT OF SPRINGLAB VU

The impact of SpringLab VU extends beyond students to educators and medical professionals, providing a platform where they can test and develop new educational ideas. Besides the courses mentioned before, SpringLab also provides learning opportunities in lesser-focused areas like lifestyle and sustainability and is involved in the implementation of these subjects within the curriculum. Most workshops are open to all students, enabling them to develop skills out of curiosity, even early in their education, preparing them more effectively for their future roles as professionals. Our role as core-team involves managing the teams, facilitating them with what they need to develop and give their workshops and managing collaborations and internal operations, ultimately enhancing student experiences.

PERSONAL REFLECTIONS

We highly recommend medical students to take full advantage of SpringLab's diverse courses. These courses extend well beyond traditional medical training, offering the chance to gain a broader understanding of various domains within the field. Popular classes like ultrasound lessons and ATLS courses are just the beginning. We encourage students to explore areas beyond their immediate medical skills, as this will provide a more comprehensive and enriched learning experience.

INNOVATION AND DEVELOPMENT

SpringLab's innovation and development process is marked by continuous adaptation to student feedback and educational trends. With nearly 80 students collaborating with medical experts, we are committed to creating and improving our course offerings. This dynamic approach ensures that our educational content remains relevant, engaging, and aligned with the evolving needs of our students. SpringLab VU's methodologies are grounded in evidence-based approaches, aligning with self-determination theory and models for self-regulated learning.[4,5] Regular evaluations and expert supervision ensure continuous improvement and quality in our educational offerings.

FUTURE VISION

Looking at the future, we aim to extend SpringLab VU to other faculties within VU, adapting it to the needs of their students. Additionally, SpringLab will run the Living Library, a new community space where medical students can walk in and practice skills at their convenience. The Living Library is expected to open in 2024.

CONCLUSION

In conclusion, SpringLab VU provides a variety of free workshops and courses, designed and developed for students and by students, to enable self-directed learning and stimulate the development of relevant knowledge and skills. With the exciting addition of the Living Library, we continue to facilitate a dynamic and supportive learning community. We hope to see many of you in our workshops soon!

FOLLOW US

You can follow SpringLab VU at our instagram @springlabvu and sign up for our classes and workshops via Linktree (linktr.ee/SpringLabVU). You can also enroll into our Canvas page https://canvas.vu.nl/courses/68968, or go to our website springlabvu.nl and LinkedIn.

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My Research Journey at Massachusetts General Hospital of Harvard Medical School, Boston, USA

Eva van Vliet, BS[1,2]
1. Massachusetts General Hospital, Harvard Medical School, Boston, MA, USA
2. Amsterdam University Medical Centers, Vrije Universiteit Amsterdam, Amsterdam, The Netherlands

The whole experience was incredibly enriching and inspiring, to say the least. My name is Eva van Vliet, and I would like to share my overseas journey with you. I had the honor of joining an esteemed research group at Massachusetts General Hospital of Harvard Medical School. I spent seven months in Boston for my research internship.

During my time in the US, and in the months preceding and following my stay, I had the opportunity to immerse myself in various research projects. This internship offered me a unique chance to engage in interesting research projects, allowing me to enhance my scientific skills enormously. My primary research project aimed to explore the impact of time on neuroma size and its association with pain experienced by amputees. This included studying the differences in magnetic resonance imaging between symptomatic and asymptomatic neuromas.

> "This internship offered me a unique chance to engage in interesting research projects, allowing me to enhance my scientific skills enormously"

The remarkable dedication of the researchers and the countless hours devoted to research projects left a lasting impression on me. Despite their demanding schedules, my exceptional Principal Investigators consistently made time for research. Their unwavering commitment to pioneering excellence fostered an incredibly inspiring atmosphere within our research group.

What stood out to me was not only everyone's passionate involvement in conducting research, but also their profound commitment to imparting knowledge to medical students like me. This enabled my contribution to various research projects, including a cadaver study on the lumbrical muscles of the hand involving 25 cadaver arms. Moreover, I had the privilege of observing numerous surgeries, including Targeted Muscle Reinnervation. Surgeons generously and enthusiastically shared their expertise, guiding me through the intricacies of these surgical interventions. During surgeries, we had the opportunity to collect nerves and neuromas from the amputated body parts for research and further refine our skills in the operation room.

> "Surgeons generously and enthusiastically shared their expertise, guiding me through the intricacies of these surgical interventions"

I felt deeply honored to present at the 31st Annual Smith Day and 8th Annual Jesse B. Jupiter International Hand Forum, as well as showcase a research poster at the Harvard Orthopaedic Trauma Research Day. I also had the opportunity to attend the Harvard Mass General Brigham Plastic Surgery 1st Annual Research Day.

Boston not only offered academic enrichment but also provided a perfect balance of hard work and enjoyable experiences, truly embodying the spirit of 'work hard, play hard'. I had the chance to study in magnificent libraries and attend various sporting events, including cheering for the Boston Red Sox and applauding for the Boston Celtics, as well as joining the Harvard Club Field Hockey team. I also enjoyed a skiing trip in the White Mountains, staying in the Harvard Outing Club cabin. Exploring the East Coast of the United States, from the beautiful sands of Miami's South Beach to the dazzling lights of New York's Time Square, left a collection of memorable experiences.

Securing this internship was no easy feat. The selection process was stringent and far from straightforward, involving several interviews. For students considering an internship abroad, I strongly recommend thorough research of available opportunities, as well as initiating the application process at a very early stage.

Upon my return to the Netherlands, I brought back a wealth of knowledge, experience, and invaluable connections that will undoubtedly stay with me, shaping my future endeavors. My research internship in Boston was an unforgettable experience that deepened my passion for becoming a top-tier doctor and researcher.

> "...I brought back a wealth of knowledge, experience, and invaluable connections that will undoubtedly stay with me, shaping my future endeavors"

Editorial update

Dear reviewers and readers,

We extend our sincere gratitude to you for diving into the content of issue 33. Our Editor-in-Chief Bobby Lam has already introduced you to this edition, filled with captivating and enlightening pieces. As we approach the end of 2023, following our tradition, we share this editorial update not just with our talented reviewers, but also with our beloved readers, keeping you informed about the journey of AMSj.

The Nicolaes Tulp Symposium on November the 2nd was a resounding success, featuring engaging and educational presentations. We were thrilled by the outstanding work of all the participants of AMSj. Katie Gout's presentation on epileptic attacks in a communal brain network secured the top position, and we eagerly anticipate featuring it in our upcoming edition. The symposium also brought together the general board and the AMSj editorial staff for an enjoyable evening with valuable networking opportunities within the scientific community of Amsterdam. So stay tuned for more collaborations in 2024!

It is essential to share with our esteemed reviewers the challenges encountered by AMSj in 2023, particularly within the general board. Fulfilling vacancies became a bit of a puzzle, delaying our usual flow of ideas and initiatives. Nevertheless, AMSj remains steadfast in its commitment to its primary mission: the consistent delivery of great editions. We appreciate your continued support and understanding as we navigate through these challenges. We anticipate a revitalized 2024, marked by the addition of fresh faces for the general board.

A quick reminder for our readers in their bachelor's program: our annual "How to Write Your Thesis" workshop is just around the corner in January at VU University! Over two days, we'll guide you through the ins and outs of performing and describing a systematic review. This is your chance to ask questions and explore various topics. And who knows, if your systematic review hits the mark, it might find a home in our magazine! Tune in to our socials for workshop details.

Thank you again to our reviewers and readers for delving into this edition. On behalf of the entire general board and editorial team, I want to emphasize the importance and value of your support and input. Your role is crucial to AMSj's success, and we wish you a fantastic start to the new year! Also, a big thank you to the entire general and editorial board for their dedication and hard work, all while still managing their other study-related commitments. Hopefully 2024 will be a fruitful and interesting year for AMSj, with more interesting pieces and warm collaborations to come.

Yours sincerely,

Tina Vekua
Student Editor-in-Chief
Amsterdam UMC, location VUmc

Breaking Down Barriers: The Imperative of Effective Communication in Healthcare

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2. Department of General Practice, Amsterdam UMC, location VUmc

In the intricate world of medicine, effective communication between healthcare providers and patients stands as a paramount necessity. Yet, a substantial challenge emerges when language acts as a barrier, hindering the comprehensive understanding of medical information.

The importance of linguistic proficiency in healthcare is highlighted by various studies, including a report by Nivel.[1] This report accentuates that language barriers can lead to misunderstandings, potentially compromising patient safety and the overall quality of care. Issues related to language in the consultation room persist as a recurrent challenge, further intensified by the recent influx of refugees. This necessitates healthcare providers to grapple with this obstacle more frequently, where healthcare providers share a parallel obligation to assess whether the language barrier obstructs the provision of adequate care.[2]

A significant ramification of language barriers is the potential misinterpretation of symptoms and medical history. A study published in BMC Health Services Research sheds light on how linguistic and cultural diversity in medical encounters can contribute to misdiagnosis or delayed diagnosis.[3] Patients from diverse linguistic backgrounds may struggle to accurately convey their symptoms, leading to profound misunderstandings affecting their health.

During my internship in internal medicine at a hospital, I witnessed patients concealing their difficulty in comprehending medical information. The situation shifted dramatically when they discovered my ability to communicate in their native language. Seeking translation assistance, patients revealed the silent struggle they faced, emphasizing the profound impact language has on genuine understanding in healthcare interactions. Additionally, I encountered a case where assumptions tied to a patient's origin complicated communication. A patient with cognitive issues was initially misattributed to a language barrier, but this misjudgment became evident when the patient failed to respond in their native language, shedding light on the underlying cognitive cause.

In conclusion, the language barrier in healthcare transcends a mere exchange of words, extending into cultural nuances, cognitive considerations, and effective communication strategies. As we embark on our journey towards becoming healthcare professionals, let us remember the importance of navigating the complexities of language barriers. Advocating for language-accessible healthcare isn't just a choice; it's our duty. By championing this cause, we stand at the forefront of patient-centered care, ensuring that every individual, irrespective of language, receives the healthcare they deserve.

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Answers 'Corneal Transplantation'

Marc Sirks and Miyaada Abdi

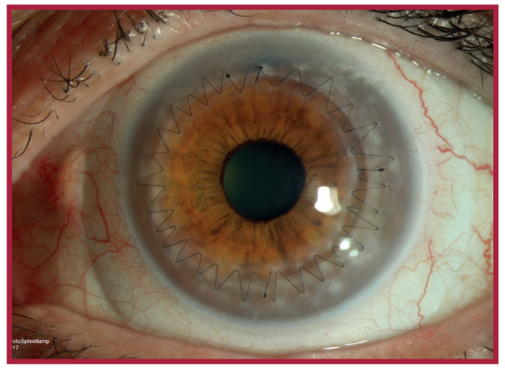

Photo courtesy of: S. Jongsma and dr. M.J.W. Zaal, OMC Zaandam

Correct answers: 1B, 2A, 3D

EXPLANATION

Question 1

Macular corneal dystrophy (MCD) is a rare autosomal recessive disease that affects the cornea, the transparent front surface of the eye. It is primarily caused by genetic mutations of the CHST-6 gene and its enzyme, which are responsible for normal development and maintenance. Mutations can thus lead to corneal dystrophy which in severe cases requires corneal transplantation like penetrating keratoplasty (PKP). This surgery replaces the full thickness of the cornea with a donor cornea. The first time our patient was treated, she underwent general anesthesia and was hospitalized for 4 to 5 days. In contrast, the second treatment at an outpatient clinic with local anesthesia allowed for same-day discharge, which shows the rapid development over time.

In Fuchs endothelial corneal dystrophy, there is a degeneration of the endothelial cells of the cornea. This may also be treated by corneal transplantation, but not by PKP. An endothelial keratoplasty (EK) is performed, where only the endothelium, the inner layer of the cornea, is replaced with donor tissue.

Question 2

Common early symptoms may include clouding of the cornea, blurred vision, and sensitivity to light. Diagnosis is often based on corneal examination using a slit lamp, family history, and confirmed through genetic testing.

Question 3

The treatment focuses on symptom management and vision improvement. Scleral contact lenses are recommended for better visual acuity. In severe cases, corneal transplantation is necessary, followed by immunosuppressive eye drops like dexamethasone to prevent tissue rejection. Antihistamines are not effective because this disease is genetic, not allergy-related.

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Answers 'A couple of small toes'

Armel Boes and Liffert Vogt

Correct answers: 1A, 2D, 3B

EXPLANATION

Brachymetatarsia is a rare malformation that is characterized by the shortening of one or multiple toes. This condition is defined as the presence of shortness of more than 5mm of the metatarsal arch. The etiology can be variable. Causes are congenital or idiopathic such as malignancy, sickle cell disease, pseudohyperparathyroidism, Turner's syndrome, Down's syndrome, Apert syndrome, athyroidism, or osteodystrophy.1 The incidence of brachymetatarsia ranges between 0.02% and 0.05% over the whole population.2 Congenital brachymetatarsia is reported to affect almost exclusively females (96% of the cases). In addition, it mostly shows bilateral involvement (72% of the cases). In the patients, mostly the first and fourth metatarsals are affected. Brachymetatarsia appears to be the result of retarded growth or premature closure of the epiphyseal plate. 2 The phenomenon usually becomes apparent by the age of around 10 years. 4 Its presence may develop deformity and pain; however, often feet are pain-free and the major worries of patients are cosmetics.3 In those cases, no treatment is needed other than to modify footgear to accommodate the toe defect. Surgical intervention for brachymetatarsia is rarely indicated. While surgical options have improved, complication rates are high, and many surgeons will only operate if the patient experiences significant pain or instability with stance or gait; they do not operate for cosmetic concerns alone.

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Reviewers update

It is with a heavy heart that we announce the departure of our beloved native editor, Loïs van der Minnen. We extend our heartfelt gratitude for Loïs's invaluable contribution to AMSj, ensuring our journal remained free of any language mistakes.

Thank you, Loïs, for your contribution and efforts to AMSj.

Wishing you all the best in your future endeavors.

Warm regards,

The whole AMSj team

About the cover

On the cover a microscopic image of an appendix with features of acute appendicitis is shown. A pathologist will look for specialized immune cells in the wall of the appendix, called neutrophils. These cells often combine with bacteria to form an abscess.[1]

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ISSN 2589-1243 (print); 2589-1251 (online)

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COVER - Credit: MyPathologyReport.ca. Acute appendicitis.

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