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Acute Coronary Syndromes

Development of Emergency Conditions

Highlights

Development of Emergency Conditions

Research Group on Sudden Death (GIMUS)

Discovering Thoughts, Inventing Future

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Contents of the Issue

i. Copyright Notice
ii. Editorial Board Members
iii. Chief Author and Dean
iv. Contents of the Issue

1. Usage of E-Polytetrafluoroethylene (E-PTFE) Membrane for Managing Trabeculectomy Flap-Related Over-Filtration due to Unavailability of Scleral Patch Graft during Nationwide Lockdown. *1-11*
2. Behavior of the Incidence of COVID-19 and Vaccination against SARS-Cov-2 in Colombia. *13-15*
3. Research Group on Sudden Death (GIMUS) of Cuba Sudden Cardiovascular Death: A Global Challenge. *17-21*
4. The Risk Factors for Development of Emergency Conditions in Tender-Age Infants in Acute Intestinal Infections of Different Etiologies. *23-28*
5. Prevention Fundamentals of Acute Coronary Syndromes in Uzbekistan. *29-32*

v. Fellows
vi. Auxiliary Memberships
vii. Preferred Author Guidelines
viii. Index

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Usage of E-Polytetrafluoroethylene (E-PTFE) Membrane for Managing Trabeculectomy Flap-Related Over-Filtration due to Unavailability of Scleral Patch Graft during Nationwide Lockdown

By Prasanna Venkatesh Ramesh, Shruthy Vaishali Ramesh, Prajnya Ray, Aji K, Lalith Kumar S, Ramesh Rajasekaran, Meena Kumari Ramesh & Banasmita Mohanty

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Keywords: Gore-Tex; Trabeculectomy flap tear; COVID-19 lockdown; Shallow anterior chamber; Over-filtration.

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USAGEOFEPOLYTETRAFLUOROETHYLENEEPTFEMEMBRANEFORMANAGINGTRABECULECTOMYFLAPRELATEDOVERFILTRATIONDUETOUNAVAILABILITYOFSCLERALPATCHGRAFTDURINGNATIONWIDELOCKDOWN

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Prasanna Venkatesh Ramesh [α], Shruthy Vaishali Ramesh [σ], Prajnya Ray [ρ], Aji K [ω], Lalith Kumar S [¥], Ramesh Rajasekaran [§], Meena Kumari Ramesh [χ] & Banasmita Mohanty [ν]

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Keywords: Gore-Tex; Trabeculectomy flap tear; COVID-19 lockdown; Shallow anterior chamber; Over-filtration.

I. Introduction

While performing trabeculectomy, achieving an adequate scleral flap depth during dissection is mandatory to avoid tearing the flap in superficial dissections, or to avoid premature entry in deep dissections.[1] Scleral flaps are very difficult to repair in a predictable fashion and may need donor scleral flap reinforcement whenever necessary. After the COVID-19 outbreak, the eye banking activities almost came to a grinding halt. There were almost no corneal and/or scleral tissue retrievals from the hospitals and the community, especially during the first and second phase of nationwide lockdown. Hence, in this manuscript, we have presented two surgical scenarios, where Gore-Tex implant was used, instead of the traditional scleral patch graft. In both the trabeculectomy cases, the leak from trabeculectomy flap site was due to unexpected and atypical complications. Hence, to prevent aqueous fluid egress resulting in intra-operative shallow anterior chamber (AC) and post-operative shallow AC in Case 1 and Case 2 respectively, and due to unavailability of scleral patch graft, Gore-Tex implant was used as an alternative.

II. Case Report

Case 1: An uncontrolled phakic primary open-angle glaucoma patient with bilateral glaucomatous optic atrophy, and on maximum tolerable medical therapy, with best corrected visual acuity (BCVA) of perception of light (PL) in right eye (OD) and no PL in left eye (OS), and intraocular pressure (IOP) of 24 mm Hg OD and 26 mm Hg OS, underwent trabeculectomy with Mitomycin – C for OD. Intra-operatively, the trabeculectomy surgery was uneventful till the flap suturing step, where suture track leak was noted after suturing, owing to the fragile nature of the scleral flap (Figure 1 a, b&c) in that patient, despite taking a good flap of adequate thickness, resulting in intra-operative shallow AC (Figure 2a) due to leakage from the flap. Though intra-operatively, multiple sutures were anchored to secure the suture track leak, it was not successful in repairing the leakage. Hence, a 6mm x 3mm x 0.5mm Gore-Tex implant was sutured over the leakage area, by anchoring it with the adjacent underlying sclera, and the fornix-based conjunctival flap was closed (Figure 1 d, e&f). At the 1st week and 1st month post-operative follow-up, the Gore-Tex implant was stable with IOP in low teens, with a well-formed (Figure 2b, Figure 3a-b & Figure 4 a-b) AC with BCVA of PL. At the 3rd month follow-up, the implant showed signs of extrusion (Figure 3 c-d & 4 c-d) but the AC depth and IOP control were still in low teens, with the same pre-operative BCVA of PL. Though the implant showed signs of extrusion, the conjunctiva was intact, with no late-onset bleb leak (Seidel test negative);

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hence, only vigilant observation was advised. Between the 1st month and 3rd month, the patient was treated with tapering doses of topical steroids, antibiotics, and cycloplegics; and was on vigilant follow-up biweekly, with serial examinations of slit-lamp and Seidel test, for assessing the AC stability and integrity of the bleb. The patient has currently undergone 6 months of follow-up with good IOP control in low teens, BCVA of PL, good AC depth, good integrity of the bleb, and no extrusion of the implant.

Case 2: An uncontrolled primary angle-closure glaucoma patient with bilateral cataract and glaucomatous cupping of 0.7 in both eyes (OU), and on maximum tolerable medical therapy, with the BCVA of 20/400 OD and 20/40 OS, and IOP 25 mm Hg OD and 22 mm Hg OS, underwent combined cataract and trabeculectomy surgery with Mitomycin – C for OD. Intra-operatively, there was an inadvertent flap tear, due to sudden jerky movement of the patient, during the AC entry step with the paracentesis blade, after the creation of the flap, causing a full-thickness flap tear near the limbus. The flap tear was managed effectively with sutures intra-operatively (Figure 5). Despite AC forming intra-operatively (Figure 5 d), the patient presented with BCVA of hand movements (HM), shallow AC, over-filtering large bleb, IOP of 4 mm Hg, and negative Seidel test (Figure 6) on post-operative day one; which was managed conservatively with aqueous suppressants, cycloplegics, and tight bandaging. Unfortunately, the AC didn't form until post-operative day 5, necessitating exploration of the flap area, once the other causes of shallow AC such as choroidal effusion, choroidal hemorrhage and malignant glaucoma were ruled out. Over-filtration was the primary suspect, owing to the intra-operative complication. Hence, exploration of the flap area was planned. On exploration, there was a leak noted from the flap tear area. Hence, Gore-Tex (Figure 7) implant was used to create a tamponade effect to seal the leak. A 6mm x 3mm x 0.5mm Gore-Tex implant was sutured over the leakage area, by anchoring it with the adjacent underlying sclera, and the fornix based conjunctival flap was closed. One week post repeat surgery, the Gore-Tex implant was stable with IOP in the low teens; BCVA improved to 20/60 OD with a well-formed AC. At the 2nd week follow-up, the implant was stable, but at the end of the 1st month follow-up, the implant extruded, exposing the site of the flap tear near the limbus, where there was a fistulous tract (Figure 8) formation between the AC and the sub-conjunctival region. However, the conjunctiva was intact with no bleb leak. The IOP control was within low teens with a well-formed AC throughout the post-operative period (Figure 9a). Between the 1st month and 3rd month, the patient was treated with tapering doses of topical steroids, antibiotics, and cycloplegics; with the patient being on vigilant follow-up biweekly, with serial examinations of slit-lamp and Seidel test for assessing the AC depth and the integrity of the bleb. The fistulous tract underwent subsequent fibrosis (Figure 9 b&c). The patient has currently undergone 12 months of follow-up with good IOP control in low teens, BCVA of 20/40, good AC depth, and good integrity of the bleb.

III. Discussion

In this manuscript, we have presented two of our cases with follow-up, where Gore-Tex implant was used as an alternative to scleral patch graft for managing trabeculectomy flap-related over-filtration. Both the flap leak complications were not iatrogenic and were inevitable; and the timing of the complication (i.e., during the initial phase of nationwide lockdown) didn't help either, as there were unavailability of cornea and/or scleral tissue retrievals, due to COVID-19. Hence, Gore-Tex implant was used to create a tamponade effect and manage the leaks, from the trabeculectomy flap tears. Both the surgeries were performed by the same surgeon with two years of experience in glaucoma surgery, post completion of his glaucoma surgical training.

The e-polytetrafluoroethylene (e-PTFE) membrane (Gore-Tex, W.L. Gore & Associates, Delaware, USA) has been widely used in preventing adhesion after cardiovascular and gynaecological surgeries.[1-3] In the ophthalmic field also, this membrane has been declared safe for usage in human eyes, almost two decades ago. But according to our knowledge, Gore-Tex has not been reported in the literature for the management of trabeculectomy flap tears.[4-6] Review of literature in PubMed revealed, e-PTFE implant can be used as an adjuvant for filtration modulation in trabeculectomy.[7,8] It also had good tolerability with lesser extrusion rates, when used as an adjuvant in trabeculectomy surgery and was advisable in reducing early hypotony-related complications.[7] It also contributed to attain medium-term IOP control, which is comparable to the low-dosage MMC.[7] Our study also reported good short-term IOP control with good AC formation, but unfortunately, there were signs of conjunctival thinning, adjacent to the implant in Case 1 and complete extrusion in Case 2. Nevertheless, despite signs of implant extrusion in Case 1 & extrusion of implant in Case 2, there were no signs of early or late-onset bleb leak and the conjunctiva was always intact throughout the post-operative period in both the cases. The possible reason for extrusion signs in Case 1 and extrusion of the implant in Case 2, could have been the thickness of the Gore-Tex implant used in this study, which was slightly higher than the ones reported in the literature.

This study highlights the fact that, the thickness of the Gore-Tex implant is very crucial in better stability and tolerability. In rabbit studies, 0.25 mm thickness implant was used and had fewer extrusions.[9] Similarly,

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in another two-year randomised control trial in humans, 0.1 mm thick E-PTFE (Gore-Tex) implant was used, with or without low-dosage of mitomycin-C as an adjuvant in penetrating glaucoma surgery, with good stability and tolerability.[7]Whereas, 0.5 mm thickness implant was used in this study, which could have contributed to the weaker stability, migration, and extrusion. That is why in both cases, despite possibly an intact conjunctiva without bleb leak post-operatively, the Gore-Tex implant migrated in Case 1 and dislodged in Case 2.

a) Further modifications and suggestions for better stability and tolerability of Gore-Tex implant

Gore-Tex implant can be placed by a technique (Figure 10) suggested by Cillino et al for better long term stability and follow-up, which is as follows; create two intra-scleral pockets with a bevel-up crescent knife, continue the scleral bed under the flap at its two vertical edges, with an extension of at least 0.5 mm and place the edges of the trimmed Gore-Tex into it.[7] Expanded e-PTFE membrane implant with multiple perforations are preferred compared to e-PTFE membrane implant without perforations, in view of augmenting fibrosis for better adhesion. [7,8]

IV. Conclusion

The advantages of using Gore-Tex implants are; it is safe and effective in creating a tamponade effect, in managing the over-filtration due to trabeculectomy flap-related complications. It can be considered as an alternative to scleral patch grafts, especially during COVID-19 times, when donor scleras may be unavailable, during the lockdown in certain areas. But in no way Gore-Tex can replace or substitute a scleral patch graft. We also suggest special modifications such as smaller thickness (< 0.25 mm) implants with multiple perforations in them, for better stability and tolerability. However, the long-term benefit of e-PTFE in managing these complications should be answered with larger randomised multi-centric clinical trials in a case-control format, with a longer follow-up period, with more number of cases.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published, and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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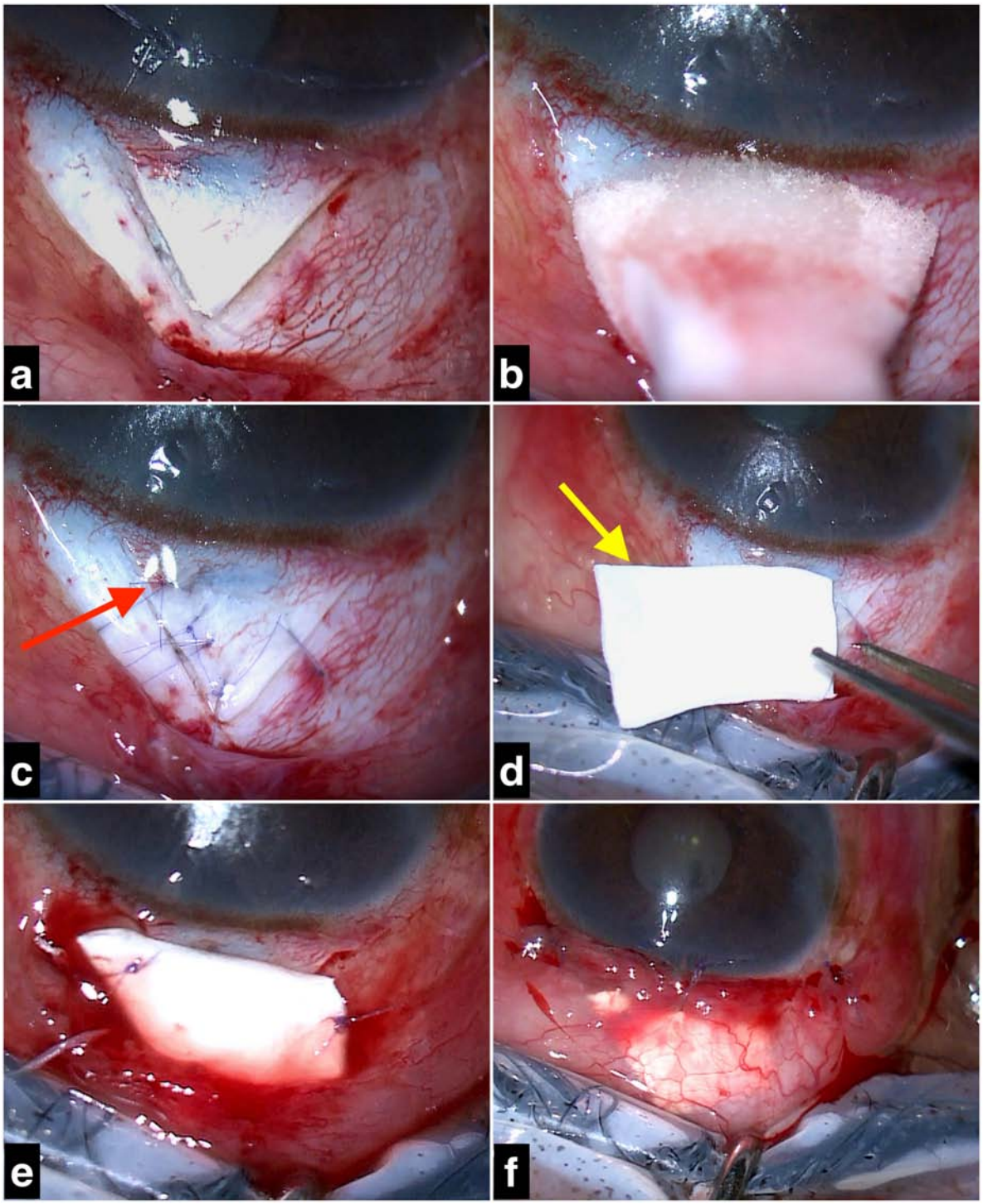


Figure 1: (a) Image showing a well-constructed triangular trabeculectomy flap of adequate thickness. (b&c) Consecutive images reveal immediate leakage of fluid through the suture tract (red arrow) after Weck-cel sponging, despite efforts made in repairing the leak with multiple sutures. (d) Image showing expanded polytetrafluoroethylene (e-PTFE) Gore-Tex (yellow arrow) material used as patch graft. (e) Image showing Gore-Tex anchored to the sclera over the leakage site. (f) Image showing conjunctival closure over the Gore-Tex area.

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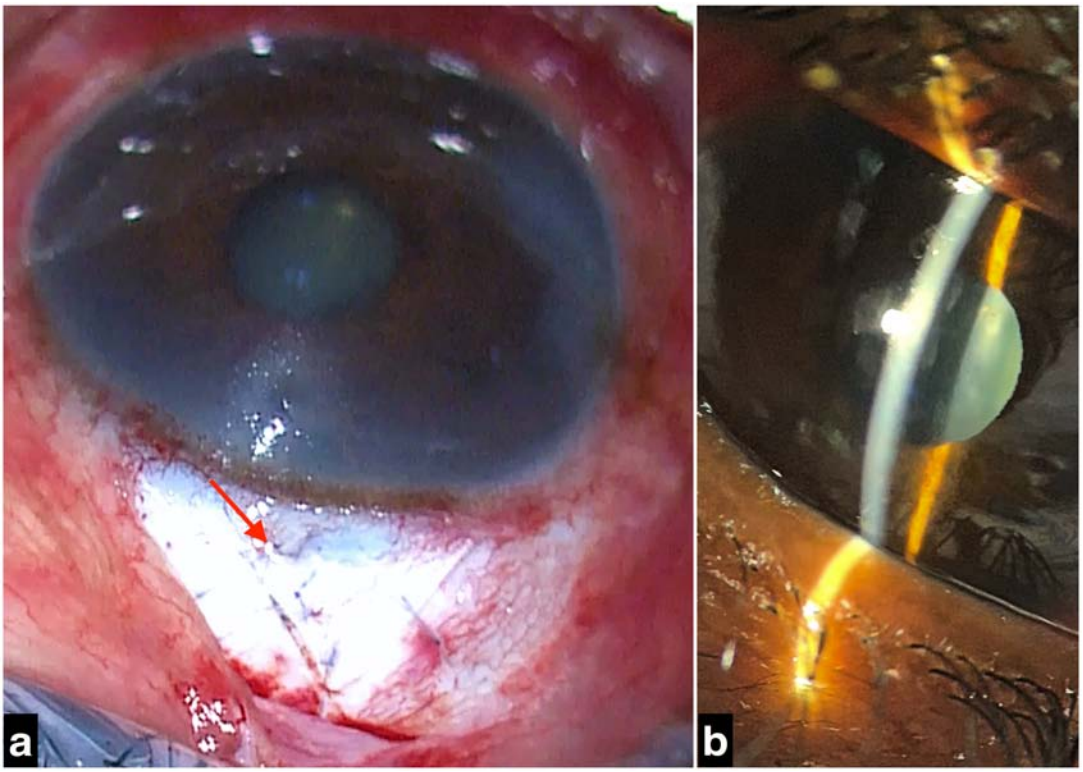


Figure 2: (a) Image showing intra-operative shallowing of the anterior chamber (AC) due to leak from the suture tract in the triangular flap area (red arrow) despite efforts made in repairing the leak with multiple sutures. (b) Slit-lamp photograph of 1st post-operative day revealing a well-formed AC following Gore-Tex implantation.

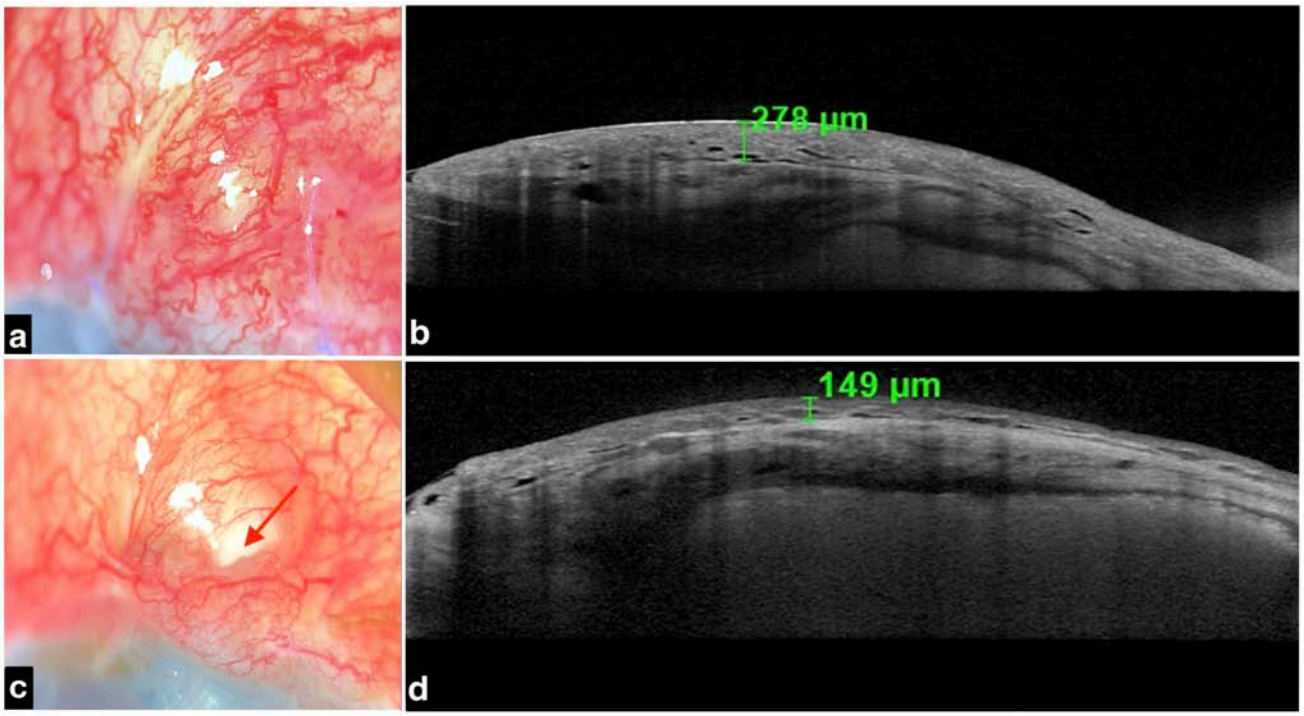


Figure 3: (a) Slit-lamp photograph of bleb overlying the Gore-Tex implant showing the stable Gore-Tex implant, sub-conjunctivally at one-month follow-up period. (b) Anterior segment-optical coherence tomography (AS-OCT) of the same bleb showing conjunctiva thickness covering the Gore-Tex patch to be 278 microns at one-month post-operative period. (c) Slit-lamp photograph of the same section of the bleb showing thinning of conjunctiva over the Gore-Tex implant (red arrow) at three-month follow-up. (d) AS-OCT of the same bleb revealing thinning of conjunctiva covering the Gore-Tex implant with thickness of 149 microns at the three-month follow-up period.

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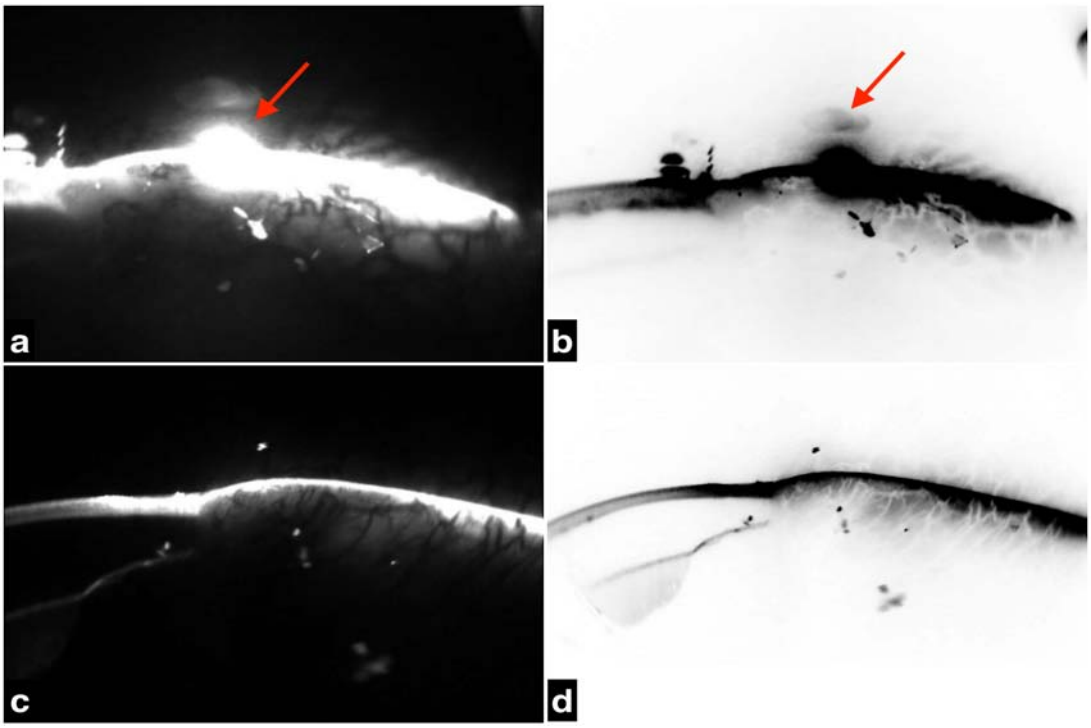


Figure 4: (a&b) Scheimpflug imaging of the bleb showing increased optical blooming (red arrows) in normal & inverse colour respectively at one-month post-operative period. (c&d) Scheimpflug imaging of the same section of the bleb showing reduced optical blooming, depicting signs of implant extrusion in normal & inverse colour respectively, at the three-month follow-up period.

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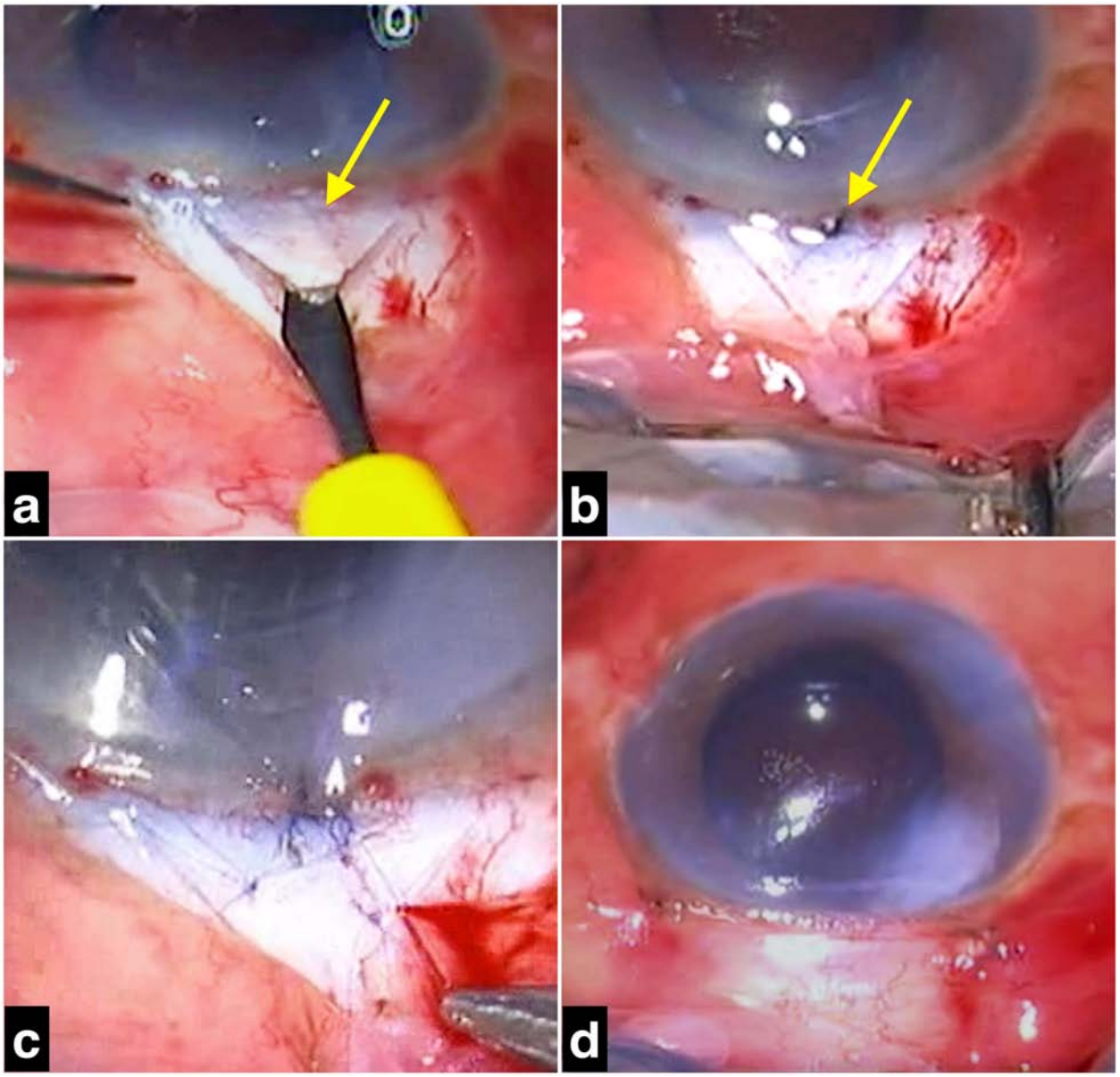


Figure 5: (a) Primary surgery revealing the AC entry step with 15° side port blade (yellow arrow). (b) Full-thickness scleral flap tear (yellow arrow) near the limbus caused by the paracentesis blade, due to the patient's sudden jerky head movement. (c) Closure of the flap tear with sutures at the limbal site. (d) End of the surgery showing a formed intra-operative AC.

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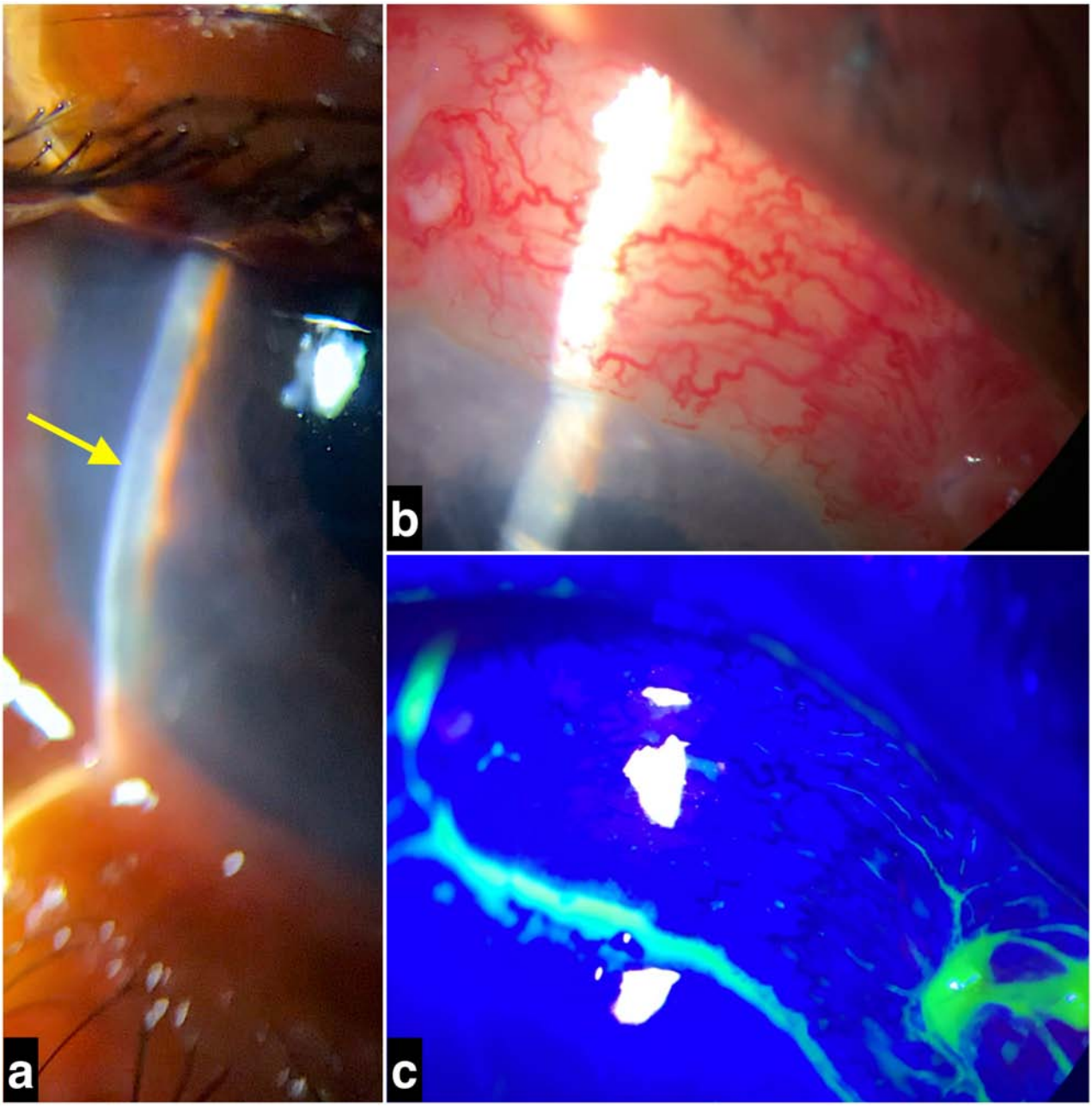


Figure 6: (a) Slit-lamp examination revealing flat AC (yellow arrow) at the 5th post-operative day, which never recovered from day one post-surgery despite conservative management. (b) Slit-lamp examination showing over-filtering large bleb with no leak. (c) Slit-lamp examination confirming the absence of bleb leak with negative Seidel test on fluorescein staining.

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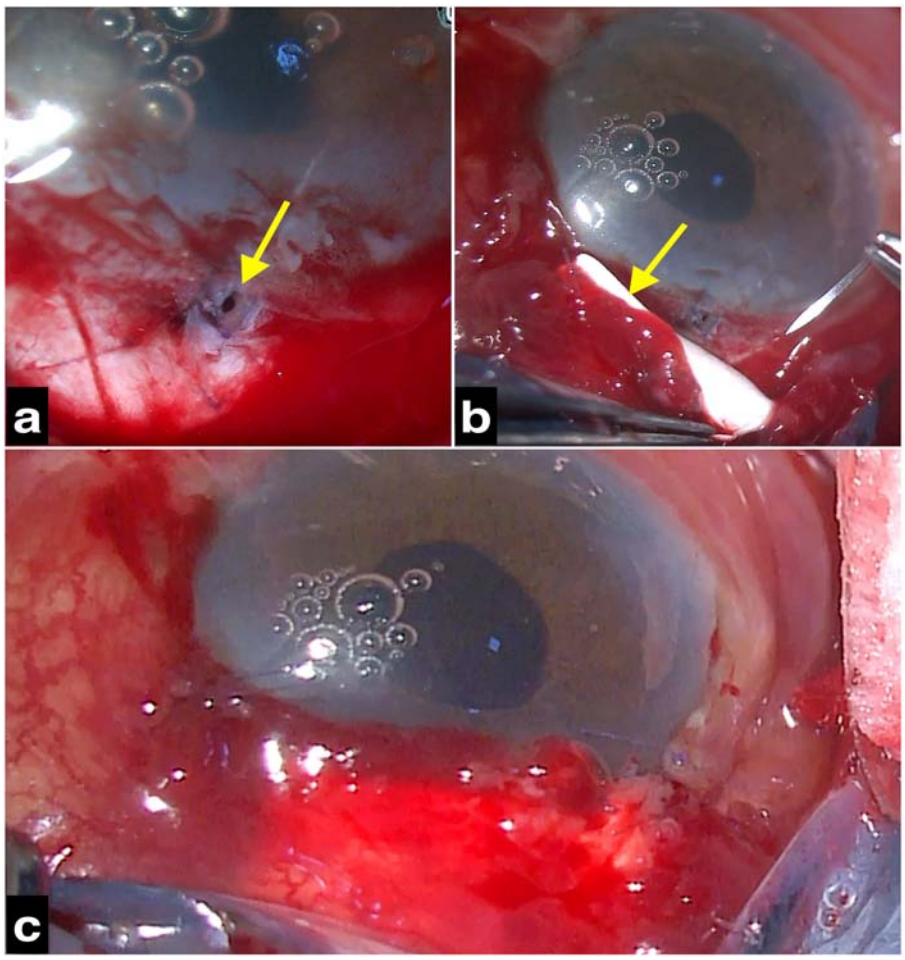


Figure 7: Re-surgery at day 5. (a) Intra-operative image showing the gaping flap tear (yellow arrow) between the AC and sub-conjunctival space at the site of limbus, which occurred due to the patient's jerky head movement, during the step of entry into the AC with the paracentesis blade. (b) Gore-Tex implant sutured over the flap tear by anchoring it to the underlying sclera. (c) End of surgery image revealing a well-formed AC.

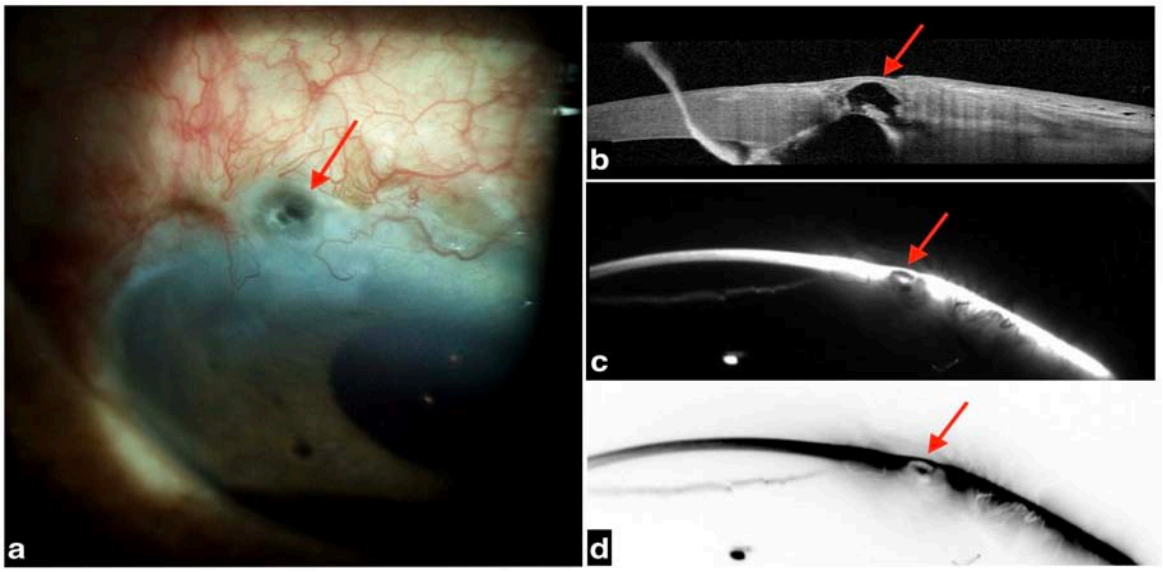


Figure 8: (a) Slit-lamp photograph at 1-month post-operative follow-up showing extrusion of Gore-Tex with a fistula between the AC & sub-conjunctival space (red arrow), without any bleb leak and a well-formed AC. (b) AS-OCT showing similar communication between the AC & sub-conjunctival space with the thin layer of conjunctival covering over it (red arrow). (c &d) Scheimpflug image revealing the same communication (red arrows).

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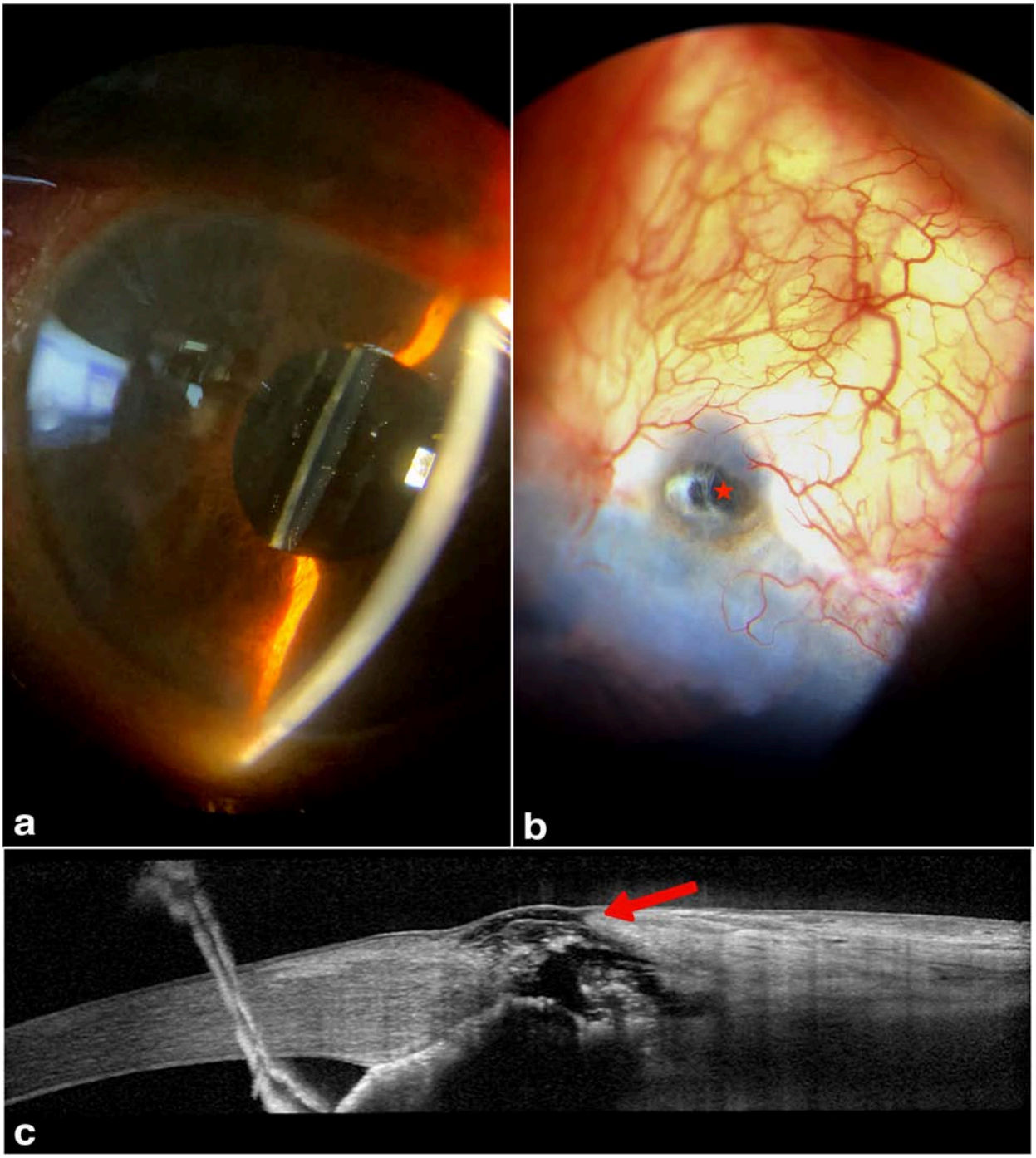


Figure 9: (a) Slit-lamp photograph at 6-month post-operative follow-up showing a well-formed AC with (b) cicatrisation (red asterisk) of the fistulous tract. (c) AS-OCT confirms the cicatrisation of the fistula (red arrow)

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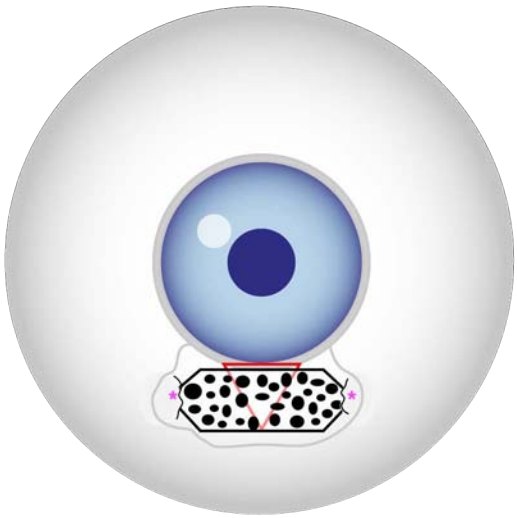


Figure 10: Placing a perforated Gore-Tex implant by creating two intra-scleral pockets (pink asterisk), with an extension of at least 0.5 mm, followed by tucking the edges of the trimmed Gore-Tex into it, for better stability and tolerability.

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Behavior of the Incidence of COVID-19 and Vaccination against SARS-Cov-2 in Colombia

By Jorge Enrique Díaz-Pinzón

Abstract- *Introduction:* SARS (severe acute respiratory syndrome) is the severe stage of COVID-19 caused by massive alveolar damage and progressive respiratory failure; caused by SARS-CoV-2 (SARS coronavirus 2).

Objective: To show the behavior of the incidence of COVID-19 and vaccination against SARS-COV-2, between the period between February 17 and September 30, 2021.

Methodology: This research was carried out under a cross-sectional study, as a source of information, it was obtained from the national vaccination plan against COVID-19 from the website of the Ministry of Health and Social Protection.

Results: An increase in incidence was evidenced over time, the number of vaccines also increased, until June 2021. From July 2021 to September 2021, there was a decrease in the incidence of SARS- CoV-2, as well as the decrease in the application of the number of vaccines.

Conclusion: There is a demand for more studies predestined to evaluate the efficacy of vaccination in reducing the transmission of SARS-CoV-2 in Colombia, both at the individual level and at the population level, with a greater longitudinal tracing and in additional populations.

Keywords: *incidence, COVID-19, SARS-CoV-2, pandemic, vaccines.*

GJMR-F Classification: *NLMC Code: WA 115*



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I. Introduction

SARS (severe acute respiratory syndrome) is the severe stage of COVID-19 caused by massive alveolar damage and progressive respiratory failure; caused by SARS-CoV-2 (SARS coronavirus 2)[1].

SARS-CoV-2 belongs to the family Coronaviridae, subfamily Orthocoronaviridae. It is a single-stranded RNA virus, whose genome is around 27-32 kb, which encodes non-structural proteins, such as proteases, helicases, and RNA polymerases: and structural proteins[2,3]

COVID-19 can be divided into three phases: asymptomatic with or without detectable virus; non-severe symptomatic with the presence of virus and severe respiratory symptomatic with high viral load[4]. An unresolved question is why some develop serious illness and others do not. Aspects based on the immune response are not enough to explain it, but they will help to understand the behavior of this new pathogen[5].

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The rapid obligation of vaccines against COVID-19 has forced the use of proteomics to search for exclusive antigens of the pathogen in protein S. Thanks to bioinformatics, 933 pentapeptides absent in the human proteome have been recognized, of which 107 peptides are located around protein S and of these 66 peptides are more immunogenic and can be used in the production of a vaccine[6]. The WHO has up to 52 alternative vaccine candidates between platforms based on proteins, RNA, DNA, non-vectors. replicants, replicating vectors, inactivated viruses, attenuated viruses, and virus-like particles. Of all these vaccine inserts, only vaccines made up of RNA and non-replicating vector have initiated safety studies in humans[7,8.]

To achieve a continued reduction in infection cases[9] multiple countermeasures are needed, including distancing, testing, and tracing, especially considering the recent emergence of new variants of SARS-CoV-2[10], such as B.1.1.7 and B.1.351, which are reported to have higher transmissibility[11,12] and are likely to cause more severe disease[13] compared to the parent strain. Vaccination alone is not expected to counteract the spread of infection, and a carefully planned vaccination campaign needs to be regulated[14,15]

The objective of this research is to show the behavior of the incidence of COVID-19 and vaccination against SARS-COV-2, between the period between February 17 to September 30, 2021.

II. Methodology

This research was carried out under a cross-sectional study[16-18], the information was obtained from the website of the Ministry of Health and Social Protection[19] of the daily reports of contagion by COVID-19, between the period between January 1, 2021, and September 30, 2021, to calculate the incidence, and from February 17 to September 30, 2021, for vaccination.

III. Results

Table 1 shows the months between January and September 2021, the new cases of infection by SARS-CoV-2, the vaccines, and the population in Colombia. With the information in columns 2 and 3, the incidence rate was calculated in percentage terms for COVID-19.

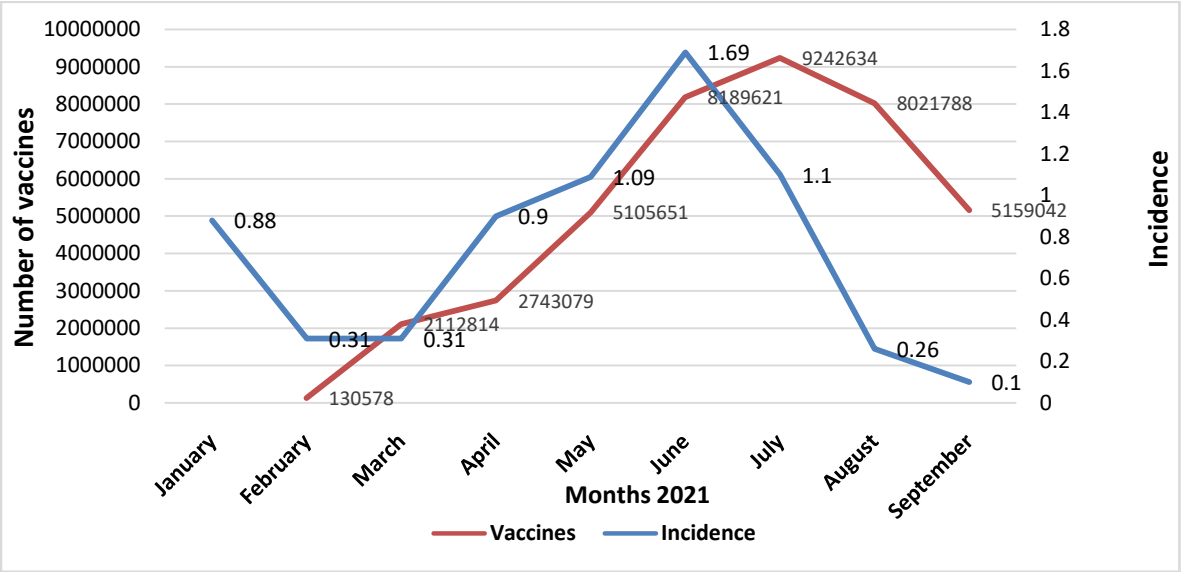
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Table 1: Incidence and Vaccination against SARS-CoV-2

Months	New cases	Population	Incidence	Vaccines
January	451609	51049498	0,88	
February	156856	50597889	0,31	130578
March	154687	50441033	0,31	2112814
April	453347	50286346	0,9	2743079
May	543805	49832999	1,09	5105651
June	834526	49289194	1,69	8189621
July	533290	48454668	1,1	9242634
August	123766	47921378	0,26	8021788
September	48191	47797612	0,10	5159042

Source: the autor

Figure 1 shows the incidence by months for SARS-CoV-2, between the months of January to September 2021 and the vaccination against COVID-19, between the months of February to September 2021. It describes a similarity in the trend of the incidence lines (blue), and vaccination (orange), that is, while the incidence increases over time, the number of vaccines also increases, this trend is maintained until June. From the month of July to September there is a decrease in the incidence of SARS-CoV-2, as well as the decrease in the application of the number of vaccines.



Source: the author

Figure 1: Vaccination and incidence.

IV. Conclusions

From the data analyzed, it is concluded that the incidence of COVID-19 is related to vaccination until June 2021 against SARS-COV-2, that is, as vaccination values increase, Incidence cases due to COVID-19 also increase and a contrary situation from July to September, that is, as vaccination values decrease, incidence cases due to COVID-19 also decrease.

There is a demand for more studies predestined to evaluate the efficacy of vaccination in reducing the transmission of SARS-CoV-2 in Colombia, both at the individual level and at the population level, with greater longitudinal screening and in additional populations[20].

Monitoring the results of vaccinations is essential to understand efficacy, possible decline in immune response over time, and possible adverse effects. Monitoring the effects of these vaccines is possible and much needed. The publication of these data, duly verified, is a priority. For this, it would be very important to follow the vaccinated and check if they suffer from COVID-19 infections, and sequence where appropriate.

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Research Group on Sudden Death (GIMUS) of Cuba Sudden Cardiovascular Death: A Global Challenge

By Luis Alberto Ochoa Montes, Daisy Ferrer Marrero, Mileidys González Lugo, Nidia Doris Tamayo Vicente & Rafael Emilio Araujo González

Summary- *Introduction:* Sudden cardiovascular death (SCD) constitutes the main challenge for Cardiology in this century. One out of every two cardiovascular deaths is due to this universal health problem.

Objective: To present scientific evidence that justifies this global challenge, and to mention the research results of the Research Group on Sudden Death (GIMUS) of Cuba. Material and method: Research results of the SUCADES study carried out in Cuba (1995-2020) are presented, applying the research protocol contained in the Cuban Guide for SCD research works.

Results: The GIMUS has developed in a period of 25 years' scientific research with the application of a diagnostic algorithm and the use of a Primary Data Collection Model to 33 718 natural deaths, documenting 2 252 sudden deaths, representing 6.6% of global mortality recorded.

Keywords: *sudden cardiovascular death, incidence, challenge, research, Cuba.*

GJMR-F Classification: *NLMC Code: WG 120*

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Conclusions: The global challenge that SCD represents is justified by its high incidence, its impact on the economic, health and social systems of the countries and the drama in its presentation. It is necessary to achieve a comprehensive vision in the confrontation with this universal health problem, assuming the main actions from interdisciplinarity to achieve results that allow its reduction.

Keywords: sudden cardiovascular death, incidence, challenge, research, Cuba.

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I. Introduction

Cardiovascular diseases are currently the most common cause of premature death and disability in the world. Of an estimated 56.4 million deaths that occurred in 2016, according to a report published by the World Health Organization (WHO), 31.3% (17.9 million) corresponded to deaths from diseases of the heart and blood vessels. In the region of the Americas, 6.8 million deceased; 1.5 million corresponded to this group of diseases. Future projections indicate that this disease will continue to be the leading cause of death in industrialized countries and will become the third in those that are currently developing. [(1)] One in two of these deaths is due to one of manifestations of greatest impact and significance within ischemic heart disease: sudden cardiovascular death (SCD). [(2)] Some authors, among whom we include ourselves, consider this health problem as one of the main challenges for the Cardiology in the present century. [(2-4)]

SCD is defined as a natural death due to cardiac causes, announced by sudden loss of consciousness, which occurs within one hour, after the onset of acute symptoms, in an individual with a pre-existing heart disease, known or not by the patient, but the time and manner of death are unexpected.

In the case of not being witnessed (occurs in two thirds of the cases) it is considered sudden if the victim was seen alive 24 hours prior to the event and in cases in which life is maintained thanks to the use of mechanical devices, it is considered the time of death as the time to put the patient under these artificial supports. [(3)]

II. World Epidemiology

Based on an epidemiological analysis of sudden cardiovascular mortality carried out in the United States [(5)] and based on current data on the world population, we estimate a worldwide sudden mortality from cardiac causes of 4.4 to 5.6 million annually of deaths, which represents 15,342 deaths per day and 10 per minute.

Between 400-500,000 SCDs occur annually in the United States. [(6)] A study carried out between the

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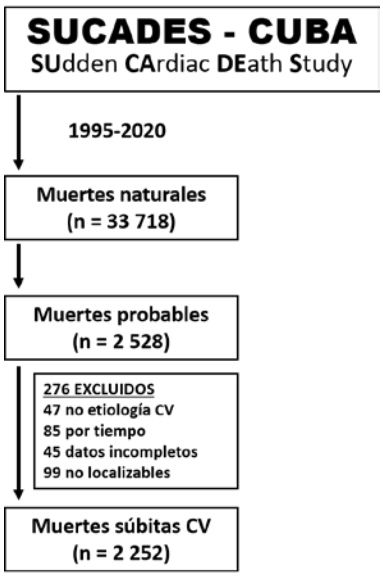
years 2005 to 2015 in that country; showed an incidence of 110.8 per 100,000 [7], data much higher than that reported by Chugh SS and collaborators in a prospective investigation during the years 2002-2003 in population groups in Oregon, where the incidence was 53 per 100,000 inhabitants. [8]

Incidence reports in Australia and New Zealand are 99.4 per 100,000 inhabitants. [9] An SCD study in 27 European countries reported rates of 84 per 100,000 population. [10]

Other nations such as South Korea [11] and Japan [12] show a low incidence range with records of 20.1 per 100,000 inhabitants and 14.9 per 100,000 inhabitants respectively.

III. Epidemiology in Cuba

In 2019, 25,864 deaths from cardiovascular diseases were registered in Cuba, for a rate of 228.2 per 100, 000 inhabitants, of which ischemic heart diseases (IHD) represent 62.9%, with a mortality rate of 144.5 per 100,000 inhabitants. Within this group, IHD is the most prevalent, and responsible for one of every four deaths that take place; representing approximately 80% of the total number of deaths from heart disease in both sexes. Based on the research work carried out in the last 25 years by the Sudden Death Research Group (GIMUS) of Cuba (Figure 1) and the information published by the statistical yearbook of the Ministry of Public Health (MINSAP), we estimate for the In 2019, the occurrence of 8,021 sudden events, meaning 22 daily deaths and 1 episode every 65 min, with an incidence of 71.6 x 100, 000 inhabitants, representing 7.8% of the natural deaths that occurred in that year. [13]



Source: Archives – GIMUS

Figure 1: Cuban Study of Sudden Cardiovascular Death (1995-2020)

In 25 years of research, the GIMUS of Cuba has conducted population studies, studying 33,718 natural deaths, violent deaths were excluded because they were not considered in this condition.

The research diagnostic algorithm was applied and based on the diagnostic criteria for SCD [3]

Major criterion

- Unexpected nature of death: It can affect individuals with known or unknown pre-existing heart disease, but it occurs abruptly, unexpectedly.

Minor criteria

- Natural death: biological death, except for violent or traumatic causes.
- Fast: it occurs in a short period of time instantly or in a short period of time (minutes, hours). This is the most controversial pillar when trying to define the phenomenon.

2 528 deaths were included as "probable" SCD, which underwent a clinical or legal autopsy and an interview with family members and treating physicians in order to obtain data for the investigation.

With the results of this new stage in the case study, 276 cases were excluded for different reasons (no cardiovascular etiology, no time criteria for SCD, incomplete data in the medical and family records, and unreachable healthcare personnel).

At the conclusion of the research protocol applied according to the Cuban Guide for SCD research work, [14] 2 252 deaths were "confirmed" under this condition, representing 6.7% of the natural deaths studied.

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IV. Sudden Cardiovascular Death: A Global Challenge

SCD in the opinion of many researchers, [2-5] constitutes the main challenge for Cardiology in this century, and an important challenge for health systems worldwide, as well as a pending issue for physicians who participate in the care for patients with cardiac arrest and cardiovascular diseases.

The above statement is justified by its high incidence, its impact on the economical and social systems of the countries, as it constitutes the third cause of years of life potentially lost, only surpassed by non-sudden cardiovascular deaths and cancer, causing serious losses in the family, economic and social sphere, in the face of the unexpected death of an "apparently healthy" individual, on many occasions prematurely, at young ages, which gives the episode a dramatic character. [2]

Particular aspects of this entity, and others related to the health systems of the countries, make this entity an universal challenge and explain the variations in the reports on its incidence in the different nations.

Among these aspects, and in the opinion of the authors of this article, are:

Records of the Incidence of Coronary Disease in the Nations

The reports on the incidence and prevalence of coronary artery disease in the countries show different values. Coronary disease constitutes up to 80% of the etiology of SCD. [2,3,5]

Operational Definition used in Individual Studies

There is no universally accepted operational definition among the disciplines that study the phenomenon for use in individual studies, which makes it difficult to compare the findings. [2,15,16]

Conditions of Occurrence

Given its unexpected and sudden nature, the episode occurs more frequently in the place where the victim lives and develops their activities, for which the rhythm when the episode occurs is unknown in more than 50% of cases, with a short period of time (instants, minutes) between the onset of symptoms and diagnosis. [2,3,15]

Presential Witnesses at the Event

In a third of sudden events, there are no eyewitnesses to provide information about the circumstances in which the episode occurs. The short duration of the premonitory symptoms, generally expressed by sudden loss of consciousness, together with the absence of witnesses, makes diagnosis difficult. [2,3,5]

Official Records of Sudden Cardiac Death in the Countries

Despite being included in the International Statistical Classification of Diseases and Health-related Problems, [17] under the codes (I.46.1), R (95), R 96 (RR 96.0, 96.1), in not all countries there are official records for the SCD, which means that the studies are carried out taking as a reference the casuistry of the emergency services, rejecting the cases of SCD not witnessed. [15,18,19]

Data Records in SCD Epidemiological Studies

The plausibility in the registration of information in epidemiological studies on this problem is questionable, considering, as a source of obtaining the information, the medical death certificate.

Much of the current data on the incidence of SCD continues to come from retrospective studies consisting of reviews of medical records and medical death certificates, [16] which are inaccurate in defining the cause of death (50% accuracy) [20] and considerably overestimate the incidence of SD (200-300%). [16,18]

A very limited number of studies use autopsy data to catalog the cause of SCD. [16,19]

Scientific Performance and Medical Competence

The knowledge of this health problem "Sudden death" and the correct interpretation of the use of this term are decisive to know its magnitude. Despite being included in the International Classification of Diseases (ICD-10 edition) [17], not all doctors who face this problem on a daily basis correctly assume its mention as a cause of death in the medical death certificate, which encourages underreporting statistics in different countries and regions of the world.

Economic-Social Development of the Populations Analyzed

Both the behavior of the phenomenon and the quality in the collection of information on the event are related to the economic and social level of the geographical areas and nations where the studies are carried out. [21]

Interdisciplinarity in your Study

The approach to this important health problem worldwide, given its complexity and the diversity of population groups in which it occurs, goes beyond the field of study of any particular discipline, so joint efforts are needed, which from an integrative perspective, ensure better conditions to deal with this scourge. It is necessary to abandon erroneous positions that seek to frame the study of SCD in a particular discipline or specialty. Any effort in its study must take into account the multifactorial and multicausal nature of this phenomenon. That is why a consensus is required by the multiple biomedical specialties, among which are: Cardiology, Internal Medicine, Pathology, Legal Medicine, Neurology, Pulmonology, Pediatrics, Sports Medicine, Intensive Care and Emergencies, Medical

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Genetics, Toxicology, Public Health, Nursing, Health Statistics, as well as other non-medical disciplines such as: Psychology, Demography, Sociology, among others.[22]

V. Conclusions

The global challenge that the SCD represents is justified by its high incidence, its impact on the economic, health and social systems of the countries and the drama in its presentation. It is necessary to achieve a comprehensive vision in the confrontation with this universal health problem, assuming the main actions from interdisciplinarity to achieve results that allow its reduction.

Conflict of interests

The authors declare not to have any interest conflicts.

Authors' contribution

Luis Alberto Ochoa Montes: conceptualization, data curation, research, methodology, project management, supervision, validation, visualization, writing of the original draft.

Daisy Ferrer Marrero: data curation, formal analysis, research, validation, visualization, writing of the original draft.

Mileidys González Lugo: data curation, research, resources, validation, writing (review and edition).

Nidia Doris Tamayo Vicente: data curation, research, writing (review and editing).

Rafael Emilio Araujo González: data curation, research, resources.

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The Risk Factors for Development of Emergency Conditions in Tender-Age Infants in Acute Intestinal Infections of Different Etiologies

By Z.M. Kuliyeva, L.I. Rustamova, M.N. Mammadova, I.B. Israfilbekova & T.I. Ibadova

Abstract- Among the leading risk factors for the development of emergency conditions in acute intestinal infections, especially in infants, some authors point to rickets, anemia, and abnormal antenatal pathology.

The aim is to determine the frequency of occurrence of various risk factors for the development of emergency situations in tender-age infants.

Materials and methods: 338 tender-age infants with urgent conditions were under observation. The study involved clinical-anamnestic, bacteriological, and serological methods.

The aggravating factors were as follows: diseases of parents in 16 (6.2%), related marriages - 20 (7.7%) pregnancy pathology-137 (52.9%), prematurity-16 (6.2%), artificial feeding - 127 (49.0%), early diseases (acute respiratory viral infections, pneumonia, encephalopathy, intestinal infections).

Results: According to the results of the study, the central nervous system damage was most often observed in children from 1 month to 6 months (80.2%), anemia was more detected in children of 1-3 years - 56.4%, rickets was more diagnosed in children aged 6-12 months -38.2%.

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THERISKFACTORSFORDEVELOPMENTOFEMERGENCYCONDITIONSINTENDERAGEINFANTSINACUTEINTESTINALINFECTIONSOFDIFFERENTETIOLOGIES

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The Risk Factors for Development of Emergency Conditions in Tender-Age Infants in Acute Intestinal Infections of Different Etiologies

ФАКТОРЫ РИСКА РАЗВИТИЯ НЕОТЛОЖНЫХ СОСТОЯНИЙ У ДЕТЕЙ РАННЕГО ВОЗРАСТА ПРИ ОСТРЫХ КИШЕЧНЫХ ИНФЕКЦИЯХ РАЗЛИЧНОЙ ЭТИОЛОГИИ

Z.M. Kuliyeva [α], L.I. Rustamova [σ], M.N. Mammadova [ρ], I.B. Israfilbekova [ω] & T.I. Ibadova [¥]

Abstract- Among the leading risk factors for the development of emergency conditions in acute intestinal infections, especially in infants, some authors point to rickets, anemia, and abnormal antenatal pathology.

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The second place in the frequency of diseases of the premorbid background was occupied by anemia with artificial feeding (45.2%), less with mixed feeding (41.7%) and much less often with breastfeeding (13.0). The highest incidence of rickets was observed with mixed feeding in 44.0%, the lowest with artificial – 41.05%, and less often with breastfeeding - in 14.5% of children.

It is known that breastfeeding reduces the incidence of acute intestinal infections in tender-age infants. This is proved by the fact that in children of the first 3 months the incidence of acute intestinal infections is much less frequent compared to children who are on artificial feeding.

Conclusions: It is found that the risk factors for the development of emergency conditions in tender-age infants with acute intestinal infections exacerbate physiological immunodeficiency, and severe rickets, a violation of vitamin Dmetabolism in intestinal infections of bacterial and bacterial-viral etiology leads to emergency conditions in tender-age infants.

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Вступление

Среди ведущих факторов риска развития неотложных состояний при острых кишечных инфекциях (ОКИ), особенно у детей грудного возраста, некоторые авторы указывают на рахит, анемию, нарушение питания и антенатальную патологию.

Несомненно, выраженная гипотрофия, анемия сопровождаются снижением иммунитета и более тяжелым течением бактериальной кишечной инфекции, которая является основной причиной смертности детей [3,4,11,12].

При этом, изучение статистическими методами роли преморбидных факторов в развитии неотложных состояний при ОКИ оказались малоинформативными и не раскрывают сущность поставленной задачи. Но судить о повышенной восприимчивости этих детей к инфекции на основании статистических данных трудно, так как эти дети находятся под влиянием и других неблагоприятных факторов [1,2,5,9].

Однако, в настоящее время влияние биологических факторов значительно уступает социально-культурным, таким, как многодетность, неполная семья, диссоциальное поведение родителей и т. д. Учитывая, что в литературе имеются скудные данные о влиянии преморбидных факторов на развитие неотложных состояний при ОКИ у детей[6-8,10] перед нами была поставлена задача наиболее полное определение роли этих факторов в указанной патологии в зависимости от возраста детей, характера вскармливания и этиологии.

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I. Материалы и Методы Исследования

Из 338 наблюдаемых нами детей при ОКИ с неотложными состояниями неблагоприятный преморбидный фон выявлен у 76,6 %: поражение центральной нервной системы - у 86,5%, анемия -у 56,4%, рахит- у 45,5%, гипотрофия - у 36,6%, аллергический диатез- у 8,5% и токсико-дистрофическое состояние (ТДС) - 5,8%. При этом отягощающими факторами были: болезни родителей - у 6,1%, родственные браки – 7,7%, патология беременности – 52,9% и родов – 23,9%, недоношенность – 6,2%, раннее искусственное вскармливание – 49,0% и смешанное - у 40,9% и ранее перенесенные болезни –58,3% (острые респираторные вирусные инфекции, пневмония, энцефалопатия+ кишечные инфекции и др).

В зависимости от возраста больные дети были разделены на 3 группы: до 6 мес., 7-12 мес., 1-3 года. При этом изучалась частота встречаемости преморбидного фона в зависимости от возраста, что представлена в таблице 1.

Таблица 1: Частота заболеваний преморбидного фона в зависимости от возраста детей с неотложными состояниями

Факторы преморбидного фона	Возраст детей			Степень зависимости от возраста
	0-6 мес. n=101	7-12 мес n=110	1-3 года n=127	
Поражение ЦНС	80,2%	70,9%	51,2%	$x^2=22.8$, $p<0.001$
Анемия	37,6%	41,8%	48,8%	$x^2=3$, $p>0.05$
Рахит	34,7%	51,8%	20,5%	$x^2=25.5$, $p<0.001$
Гипотрофия	36,6%	38,2%	12,6%	$x^2=24.3$, $p<0.001$
Аллергический диатез	6,9%	8,2%	4,7%	$x^2=1.2$, $p>0.05$
ТДС	3,0%	6,4%	3,9%	$x^2=1.6$, $p>0.05$

Из приведенной таблицы 1 видно, что из общего количества 338 больных наиболее часто наблюдалось поражение ЦНС - в 80,2% случаях в до 6 мес., несколько меньше в возрасте 6-12 мес - 70,9% и 1-3 года - 51,2% среди них энцефалопатия-у 17 (7,6%), гипоксическая - у 25,4%, перинатальная - у 34,3%, токсическая - у 21,9%. Следует отметить, что поражение ЦНС у 24 детей было в сочетанном виде: энцефалопатия перинатальная+гипоксическая, энцефалопатия гипоксическая+токсическая и др. Второе же место по частоте заболеваний преморбидного фона занимала анемия - в 43,2% случаях (0-6 мес. – 37,6%, 7-12 мес. – 41,8%,1-3 года-56,4%). Рахит диагностирован у 34,9% (0-6 мес. – 34,65%, 7-12 мес. – 38,18%, 1-3 года – 20,7%), гипотрофия - у 28,10% (0-6 мес. – 36,6%, 6-12 мес. – 38,2%, 1-3 года – 14,5%). Значительно реже встречалось ТДС - у 5,8% и аллергический диатез - у 6,6% больных.

Нами выявлено ТДС у больных с ОКИ находящихся в реанимационном отделении, в то время как некоторые авторы указывают на диапазон встречаемости ТДС при данной патологии от 4% до 30%. Несмотря на то, что ТДС у больных при ОКИ с неотложными состояниями встречалось редко, но оказывало значительное влияние на тяжесть, течение болезни и на исход. Из 14 больных на фоне проведенной соответствующей терапии 11 с улучшением переведены в отделение для дальнейшего лечения.1 больной с улучшением выписался домой на дальнейшее амбулаторное лечение под наблюдением участкового врача, 2 больных соответственно в крайне тяжелом и очень тяжелом состоянии продолжали лечение в реанимационном отделении.

Клинически у них отмечалась адинамия, мышечная гипотония, сухость и бледность кожных покровов, нарушение терморегуляции, отсутствие аппетита, увеличение печени, продолжительный диарейный синдром, которые повлияли на прогрессирование гипотрофии и нарастанию интоксикации, изменение со стороны периферической крови в виде гипохромной анемии, лейкоцитоз, увеличение скорости оседания эритроцитов (СОЭ). При изучении биохимических показателей крови выявились изменения со стороны протеинограммы, а именно снижение количества общего белка, диспротеинемии и снижение уровня калия и натрия в сыворотке.

Развитие токсико-дистрофического состояния значительно утяжаляло состояние больных. Этиологической причиной токсико-дистрофического состояния у наших больных были сочетанные бактериальные инфекции, при которых диссеминированность процесса способствовала постепенному вовлечению различных органов и систем. В основе патогенеза его развития лежит острая белково-энергетическая недостаточность, а катаболизм белков

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приводит к резкому снижению секреции пищеварительных ферментов. Накапливающиеся нерасщепленные пищевые продукты, повышая осмотическую концентрацию кишечного содержимого усиливают перистальтику.

Наряду с вышеуказанными факторами на развитие неотложных состояний у детей раннего возраста при ОКИ также оказывали влияние болезни родителей, родственные браки, порядковый номер беременности и родов, течение беременности первой и второй половины, течение родов, доношенность ребенка, характер вскармливания, перенесенные заболевания.

Вышеизложенные данные наглядно представлены в таблице 2.

Таблица 2: Факторы, способствующие развитию неотложных состояний при ОКИ различной этиологии

Факторы	**Острые кишечные инфекции**					
	Бактериальная (n=110)		**Вирусная (n=47)**		**Бактериально-вирусная (n=119)**	
	абс.	**%**	**абс.**	**%**	**абс.**	**%**
Болезни родителей	6	5,5	3	6,4	7	5,8
Родственные браки	8	7,3	2	4,3	10	8,4
№ беременности:						
Первая	41	37,3	21	44,7	43	36,1
Вторая и более	69		26		76	
№ родов:						
Первые	43	39,1	20	42,6	41	34,5
Вторые и более	62	56,3	22	46,8	71	59,6
Течение I половины беременности:						
Токсикоз	31	28,2	20	42,6	24	20,2
Внутриутробная инфекция	1	0,9	1	2,1	5	4,2
Угроза прерывания беременности	2	1,8	-	-	2	1,7
Другие	5	4,5	2	4,3	1	0,8
Всего	39	35,5	23	48,9	32	26,9
Течение II половины беременности:						
Токсикоз	14	12,7	5	10,6	13	10,9
Внутриутробная инфекция	2	1,8	-	-	1	0,8
Угроза прерывания беременности	-	-	-	-	-	--
Другие	2	1,8	5	10,6	1	0,8
Всего	18	16,4	10	21,3	15	12,6
Роды:						
Физиологические	87	79,1	37	78,7	90	75,6
Патологические	23	20,9	10	21,3	29	24,4

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Продолжение таблицы .2.

Факторы	Острые кишечные инфекции					
	Бактериальная (n=110)		Вирусная (n=47)		Бактериально-вирусная (n=119)	
	абс.	%	абс.	%	абс.	%
Перенесенные заболевания:						
Асфиксия	17	15,5	2	4,3	17	14,3
энцефалопатия	7	6,4	7	14,9	4	3,4
Кишечная инфекция	12	10,9	1	2,1	11	9,2
Асфиксия+энцефалопатия	8	7,3	4	8,5	10	8,4
Асфиксия+кишечная инфекция	3	2,7	1	2,1	4	3,4
Другие	16	14,5	8	17,0	19	15,9
Рахит						
I степени	7	6,3	1	2,1	12	10,1
II степени	34	30,9	10	21,3	35	29,4
Остаточные явления	6	5,5	4	8,5	9	7,6
Гипотрофия						
I Степени	8	7,3	10	21,3	9	7,6
II Степени	14	12,7	5	10,6	25	21
III Степени	13	11,8	2	4,3	9	7,6
ТДС	8	7,5	2	4,3	5	4,2
Поражение ЦНС:						
Энцефалопатия	9	8,2	3	6,4	5	4,2
Гипоксическая	27	24,5	12	25,5	25	21
Перинатальная	35	31,8	15	31,9	37	31,1
Токсическая	23	20,9	9	19,1	24	20,7
Анемия	64	58,8	25	53,9	57	47,9
Аллергический диатез	7	6,4	6	12,8	9	7,6
Грудное вскармливание	18	16,4	6	12,8	19	16
Искусственное вскармливание	51	46,4	22	46,8	54	45,4
Смешанное вскармливание	41	37	19	40,4	46	38,7

Как видно из таблицы 2, из отягощающих факторов на развитие неотложных состояний при ОКИ у детей раннего возраста оказало влияние порядковый номер беременностей (2 и более) и родов (2 и более), наличие токсикоза 1-ой половины беременности, перенесенные заболевания (асфиксия новорожденных, асфиксия+энцефалопатия и др.), которые являлись превалирующими при бактериальных и бактериально-вирусных кишечных инфекциях, а остальным факторам отводилась меньшая роль при них. При ОКИ бактериальной и бактериально – вирусной этиологии развитию неотложных состояний способствовали заболевания преморбидного фона, которые были проанализированы в зависимости от характера вскармливания, что представлено на рисунке.

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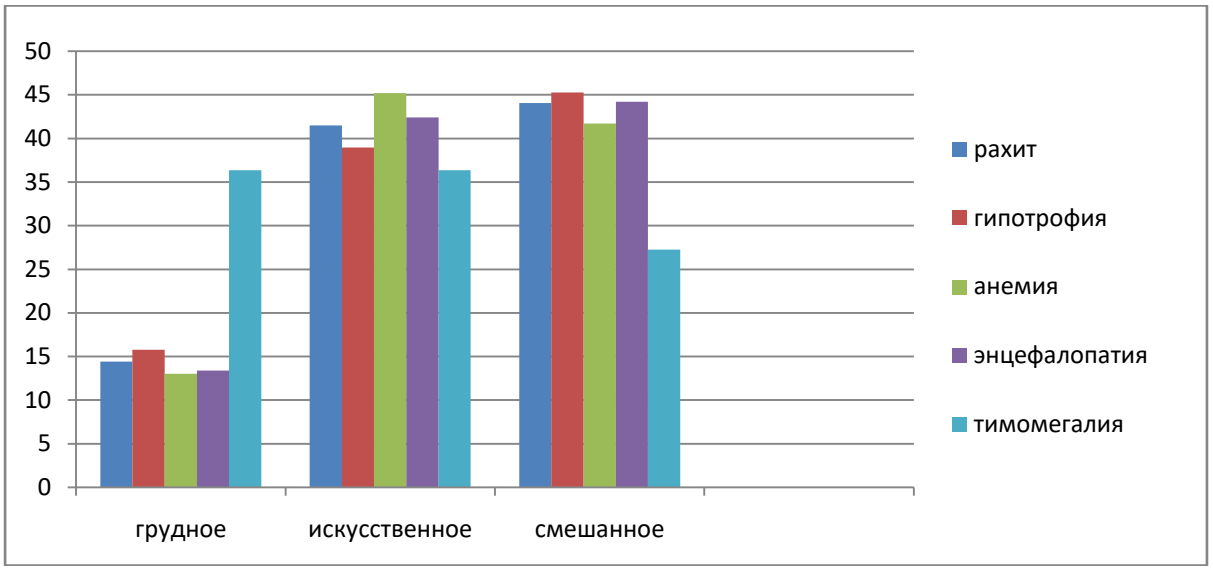


Рис. Влияние преморбидного фона на развитие неотложных состояний в зависимости от характера вскармливания

Как видно из рисунка, из 224 больных с поражением ЦНС большая часть больных находилась на смешанном (44,2%) и искусственном (42,4%) вскармливании, значительно меньше получали грудное вскармливание – 13,3%. Второе же место по частоте заболеваний преморбидного фона занимала анемия при искусственном вскармливании – 45,2%, меньше на смешанном – 41,7% и значительно реже при грудном вскармливании – 13,%. Что касается рахита, то наибольшая частота отмечена при смешанном вскармливании - у 44,1%, далее на искусственном - у 41,5% и реже при грудном – у 14,5% детей. Влияние смешанного вскармливания на развитие гипотрофии отмечено у 45,3% больных, при искусственном вскармливании она развивалась в 38,9% случаях, значительно реже на развитие гипотрофии влияло грудное вскармливание – 15,8%. В то же время выявлено, что на развитие аллергического диатеза тип вскармливания не оказывал значительного влияния: при грудном – у 36,4%, искусственном – у 36,4%, смешанном – у 27,3% больных.

Грудное вскармливание снижает заболеваемость ОКИ грудных детей. Это подтверждается тем, что у детей первых 3 мес., находящихся на грудном вскармливании частота заболеваемостью ОКИ значительно ниже по сравнению с детьми, находившиеся на искусственном вскармливании.

Выводы

Таким образом, среди отягощающих факторов в развитии неотложных состояний при ОКИ введущее место у детей первых 6 месяцев жизни отводится поражениям ЦНС при искусственном и смешанном вскармливаниях, а у детей в возрасте от 7 до 12 месяцев – рахит и гипотрофия также при искусственном и смешанном вскармливаниях. Факторы, способствующие развитию неотложных состояний у детей раннего возраста при ОКИ усугубляют имеющийся физиологический иммунодефицит, так называемый «иммунологический провал», гипотрофия II-III степени, сопровождающаяся синдромом мальабсорбции, а тяжелый рахит – дефект метаболизма витамина D при кишечных инфекциях бактериальной и бактериально-вирусной этиологий приводят к неотложным состояниям у детей раннего возраста.

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Prevention Fundamentals of Acute Coronary Syndromes in Uzbekistan

By Ulugbek Karimov, Nematjon Mamasoliev, Laylo Tajibaeva & Burkhonjon Usmonov

Abstract- *Background:* Cardiovascular disease (CVD) is the leading cause of death worldwide. An estimated 17.9 million people died from cardiovascular disease only in 2019, accounting for 32% of all deaths worldwide. Of these deaths, 85% were caused by heart attack and stroke. More than three quarters of deaths from cardiovascular disease occur in low- and middle-income countries.

Methods: This research was conducted with the collaboration of Russian researchers RECORD-2 project (supervisor – Prof. N.A. Gratsiansky, coordinator – senior researcher A.D. Erlikh), patients age spectrum was between 26 to 88 years with a suspicion of one of the acute coronary syndromes at the time of admission to the hospital and included in the acute coronary syndrome register. A specially organized register included 612 patients with acute coronary syndrome.

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Prevention Fundamentals of Acute Coronary Syndromes in Uzbekistan

Ulugbek Karimov [α], Nematjon Mamasoliev [σ], Laylo Tajibaeva [ρ] & Burkhonjon Usmonov [ω]

Abstract- Background: Cardiovascular disease (CVD) is the leading cause of death worldwide. An estimated 17.9 million people died from cardiovascular disease only in 2019, accounting for 32% of all deaths worldwide. Of these deaths, 85% were caused by heart attack and stroke. More than three quarters of deaths from cardiovascular disease occur in low- and middle-income countries.

Methods: This research was conducted with the collaboration of Russian researchers RECORD-2 project (supervisor – Prof. N.A. Gratsiansky, coordinator – senior researcher A.D. Erlikh), patients age spectrum was between 26 to 88 years with a suspicion of one of the acute coronary syndromes at the time of admission to the hospital and included in the acute coronary syndrome register. A specially organized register included 612 patients with acute coronary syndrome.

Findings: During this research a special model was developed and it entails the identification of target risk-generating groups of the population/patients with CVD (target-basis for "life-saving prevention," men and women under 50 years old, men and women 50-64 years old, men and women>65 years old, inadequate and incomplete "basic" pharmacotherapy in the standards of management of patients with ACS, inadequate and incomplete "basic" pharmacotherapy in the standards of management of patients with ACS).

I. Introduction

The Cardiovascular Diseases (CVD) epidemic continues into the 21st century. For several decades, they have been the cause of death of the population in industrially developed countries, including the Commonwealth of Independent States (CIS), where, for example, almost 1.2 million people die from CVD every year in Russia, which is 55% of the total mortality [1,2,5,9,10,11]. Moreover, the forecast for the future, especially for acute coronary syndrome (ACS), is not comforting. Therefore, for today, attention to the ACS is quite deserved. It is presented the epidemiological evidence obtained in different countries and populations of the world:

- There has been a decrease in mortality from CVD in the last 30 years in many economically developed countries, while in the CIS and Russia there is still a tendency towards an increase in mortality or CVD mortality rates, for example, in Russia, they are 2-4 times higher than in the USA, Canada and Australia [4,8,12,13];
- Mortality from ischemic heart disease (IHD) alone exceeds mortality from all types of neoplastic diseases combined [14,15];
- At the age of 20 to 24 years, 8 people per 100 thousand of the population fall ill with IHD in some CIS countries, and at the age of 60 to 64 years, the numbers increase to 1712 per 100 thousand [3,6,7];
- A similar tense epidemiological situation takes place in almost all industrialized countries of the world [16, 17, 18].

It happens even though the clinical course of IHD/ACS is well known and many new drugs have been created that can affect the clinical manifestations of the disease. Consequently, there are still imperfections in clinical cardiology and, apparently, for a positive solution to these issues, it is necessary to give an evidence-based reorientation of the health care system to prevent and focus epidemiological research on the most common forms of CVD. An unequivocal scientific conclusion was made in modern research and it was proved that these approaches are reliable and with their help, key factors of the still-unidentified epidemiology of CVD can be determined not only when "... iceberg of diseases comes to the surface of clinical manifestations" (5-10% of all cases), but also when “clinical manifestations are silent” [19,20,21,22,23].

This scientific problem is also especially relevant for Uzbekistan, since so far the ACS Registers have not been conducted in Uzbekistan and so far, naturally, there is no reliable opportunity to systematize knowledge about the current level of ACS treatment in various regional hospitals of the country. Thus, there could be, firstly, unfavourable epidemiological situations concerning ACS and, secondly, an unreliable idea of the quality of ACS treatment and its results in the conditions of Uzbekistan.

Based on the foregoing, the present work was conceived and carried out. The topic of the dissertation was chosen following the priority scientific research in the Republic of Uzbekistan related to early prevention and treatment of cardiovascular diseases, optimization

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of methods of prenosological diagnosis and pharmacotherapy.

The study aimed to determine the characteristics of prevalence, diagnosis, treatment and outcomes of ACS in modern conditions.

II. Materials and Methods

The work was carried out in the framework of the Russian RECORD-2 (supervisor – Prof. N.A. Gratsiansky, coordinator – senior researcher A.D. Erlikh), all consecutively hospitalized male and female patients aged 26 to 88 years with a suspicion of one of the acute coronary syndromes at the time of admission to the hospital and included in the ACS register. A specially organized register included 612 patients with ACS.

III. Results and Discussion

Men 414 (67.6%) and women 198 (32.4%). The average age of patients is 58.2 ± 11.3 years, minimum of 26 years and maximum of 88 years.

The results allowed us to identify 30 epidemiological, clinical, biochemical and pharmacoepidemiological Risk Factors associated with the development of ACS and their "endpoints" in the adult population of Andijan.

It has been proven that the chance of detecting ACS and "endpoints" in CVD patients is significantly higher in the presence of epidemiological (8), clinical (14), biochemical (4) and pharmacoepidemiological (4) factors than in their absence. Based on the obtained epidemiological, clinical and pharmacoepidemiological patterns of ACS development, a mathematical model of ACS was created and implemented for widespread use, which allows predicting the likelihood of ACS development and "endpoints" from them in patients with the indicated risk factors in almost 100.0% of cases.

Further, based on the identified clinical and epidemiological features of the formation of ACS and the risk of "endpoints" from them, we have developed proposals for a model of urgent "life-saving prevention" of ACS in people with CVD in Andijan.

The chance of detecting ACS and "endpoints" in patients with CVD is significantly higher in the presence of epidemiological (8), clinical (14), biochemical (4) and pharmacoepidemiological (4) factors than in their absence. The frequency of identifying the noted risk factors or their combination, included in the presented mathematical model, makes it possible to predict the likelihood of developing ACS and "endpoints" from them in patients with these risk factors in almost 100.0% of cases.

Based on the identified clinical and epidemiological features of the formation of ACS and the risk of "endpoints" from them, we have developed proposals for a model of urgent "life-saving prevention" of ACS in people with CVD in Andijan conditions (Table 1).

Table 1: Proposals for a model of urgent "salvage non-drug and drug prevention" of acute coronary syndromes and adverse events from them in CVD patients in Andijan conditions

Objects of "aggressive" urgent "life-saving prevention" in patients with ACS	
Specificity of epidemiological risk factors and their impact on ACS	The direction of the strategy of primary, secondary and tertiary prevention
Target - the basics of "life-saving prevention"	
Risks are male sex and age group> 65 years. In the formation of ACS and adverse events from them at the prehospital and hospital stages, as well as at discharge from the hospital, 30 risk factors are of priority importance. They should be the "main" guidelines for emergency prevention.	Preventive activities – drug and non-drug "aggressive" prophylaxis is carried out at the prehospital stage (by SVP / HHP, EMC), in the hospital (by narrow specialists, cardiologists) and at discharge (rehabilitation doctors, exercise therapy specialists, cardio dispensary doctors). Emergency prevention should be an obligatory component and coordinated process of treatment programs in all its stages.

Continuation of table 1

Men and women under 50	
Adverse epidemiological conditions concerning ACS are actively formed	Groups for primary prevention are being formed by primary health care and primary prevention measures are being actively implemented
Men and women - 50-64 years old	
The incidence of ACS is sharply increasing. The main risk factors of their development are all of the above factors, except for smoking and itching.	The introduction and implementation of special surveillance-epidemiological and preventive programs provide effective "life-saving prevention" against ACS
Men and women> 65 years	
The main risk group for the development of ACS and "endpoints" from them. Relatively many very high-risk patients	In health centers, in primary health care and the conditions of cardiac dispensaries, "aggressive" medication and non-medication, continuous (lifelong) preventive interventions are carried out

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Continuation of Table 1

Inadequate and incomplete "basic" pharmacotherapy, deviation in the standards of management of patients with ACS	
1. A long time elapsing from the onset of symptoms to admission to the hospital. 2. Not a very high frequency of use of antiplatelet agents. 3. Insufficiently active TLT therapy. 4. Insufficiently active treatment with statins and beta-blockers	1. Eliminate the discrepancy between treatment and recommendations of international expert groups by conducting annual nosocomial and interhospital registers. 2. Acceleration of hospitalization of patients by improving the work of the ambulance (introduction of prehospital thrombolysis, refusal of a special team in the transportation of patients with ACS)

IV. Conclusion

As can be seen in Table 1, the model we developed entails the identification of target risk-generating groups of the population/patients with CVD (target-basis for "life-saving prevention," men and women under 50 years old, men and women 50-64 years old, men and women > 65 years old, inadequate and incomplete "basic" pharmacotherapy in the standards of management of patients with ACS, inadequate and incomplete "basic" pharmacotherapy in the standards of management of patients with ACS).

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Acknowledgments

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The following is the official style and template developed for publication of a research paper. Authors are not required to follow this style during the submission of the paper. It is just for reference purposes.

Manuscript Style Instruction (Optional)

- Microsoft Word Document Setting Instructions.
- Font type of all text should be Swis721 Lt BT.
- Page size: 8.27" x 11'", left margin: 0.65, right margin: 0.65, bottom margin: 0.75.
- Paper title should be in one column of font size 24.
- Author name in font size of 11 in one column.
- Abstract: font size 9 with the word "Abstract" in bold italics.
- Main text: font size 10 with two justified columns.
- Two columns with equal column width of 3.38 and spacing of 0.2.
- First character must be three lines drop-capped.
- The paragraph before spacing of 1 pt and after of 0 pt.
- Line spacing of 1 pt.
- Large images must be in one column.
- The names of first main headings (Heading 1) must be in Roman font, capital letters, and font size of 10.
- The names of second main headings (Heading 2) must not include numbers and must be in italics with a font size of 10.

Structure and Format of Manuscript

The recommended size of an original research paper is under 15,000 words and review papers under 7,000 words. Research articles should be less than 10,000 words. Research papers are usually longer than review papers. Review papers are reports of significant research (typically less than 7,000 words, including tables, figures, and references)

A research paper must include:

a) A title which should be relevant to the theme of the paper.
b) A summary, known as an abstract (less than 150 words), containing the major results and conclusions.
c) Up to 10 keywords that precisely identify the paper's subject, purpose, and focus.
d) An introduction, giving fundamental background objectives.
e) Resources and techniques with sufficient complete experimental details (wherever possible by reference) to permit repetition, sources of information must be given, and numerical methods must be specified by reference.
f) Results which should be presented concisely by well-designed tables and figures.
g) Suitable statistical data should also be given.
h) All data must have been gathered with attention to numerical detail in the planning stage.

Design has been recognized to be essential to experiments for a considerable time, and the editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned unrefereed.

i) Discussion should cover implications and consequences and not just recapitulate the results; conclusions should also be summarized.
j) There should be brief acknowledgments.
k) There ought to be references in the conventional format. Global Journals recommends APA format.

Authors should carefully consider the preparation of papers to ensure that they communicate effectively. Papers are much more likely to be accepted if they are carefully designed and laid out, contain few or no errors, are summarizing, and follow instructions. They will also be published with much fewer delays than those that require much technical and editorial correction.

The Editorial Board reserves the right to make literary corrections and suggestions to improve brevity.



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Title

The title page must carry an informative title that reflects the content, a running title (less than 45 characters together with spaces), names of the authors and co-authors, and the place(s) where the work was carried out.

Author details

The full postal address of any related author(s) must be specified.

Abstract

The abstract is the foundation of the research paper. It should be clear and concise and must contain the objective of the paper and inferences drawn. It is advised to not include big mathematical equations or complicated jargon.

Many researchers searching for information online will use search engines such as Google, Yahoo or others. By optimizing your paper for search engines, you will amplify the chance of someone finding it. In turn, this will make it more likely to be viewed and cited in further works. Global Journals has compiled these guidelines to facilitate you to maximize the web-friendliness of the most public part of your paper.

Keywords

A major lynchpin of research work for the writing of research papers is the keyword search, which one will employ to find both library and internet resources. Up to eleven keywords or very brief phrases have to be given to help data retrieval, mining, and indexing.

One must be persistent and creative in using keywords. An effective keyword search requires a strategy: planning of a list of possible keywords and phrases to try.

Choice of the main keywords is the first tool of writing a research paper. Research paper writing is an art. Keyword search should be as strategic as possible.

One should start brainstorming lists of potential keywords before even beginning searching. Think about the most important concepts related to research work. Ask, “What words would a source have to include to be truly valuable in a research paper?” Then consider synonyms for the important words.

It may take the discovery of only one important paper to steer in the right keyword direction because, in most databases, the keywords under which a research paper is abstracted are listed with the paper.

Numerical Methods

Numerical methods used should be transparent and, where appropriate, supported by references.

Abbreviations

Authors must list all the abbreviations used in the paper at the end of the paper or in a separate table before using them.

Formulas and equations

Authors are advised to submit any mathematical equation using either MathJax, KaTeX, or LaTeX, or in a very high-quality image.

Tables, Figures, and Figure Legends

Tables: Tables should be cautiously designed, uncrowned, and include only essential data. Each must have an Arabic number, e.g., Table 4, a self-explanatory caption, and be on a separate sheet. Authors must submit tables in an editable format and not as images. References to these tables (if any) must be mentioned accurately.

Figures

Figures are supposed to be submitted as separate files. Always include a citation in the text for each figure using Arabic numbers, e.g., Fig. 4. Artwork must be submitted online in vector electronic form or by emailing it.

Preparation of Eletronic Figures for Publication

Although low-quality images are sufficient for review purposes, print publication requires high-quality images to prevent the final product being blurred or fuzzy. Submit (possibly by e-mail) EPS (line art) or TIFF (halftone/ photographs) files only. MS PowerPoint and Word Graphics are unsuitable for printed pictures. Avoid using pixel-oriented software. Scans (TIFF only) should have a resolution of at least 350 dpi (halftone) or 700 to 1100 dpi (line drawings). Please give the data for figures in black and white or submit a Color Work Agreement form. EPS files must be saved with fonts embedded (and with a TIFF preview, if possible).

For scanned images, the scanning resolution at final image size ought to be as follows to ensure good reproduction: line art: >650 dpi; halftones (including gel photographs): >350 dpi; figures containing both halftone and line images: >650 dpi.

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Tips for writing a good quality Medical Research Paper

1. Choosing the topic: In most cases, the topic is selected by the interests of the author, but it can also be suggested by the guides. You can have several topics, and then judge which you are most comfortable with. This may be done by asking several questions of yourself, like "Will I be able to carry out a search in this area? Will I find all necessary resources to accomplish the search? Will I be able to find all information in this field area?" If the answer to this type of question is "yes," then you ought to choose that topic. In most cases, you may have to conduct surveys and visit several places. Also, you might have to do a lot of work to find all the rises and falls of the various data on that subject. Sometimes, detailed information plays a vital role, instead of short information. Evaluators are human: The first thing to remember is that evaluators are also human beings. They are not only meant for rejecting a paper. They are here to evaluate your paper. So present your best aspect.

2. Think like evaluators: If you are in confusion or getting demotivated because your paper may not be accepted by the evaluators, then think, and try to evaluate your paper like an evaluator. Try to understand what an evaluator wants in your research paper, and you will automatically have your answer. Make blueprints of paper: The outline is the plan or framework that will help you to arrange your thoughts. It will make your paper logical. But remember that all points of your outline must be related to the topic you have chosen.

3. Ask your guides: If you are having any difficulty with your research, then do not hesitate to share your difficulty with your guide (if you have one). They will surely help you out and resolve your doubts. If you can't clarify what exactly you require for your work, then ask your supervisor to help you with an alternative. He or she might also provide you with a list of essential readings.

4. Use of computer is recommended: As you are doing research in the field of medical research then this point is quite obvious. Use right software: Always use good quality software packages. If you are not capable of judging good software, then you can lose the quality of your paper unknowingly. There are various programs available to help you which you can get through the internet.

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6. Bookmarks are useful: When you read any book or magazine, you generally use bookmarks, right? It is a good habit which helps to not lose your continuity. You should always use bookmarks while searching on the internet also, which will make your search easier.

7. Revise what you wrote: When you write anything, always read it, summarize it, and then finalize it.

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9. Produce good diagrams of your own: Always try to include good charts or diagrams in your paper to improve quality. Using several unnecessary diagrams will degrade the quality of your paper by creating a hodgepodge. So always try to include diagrams which were made by you to improve the readability of your paper. Use of direct quotes: When you do research relevant to literature, history, or current affairs, then use of quotes becomes essential, but if the study is relevant to science, use of quotes is not preferable.

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11. Pick a good study spot: Always try to pick a spot for your research which is quiet. Not every spot is good for studying.

12. Know what you know: Always try to know what you know by making objectives, otherwise you will be confused and unable to achieve your target.

13. Use good grammar: Always use good grammar and words that will have a positive impact on the evaluator; use of good vocabulary does not mean using tough words which the evaluator has to find in a dictionary. Do not fragment sentences. Eliminate one-word sentences. Do not ever use a big word when a smaller one would suffice.

Verbs have to be in agreement with their subjects. In a research paper, do not start sentences with conjunctions or finish them with prepositions. When writing formally, it is advisable to never split an infinitive because someone will (wrongly) complain. Avoid clichés like a disease. Always shun irritating alliteration. Use language which is simple and straightforward. Put together a neat summary.

14. Arrangement of information: Each section of the main body should start with an opening sentence, and there should be a changeover at the end of the section. Give only valid and powerful arguments for your topic. You may also maintain your arguments with records.

15. Never start at the last minute: Always allow enough time for research work. Leaving everything to the last minute will degrade your paper and spoil your work.

16. Multitasking in research is not good: Doing several things at the same time is a bad habit in the case of research activity. Research is an area where everything has a particular time slot. Divide your research work into parts, and do a particular part in a particular time slot.

17. Never copy others' work: Never copy others' work and give it your name because if the evaluator has seen it anywhere, you will be in trouble. Take proper rest and food: No matter how many hours you spend on your research activity, if you are not taking care of your health, then all your efforts will have been in vain. For quality research, take proper rest and food.

18. Go to seminars: Attend seminars if the topic is relevant to your research area. Utilize all your resources.

19. Refresh your mind after intervals: Try to give your mind a rest by listening to soft music or sleeping in intervals. This will also improve your memory. Acquire colleagues: Always try to acquire colleagues. No matter how sharp you are, if you acquire colleagues, they can give you ideas which will be helpful to your research.

20. Think technically: Always think technically. If anything happens, search for its reasons, benefits, and demerits. Think and then print: When you go to print your paper, check that tables are not split, headings are not detached from their descriptions, and page sequence is maintained.

21. Adding unnecessary information: Do not add unnecessary information like "I have used MS Excel to draw graphs." Irrelevant and inappropriate material is superfluous. Foreign terminology and phrases are not apropos. One should never take a broad view. Analogy is like feathers on a snake. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Never oversimplify: When adding material to your research paper, never go for oversimplification; this will definitely irritate the evaluator. Be specific. Never use rhythmic redundancies. Contractions shouldn't be used in a research paper. Comparisons are as terrible as clichés. Give up ampersands, abbreviations, and so on. Remove commas that are not necessary. Parenthetical words should be between brackets or commas. Understatement is always the best way to put forward earth-shaking thoughts. Give a detailed literary review.

22. Report concluded results: Use concluded results. From raw data, filter the results, and then conclude your studies based on measurements and observations taken. An appropriate number of decimal places should be used. Parenthetical remarks are prohibited here. Proofread carefully at the final stage. At the end, give an outline to your arguments. Spot perspectives of further study of the subject. Justify your conclusion at the bottom sufficiently, which will probably include examples.

23. Upon conclusion: Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium though which your research is going to be in print for the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects of your research.

Informal Guidelines of Research Paper Writing

Key points to remember:

- Submit all work in its final form.
- Write your paper in the form which is presented in the guidelines using the template.
- Please note the criteria peer reviewers will use for grading the final paper.

Final points:

One purpose of organizing a research paper is to let people interpret your efforts selectively. The journal requires the following sections, submitted in the order listed, with each section starting on a new page:

The introduction: This will be compiled from reference matter and reflect the design processes or outline of basis that directed you to make a study. As you carry out the process of study, the method and process section will be constructed like that. The results segment will show related statistics in nearly sequential order and direct reviewers to similar intellectual paths throughout the data that you gathered to carry out your study.

The discussion section:

This will provide understanding of the data and projections as to the implications of the results. The use of good quality references throughout the paper will give the effort trustworthiness by representing an alertness to prior workings.

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To make a paper clear: Adhere to recommended page limits.



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- Submitting a manuscript with pages out of sequence.
- In every section of your document, use standard writing style, including articles ("a" and "the").
- Keep paying attention to the topic of the paper.
- Use paragraphs to split each significant point (excluding the abstract).
- Align the primary line of each section.
- Present your points in sound order.
- Use present tense to report well-accepted matters.
- Use past tense to describe specific results.
- Do not use familiar wording; don't address the reviewer directly. Don't use slang or superlatives.
- Avoid use of extra pictures—include only those figures essential to presenting results.

Title page:

Choose a revealing title. It should be short and include the name(s) and address(es) of all authors. It should not have acronyms or abbreviations or exceed two printed lines.

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- Fundamental goal.
- To-the-point depiction of the research.
- Consequences, including definite statistics—if the consequences are quantitative in nature, account for this; results of any numerical analysis should be reported. Significant conclusions or questions that emerge from the research.

Approach:

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- An outline of the job done is always written in past tense.
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Approach:

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- Report the method and not the particulars of each process that engaged the same methodology.
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- If well-known procedures were used, account for the procedure by name, possibly with a reference, and that's all.

Approach:

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- Skip all descriptive information and surroundings—save it for the argument.
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References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

INDEX

A

Adhesion · 3
Aggravating · 26
Alveolar · 14
Asymptomatic · 14

C

Cataract · 2
Confrontation · 19, 23
Contentious · 1

D

Decades · 3, 33
Decisive · 21
Dissections · 1

E

Exacerbate · 27

I

Iatrogenic · 3
Inadvertent · 2

T

Tapering · 2

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