IMAGE: A MAP OF THE STARS OF THE ORION CONSTELLATION

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Final considerations: It demonstrates the importance of exploring further discussions on the subject with students, even if religious aspects are not the main influencer, but to deconstruct the abortion-related taboo in order to obtain professionals with a holistic and humanized view.

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Perception of Nursing Academics at a University Center in Brasília on Induced Abortion

Percepção Dos Acadêmicos De Enfermagem De Um Centro Universitário Em Brasília Sobre Aborto Induzido

Bizerra, N. C[α], Santana, L. G[σ], Santos, T. O. S[ρ] & Silva, S. H. R[Ω]

RESUMO

Objetivo: Conhecer e descrever a percepção de acadêmicos do curso de enfermagem acerca do aborto induzido e identificar fatores que influenciam em seu posicionamento sobre o tema.

Método: Foi realizado um estudo descritivo com abordagem qualitativa. Eleitos 19 estudantes do curso de Bacharelado em Enfermagem matriculados no Centro Universitário Euro-Americano (UNIEURO). A coleta de dados ocorreu por meio de entrevistas com roteiros semiestruturados.

Resultados e Discussão: Emergiram três categorias temáticas: 1) Conhecimento sobre a legislação brasileira a respeito do aborto; 2) Posicionamento pessoal com relação à prática do aborto no Brasil; 3) A influência da religião, da moral e da ética.

Considerações finais: Mesmo que os aspectos religiosos não sejam os principais influenciadores, conclui-se a importância de se explorar ainda mais discussões sobre o tema com alunos para desconstruir o tabu relacionado ao aborto a fim de obter profissionais com uma visão holística e humanizada.

Palavras-chaves: percepcao; estudantes de enfermagem; aborto induzido.

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I. INTRODUÇÃO

De acordo com a Organização Mundial da Saúde (OMS, 2000), o aborto é conceituado como remoção de um feto pesando menos de 500g, o que equivale há mais ou menos 20 semanas de gestação. Tal evento é classificado quanto à idade gestacional – precoce ou tardio; quanto ao grau de eliminação – completo ou incompleto; situação clínica – evitável e inevitável e quanto ao tipo – espontâneo ou provocado (SOUZA et al., 2008; BRASIL, 2012).

O aborto induzido pelas próprias mulheres ou em clínicas clandestinas é uma das maiores causas de

mortalidade materna, o que o torna um problema de saúde pública. Segundo a OMS (2013), estima-se que a cada ano são feitos 22 milhões de abortamentos em condições inseguras, acarretando a morte de cerca de 47.000 mulheres além de disfunções físicas e mentais em outras 5 milhões de mulheres. A maior ocorrência de morte decorrente de aborto induzido acontece em comunidades carentes e estão associadas a múltiplas dimensões da pobreza – como a falta de recursos financeiros, a dificuldade de acesso à informação e direitos humanos, a insalubridade, dentre outros (BRASIL, 2011; MARTINS et al., 2017).

Santos et al., (2017) demonstraram que o método abortivo mais utilizado entre as mulheres é o medicamentoso e que os sintomas apresentados após o uso foram sangramento, vômitos e cólica, a pesquisa foi realizada com 855 puérperas, onde se observou a variação de idade entre 13 a 44 anos.

Quanto à incidência de abortamento constatou-se que o menor número de abortos foi observado em mulheres com maior grau de escolaridade, 51,3% das mulheres que praticaram o ato não concluíram o ensino fundamental e 3,0% eram analfabetas. Dentre as entrevistadas 42,6% referiam ser solteiras. Quanto ao aborto induzido 33,2% confirmaram a indução sendo as principais justificativas a falta de condições financeiras e estrutura familiar. Observou-se também uma grande parte dessa prática 57,2% foi realizada em casa com ajuda de amigos ou familiares.

A realidade notada é que as mulheres iniciam o processo abortivo fazendo uso de remédios, sendo o mais comum o Cytotec® o qual tem como princípio ativo o misoprostol originalmente é utilizado no tratamento de ulceras gástricas, e finalizam o processo com internação hospitalar para curetagem (DINIZ; MADEIRO 2012).

Nos casos mais graves, quando não há ocorrência de morte materna, algumas complicações consideráveis podem ocorrer isso vai depender do método utilizado para realização da prática, tais como: hemorragias, infecções de leves a gravíssimas, histerectomias, transfusão sanguínea, lesões de vulva ou de vagina, desgarro de colo uterino, perfuração do útero e até mesmo lesão de órgãos vizinhos (FORNEL et. al., 2010).

Muitas mulheres que procuram os serviços de saúde nessa situação sofrem discriminação e julgamento por parte dos profissionais, esperando horas por atendimento, ameaça de denúncia à polícia, desrespeito verbal e físico durante atendimento, internação coletiva com puérperas e recém-nascidos (DINIZ; MADEIRO, 2012).

De acordo com Código Penal Brasileiro de 1940 art. 128, são permitidos os casos de aborto quando há risco de morte da mãe e em casos de estupro. O Supremo Tribunal Federal em 2012 autorizou a interrupção legal da gestação nos casos de anencefalia. O código de ética de Enfermagem prevê em seu art.73, é proibido aos enfermeiros provocar aborto, ou cooperar em prática destinada a interromper a gestação, exceto nos casos permitidos pela legislação vigente.

A crescente prática abortiva é evidente. As mulheres ficam mais propensas a buscarem serviços ilegais e em ambientes inadequados ou insalubres, o que pode ser prejudicial e até mesmo fatal. Esse tema é complexo e abrange diversas opiniões, passando pela esfera religiosa, ideológica, ética, politica e aspectos jurídicos (BRASIL, 2008; BRASIL, 2011; BRASIL, 2017).

No ambiente hospitalar, a mulher entrará em contato com profissionais que serão responsáveis pela sua assistência, que deverá ocorrer de forma holística e humanizada destacando-se a equipe de enfermagem que se faz presente de forma integral, esse contato necessita de uma preparação maior por parte do profissional para que a atenção à mulher seja livre de preconceitos religiosos ou morais. Isso se dá por meio de debates e discussões acerca do tema durante a formação acadêmica, analisando seus diversos aspectos e promovendo treinamentos para propiciar atendimento satisfatório por meio da humanização e impessoalidade (BRITO, et al., 2015).

Baseado nisso, um estudo foi realizado em uma universidade no Rio Grande do Norte com objetivo de conhecer a opinião de estudantes de enfermagem sobre aborto. O estudo foi realizado

com 111 estudantes, destes 103 eram mulheres escolhidas de forma intencional com requisitos antes estabelecidos. Dos entrevistados, 60,4% afirmaram ser contra, 20,7% informaram ser favoráveis e 18,9% preferiram não declarar opinião acerca do assunto. Além disso, 32,4% afirmaram a oposição ao aborto mesmo em casos previstos em lei e que não devia ser realizado sob nenhuma circunstância, 31,5% referiram que a escolha cabia à mulher e 24,4 manifestaram que tal decisão cabia ao profissional de saúde (BRITO, et al., 2015).

Os dados obtidos nesse estudo mostram o quão importante são as discussões acerca do tema, visto que a maioria das participantes são jovens, envolvidas com as tecnologias e assuntos mundiais, estas precisam reformular e repensar a maneira como lidam com o assunto, pois se trata de uma questão atual (MACHADO, et al., 2012; DONATI, et al., 2010; BRITO, et al., 2015).

No estudo feito com estudantes de graduação em enfermagem e medicina do Rio de Janeiro, por meio de uma análise documental demonstrou que dos temas encontrados nos programas de disciplinas do curso de graduação em Enfermagem a palavra aborto apareceu apenas 2 vezes e dentre os achados temáticos da graduação em medicina foi encontrado apenas 1 vez, logo, temática foi pouco abordada nos dois cursos, os programas das disciplinas não estão apropriados para uma formação onde inclua o aprendizado satisfatório sobre o aborto (MARCONSIN, et al., 2013).

Na pesquisa realizada por Goés e Lemos (2010) com acadêmicos de enfermagem sobre o que estes pensam sobre o aborto provocado, 71,34% se mostraram contrárias à prática, mas apontaram algumas situações aceitáveis como estupro, risco de vida da mãe e mal formações congênitas, além disso, alguns comentários sobre a mulher que realiza a prática como: desamparada, carente, desesperada, covarde, fraca, criminosa, dentre outros percebemos então a discriminação e que a culpa recaí sobre a mulher tirando a responsabilidade dos outros participantes da situação.

Importante também ressaltar a opinião dos profissionais de enfermagem acerca do tema, na análise feita no Rio Grande do Sul em que dos participantes 7 eram enfermeiros e 12 técnicos, totalizando 19 participantes, o que pôde-se abstrair que os discursos tiveram um comportamento implícito talvez discriminatório, menor interação com a paciente e maior focalização nos aspectos clínicos, mas tiveram outros que ressaltaram a importância do apoio psicológico e do cuidado humanizado. É preciso que os profissionais ampliem seu olhar sobre o aborto se desvinculando de estereótipos considerando a totalidade do ser humano tanto no decorrer da formação profissional e durante o exercício da profissão (STREFLING, et al., 2015).

Acredita-se que a extensão de discussões acerca desse tema no período da graduação é de suma importância, pois o modo como os estudantes veem a prática abortiva determinará a qualidade do atendimento prestado as mulheres que procurarem o serviço de saúde (BRITO, et al., 2015).

Tendo dito isso, surgem os seguintes objetivos deste estudo: Conhecer e descrever a percepção de acadêmicos do curso de graduação em enfermagem acerca do aborto induzido e identificar fatores que influenciam em seu posicionamento acerca do tema.

II. MÉTODO

Foi realizado um estudo descritivo com abordagem qualitativa. A pesquisa qualitativa prioriza explicar o porquê dos fenômenos, suas especificidades e se preocupa com a análise da dinâmica das relações sociais. Foram considerados a subjetividade, experiências, crenças, valores atitudes e inspirações dos entrevistados. O pesquisador deve ser totalmente imparcial de modo que seus pensamentos não influenciem no andamento da entrevista, pois, o desenvolvimento da pesquisa é imprevisível (GOLDENBERG, 2002; MINAYO, 2004).

A amostra pesquisada neste estudo se deu por conveniência, foram eleitos estudantes do curso de Bacharelado em Enfermagem, com idade

maior ou igual a 18 anos, ambos os sexos e de diferentes períodos da graduação, regularmente matriculados no Centro Universitário Euro-Americano (UNIEURO) que é uma instituição de ensino superior particular brasileira fundada no ano de 1998, com sede em Brasília, no Distrito Federal e com unidades nas regiões do Plano Piloto e Águas Claras. Esta pesquisa foi executada nas unidades: I, Asa Sul; II, Águas Claras e III, Asa Norte, nos turnos matutino e noturno, dos diferentes períodos da graduação.

Os alunos foram abordados em sala de aula com a proposta de participação da pesquisa, após aceite estes dirigiram-se individualmente para um ambiente reservado, foi feita a leitura do Termo de Consentimento Livre e Esclarecido e assinatura em duas vias para aqueles que aceitaram, logo foi iniciada entrevista. Realizada a gravação e posterior transcrição dos dados. Como instrumento para coleta de dados foi utilizado um roteiro semiestruturado composto primeiramente por questões sócio demográficas (identificação, data de nascimento, sexo, semestre em curso, turno, ocupação remunerada, estado civil, cidade onde mora, número de filhos e crença religiosa, espiritual ou filosofia de vida) e em seguida por 5 questões abertas sobre o conhecimento sobre a legislação, seu posicionamento sobre a prática, se tiveram algum tipo de contato com aborto, como seria seus cuidados como enfermeiros frente a uma situação de aborto induzido por um paciente e como as práticas religiosas, espirituais ou filosofia de vida impacta na opinião sobre o tema. O número necessário de estudantes para a pesquisa respeitou o técnica de saturação de dados de Glaser e Strauss (1967), quando houve repetição do conteúdo.

Para analisar as entrevistas optou-se pela Análise de Conteúdo de Bardin. A Análise de Conteúdo utilizada neste estudo foi operacionalizada em três etapas: pré-análise, exploração do material e tratamento dos resultados obtidos e interpretação (BARDIN, 2011).

A etapa da pré-análise é a fase da organização propriamente dita. Realizou-se leituras sucessivas do material coletado, com objetivo de obter a saturação do conteúdo pesquisado. Logo após, procedeu-se a constituição do "corpus", visando responder as regras: da exaustividade, representatividade, homogeneidade, e pertinência, tendo sempre em foco os objetivos propostos. Nesta fase também foi selecionado alguns trechos ou fragmentos das entrevistas e para garantir o anonimato dos participantes estes foram identificados pela letra E, seguido do número ordinal á ordem que foi realizada as entrevistas (E-1, E-2...).

Na etapa de exploração do material, ocorreu a separação, classificação e agrupamento dos dados, que forneceram as informações exatas para responder aos objetivos do presente estudo.

E por fim na etapa de tratamento dos resultados obtidos e interpretação foi realizada a seleção das informações para serem interpretadas de maneira que respondam as questões levantadas no objetivo do estudo e analisadas á luz da literatura concernente ao tema (BARDIN, 2011).

Este trabalho está de acordo com as normas estabelecidas para pesquisas com seres humanos de acordo com a Resolução 466/2012 e complementares, do Conselho Nacional de Saúde. Este trabalho foi aprovado pelo Comitê de Ética em Pesquisa em Seres Humanos do UNIEURO sob o protocolo nº 2.591.145. Todos os participantes deste estudo assinaram o Termo de Consentimento Livre e Esclarecido TCLE em duas vias.

III. RESULTADOS E DISCUSSÃO

Foram entrevistados 19 acadêmicos de enfermagem com duração máxima de 10 minutos em cada entrevista. Pôde-se notar uma diversidade em relação à faixa etária, a qual variou de idade mínima 18 a máxima 36 anos em que a média foi de 22 anos (D.P. 3,9). É importante destacar os dados sociodemográficos, pois, segundo Brasil (2011) o aborto atravessa aspectos sociais, culturais, econômicos, jurídicos, religiosos e ideológicos, nos dados analisados nesta pesquisa observa-se na Tabela1, que 17 participantes eram do sexo feminino e 2 do sexo masculino, em relação ao estado civil 18 afirmaram ser solteiros, 1 casado e apenas 1 dos participantes alegou ter 1 filho.

Tabela 1: Dados Sócio Demográficos dos Participantes, Brasília – DF, 2018 Continuação

Variáveis	n	(%)
Filhos		
0 (zero)	17	89,4
1 (um)	1	5,2
sem resposta	1	5,2
Trabalho Remunerado		
Sim	9	47,3
Não	10	52,6
Crença religiosa, espiritual ou filosofia de vida:		
Católicos	6	31,5
Evangélicos	1	5,2
Espírita	2	10,5
Nenhum	5	26,3
Outros	5	26,3

Fonte: Elaboração Própria

A correlação entre os dados sociodemográficos e o aborto, pôde-se abstrair que por uma pequena diferença os estudantes do turno noturno são mais favoráveis do que os estudantes do turno matutino, quanto ao sexo como a grande maioria eram mulheres estas também lideraram no quesito totalmente favorável a prática, dos 2 participantes do sexo masculino 1 foi favorável e o outro não sendo que este desfavorável afirmou estado civil casado e alegou ter filho.

Para facilitar a compreensão das falas, seguindo o rigor metodológico escolhido para análise dos dados, emergiram três categorias temáticas: 1) Conhecimento sobre a legislação brasileira a respeito do aborto; 2) Posicionamento pessoal com relação à prática do aborto no Brasil ; 3) A influência da religião, da moral e da ética;

3.1 Conhecimento Sobre a Legislação Brasileira a Respeito Do Aborto

Durante a entrevista os acadêmicos foram interrogados sobre o conhecimento a respeito da legislação do aborto no Brasil, pois, sabe-se que as situações permitidas em lei são: Estupro, risco de morte da mãe e casos de anencefalia (BRASIL, 1940; BRASIL, 2012). O número de estudantes que conhecem cada situação, permitida em lei, para o aborto pode ser observado na Tabela 2.

Tabela 2: Conhecimento Dos Estudantes Sobre as Situações Permitas Em Lei Para O Aborto Induzido. Brasília – DF, 2018

Variáveis	n	(%)
Estupro	12	63,1
Anencefalia	4	21
Risco de morte da mãe	5	26,3
Nenhum	7	36,8

Fonte: Elaboração Própria

Observa-se que a maioria dos estudantes relatam os casos de estupro, um total 4 alunos na categoria de anencefalia e de risco de morte da mãe 5 tinham conhecimento e um dado muito importante é que 7 alunos afirmaram não saber nenhum dos casos previstos pela lei, como podemos vislumbrar nas falas a seguir:

"É eu sei que o aborto ele é um crime quando você induz é, mas ele é respaldada pela lei quando você sofre estupro ou quando traz risco à Vida da mãe né e no mais é isso." (E-1)

"A legislação do aborto? É sei dos artigos da constituição e dos penais também que tá na lei é isso que eu sei que tipo o aborto ele, ele é liberado em casos de estupro, tem lei também que libera quando a mãe tem risco iminente de vida também é liberado e tem jurisprudência pra casos de anencefalia." (E-12)

"Ah eu não tipo, não to muito antenada nesse negócio, como lá na sala toda vez que a gente entra nessa discussão eu prefiro ficar calada porque é algo que acaba criando muita inimizade [...] A gente quase não conversa sobre isso, então eu to meio que por fora sobre isso." (E-4)

Pode ser que os alunos ingressantes não tivessem domínio sobre o conteúdo questionado, devido a grade curricular a partir do 4° semestre os alunos têm contato com a matéria de Ética/Bioética/Legislação e a partir do 6° semestre a matéria de Saúde da mulher. Chamou atenção que alunos do 1°, 2° e 3° semestres afirmaram não ter conhecimento nenhum sobre o assunto, já 1 acadêmico do 9° semestre sabia relatar apenas dos casos de estupro e quanto a legislação completa apenas 2 alunos do 3° período demonstraram aprazamento do conteúdo.

Considera-se que o universo acadêmico, em especial o da formação em enfermagem, tem o propósito de instruir os graduandos, a fim de adquirirem não só competências técnicas, mas também temáticas e éticas capazes de servir como base para o exercício profissional (BRITO, et al., 2015).

3.2 Posicionamento Pessoal Com Relação À Prática Do Aborto No Brasil

Quando questionados sobre seu posicionamento sobre a prática como resultado obteve-se 3 subcategorias em que 9 foram totalmente favoráveis a prática, 6 parcialmente favoráveis (apoiam apenas os casos regidos por lei) e 4 totalmente desfavoráveis. Fato curioso, pois, o que se pensa é que a maioria seria contra e que a depender do semestre cursado pelo estudante a opinião mudaria, mas, na verdade, neste estudo mostra o contrário a maior parte foi completamente favorável e nas 3 subcategorias citadas obteve-se estudantes de vários semestres, de forma homogênea nos grupos apresentados.

Já no estudo qualitativo, sobre o que pensam os acadêmicos de enfermagem sobre aborto induzido, realizado no Rio de Janeiro por Goés e Lemos (2010) demonstrou que 71,34% dos estudantes se mostraram contrários a prática e usaram argumentos para se referir como: Ato proveniente de uma irresponsabilidade, ato brutal, violento, agressivo e aborto é um homicídio.

Alguns argumentos utilizados neste estudo para esclarecer seus posicionamentos foram:

"*Eu acho que o aborto deveria ser legalizado [...] Na cabeça da sociedade eles acham que a mulher vai engravidar e abortar todos os dias, todo os dias, gente não é assim é um processo difícil, é um processo doloroso e ninguém é obrigado a ser mãe tem gente que não nasceu com esse dom e eu acho que a sociedade, eu acho que isso deveria ser mais conversado, conversado dentro de casa, conversado nas escolas, conversado nas universidades, deveria ser um assunto que não traz medo. "* (E-14)

"Tá vou falar do ilegal, primeiro eu sou totalmente contra o aborto ilegal por que ele traz vários tipos de complicações pra paciente [...] E sobre aborto legal eu acho a prática sim válida nos casos que são, são normatizados por aborto, os legais eu sou a favor." (E-5)

"Bom, pra mim é independente da situação, por exemplo, tem algumas situações que a pessoa a foi estuprada, ou alguma coisa do tipo é independente da forma que a pessoa ficou grávida eu não sou a favor do aborto, eu sei que assim dependendo de como isso aconteceu é algo traumático pra pessoa e a pessoa não quer o filho, mas eu vejo assim que tem muitos, muitas famílias que querem, tem muitos casais que não conseguem ter filhos então eu acho que poderia entregar essa criança pra um lar que fosse cuidar." (E-18)

Também interrogados sobre o contato que já tiveram com algum tipo de aborto 8 dos participantes relataram contato com aborto induzido por conhecidos, amigos ou familiares, 9 deles disseram que nunca tiveram contato nenhum com aborto, 2 apenas com aborto espontâneo e 1 relatou além do contato por terceiros ter cometido aborto induzido, foi separado algumas falas para demonstrar isso:

> *"Uma colega minha que ela usou e eu não sei, acho que ela tava de uma semana, ou algumas semanas, ou 12 semanas não sei, que ela utilizou a pílula do dia seguinte e sofreu o aborto e quando ela sentiu dores fortes no abdômen e quando ela foi fazer xixi saiu o feto no vaso, então aquilo ficou, eu fiquei um pouco chocada. "* (E-10)

> *"Os abortos que eu tenho como experiência são de vivência do próprio ambiente hospitalar de pacientes que já chegaram no hospital com o feto já sem vida [...] Uma paciente que inclusive veio a óbito quando a mesma tentou fazer o aborto de maneira ilegal e apresentou hemorragia, apresentou infecção, febre e ai quando chegou no hospital até por vergonha porque sabia que chegando lá ia ser identificada a causa e essa paciente chocou, então a gente infelizmente não teve como reverter o quadro da paciente então eu acredito que se fosse o meio legal, talvez seria mais uma morte evitada."*(E-16)

> *"Eu fiz o aborto, eu acho que vai fazer dois anos em novembro, minha mãe é ciente, minha mãe inclusive participou comigo, não deixei nada fechado, minha mãe é minha amiga, então fiz o ilegal, da forma consegui, não me aconteceu nada, foi praticado e foi concluído com sucesso [...] em Salvador inclusive tem lugares que você consegue fazer com a de você conseguir não com a medicação e sim pra você abrir, retirar e tudo então é fácil entendeu? O ilegal acaba se tornando, eles dá maneiras pra outras pessoas exercerem e ganharem por isso. "*(E-19)

No entanto, quando questionados sobre como seria sua conduta como enfermeiros frente a uma situação de aborto induzido por um paciente 12 afirmaram prestar atendimento humanizado independente de sua opinião pessoal, 5 demonstraram tensão em responder sobre como seria sua atuação frente a esta situação (sendo que 4 destes afirmaram ser totalmente favoráveis a prática) e além disso 2 declaram que não participariam do atendimento. Foi separado trechos que mostram isso:

> *"Aí fica difícil. (risos) Deixa eu pensar aqui assim no legal eu tentaria, porque no ilegal não participaria."* (E-5)

> *"Então a gente fica assim meio receosas né porque como é proibido, a gente fica acabando com medo[...]É difícil, a gente tá ali pra ver a pessoa como um todo então. A gente vai ter que, sei lá né? Não vou pode abandonar a paciente numa situação dessa também ir lá e criticar, e punir né? Não a gente vai ter que saber lidar."* (E-6)

> *"Eu não discriminaria a mulher em momento algum é uma prática que eu particularmente não adotaria né e nem aconselharia a fazer, mas no caso que ela já tivesse feito [...] Poder ajudar né porque os danos consequentes vai surgir de qualquer forma. "* (E-13)

> *"Então primeiramente eu não iria julgar, mas orientar conforme o que preconiza o ministério da saúde porque é a minha profissão fazer isso e depois deixar minhas opiniões por fora."* (E-7)

No estudo realizado por Madeiro e Rufino (2017) sobre assistência a mulheres que realizaram aborto provocado, mostrou que uma em cada três mulheres participantes se sentiram desrespeitadas e maltratadas durante a internação. Isso tem um impacto muito grande para as pacientes que estão vivenciando aquele momento, violam seu direito ao atendimento digno e respeitoso. Demonstrando a importância que se tem na humanização no cuidado e equidade para com os clientes um dos princípios fundamentais da assistência à saúde no Brasil.

3.3 A Influência Da Religião, Da Moral E Da Ética

Quando questionados sobre a influência que a religião tem sob sua opinião acerca do aborto induzido 12 participantes afirmaram que não

intervém e 7 declaram que a religião influi diretamente em sua opinião pessoal, como se pôde verificar a maioria declarou que a religião em si não afeta no seu posicionamento pessoal, logo, o que se pensa é que o posicionamento dos participantes desta pesquisa está mais correlacionado com sua moral, ética e valores pessoais. Para confirmar este dado foram separadas as seguintes falas:

> *"Eu não tenho religião, mas eu acredito assim em Deus, mas eu acho que o aborto deveria ser legal sim, pois realmente, realmente nem todo tem a coisa de ser mãe e nem todo mundo quer nem tá preparado naquele momento de vida, tem muita adolescente que corre risco fazendo aborto ilegal com isso e não deveria, é isso."* (E-3)

> *"Questão religião eu nem fui muito influenciada com isso eu já nasci com essa de que é um ser humano, não justifica, não justifica matar."* (E-2)

> *"Segundo minha religião eu não deveria ser a favor, mas é como já falei eu não acredito que a religião deva influenciar na vida da pessoa, cada um tem que decidir se quer ou não na questão do aborto."* (E-9)

> *"Bom primeiro porque tipo eu sou cristã e segundo a minha religião é proibido né porque tipo Deus deu a vida e nós não temos o domínio de tipo simplesmente acabar com a vida porque mesmo sendo nosso corpo, mas desde quando ele é um feto já é uma vida então não sou a favor pela minha religião."* (E-11)

> *"Eu sou favorável apesar de, da minha religião, da minha opção religiosa ser contra, mas eu como pessoa sou a favor porque eu acho que é uma opção de cada um."* (E-16)

Ética e moral aparecem com diferentes conceitos e definições, a depender da situação entendido como sinônimos ou opostos. A moral vem do latim (mos-mores), significa costumes, as regras do comportamento, remete ao agir humano, normas, leis e hábitos. E a ética, do grego (ethos), também significa costumes, regras de comportamento aparentemente ambas têm o mesmo significado, mas a diferença é que a ética de ordem mais reflexiva procura entender o agir do humano, a natureza entre o bem mal e à moral como de ordem mais prática, normativa e legislativa (DURAND, 2003).

No estudo realizado com estudantes de enfermagem acerca do posicionamento ético sobre situações dilemáticas em saúde, realizado em Minas Gerais, no ano de 2010, em que um dos temas era sobre aborto a maioria dos acadêmicos se posicionou contrária em relação à prática (69,29%), defendendo neste caso a sacralidade da vida que era um dos argumentos escolhidos para explanar sua opinião. Essa posição espelha diretamente os dogmas centrais das religiões demonstradas pela maioria dos entrevistados, já que 74,28% declararam-se católicos e 10,73%, protestantes/evangélicos. Isso demonstra nitidamente que neste estudo a religião dos acadêmicos entrevistados afeta diretamente em sua opinião, fazendo oposição a este estudo (RATES; PESSALACIA, 2010).

IV. CONCLUSÃO

Ao concluir o presente estudo pôde-se perceber que a opinião dos estudantes sobre o aborto pode não estar baseada apenas em aspectos religiosos, mas em sua maioria por questões éticas, morais, culturais e ideológicas. Observa-se também que muitos estudantes se dizem favoráveis a prática e outra grande parte apoiam os casos regidos por lei, outro ponto positivo é que muitos dos participantes afirmaram realizar um bom atendimento a essas pacientes quanto enfermeiros, porém, pôde-se perceber pela fala de alguns que é um tema polêmico, traz certa tensão e não é muito desbravado em sala de aula.

Sabe-se que o aborto ainda é problema de saúde pública e enquanto o governo não cria programas de saúde específicos para buscar uma melhora neste quadro não cabe apenas a educação em saúde para as pacientes ou termos legais, mas também aos profissionais da saúde e estudantes de enfermagem a prestar atendimento humanizado, livre de julgamentos, preconceitos e com maior embasamento teórico para obtenção de resultados satisfatórios na assistência a estas pacientes.

Este estudo não teve o objetivo de defesa ou oposição ao aborto, mas sim conhecer e demonstrar a opinião dos estudantes para com estes dados explicitar a importância de salientar a temática com os alunos, moldando os mesmos para que ao final da faculdade sejam profissionais com uma visão holística e humanizada independente de valores e crenças.

A importância de se falar da temática em sala de aula é ampla, não com objetivo de mudar os valores e aspectos éticos ou morais dos acadêmicos, mas sim com o propósito de incentivar discussões ideológicas sobre o aborto e também salientar a importância do conhecimento legal, biológico, direitos reprodutivos das mulheres e educação em planejamento familiar.

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Can the Gastrointestinal System Alter Liver Damage Caused by COVID-19?

Kayhan Özkan

ABSTRACT

Our gastrointestinal system, which is named as our second brain, is struggling with the devastating disease of recent years, COVID-19. The struggle of bacteria in the intestinal microflora in terms of overcoming possible liver damage caused by COVID-19 is the subject of researchers. Despite the limited number of studies, the fight against liver organ damage by the gastrointestinal system, which is our second brain is important. All original articles published in English until March 01, 2020, were retrieved via a library-assisted literature search from PubMed/MEDLINE, Excerpta Medica Database (EMBASE), and Web of Science. A total of nine articles (2.188 patients) were found eligible for inclusion. Effect size and 95% confidence interval were evaluated in this study. The randomized trials exhibit a noteworthy level of heterogeneity ($p<0.05$), and upon scrutinizing the funnel plot, there is no discernible indication of publication bias. According to the meta-analysis tree graph, the weights of the studies are significantly to the right of the 2 vertical lines. The confidence interval of each study has significant weights.

Keywords: second brain, gut brain axis, covid-19 and microbiome, covid-19 liver effect.

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According to the study findings, the interaction of the intestinal flora and the immune system showed us that there is an area that we need to investigate against the COVID-19 disease. For many years, research has tried to explain how the signaling pathways in the intestinal tract are related to the brain. As a result of the study, it was understood that our digestive system is the most important auxiliary element of our brain. Future studies should uncover the main ways of this communication.

Keywords: second brain, gut brain axis, covid-19 and microbiome, covid-19 liver effect.

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I. INTRODUCTION

The gastrointestinal tract includes life forms consisting of bacteria, viruses, fungi, and protozoa in its natural flora (Matijašić et al., 2020; Vemuri et al., 2020; Davis, 2016). This flora is different in every person like a fingerprint and is necessary for the protection of intestinal health and has an important place in the fight against various diseases (Tomasello et al.,2017; McFarland et al., 2019; Rees et al., 2018; Conlon et al., 2014). Our microbial flora, which is the basic defense element of our immune system, starts in the mother's womb and begins to colonize with birth. The commensal microorganisms residing in the gastrointestinal tract play a pivotal role in facilitating the metabolic processing of orally ingested nutrients through the process of fermentation. If the beneficial microbial flora develops in sufficient amounts, it prevents the reproduction of harmful microorganisms (Krajmalnik et al., 2012; Morowitz et al., 2011).

Intestinal flora produces some products that are fed into the bloodstream by feeding the nutrients in the digestive tract and helping the nervous system to be healthy (Clapp et al., 2017; Butler et al., 2019; Taylor, 2019). In addition, microscopic creatures in the digestive tract fight harmful organisms by triggering an immune response and directly affecting the health of vital organs such as the liver (Dantzer, 2018; Rivest, 2019; Hanke et al., 2011).

Recent studies show that liver transplant patients are at high risk for COVID-19 mortality (Nobel et al., 2021; Choudhary et al., 2021; Schult et al., 2022). Researchers have proven that patients who drink alcohol and have advanced liver cirrhosis experience the disease severely. These patients should continue treatment with mechanical ventilation. Covid 19 disease creates a disorder in

liver metabolism and mortality occurs (Cheemerla et al., 2021; Mallet et al., 2020). Metabolic disorder due to elevated liver enzyme values, combined with inflammation caused by COVID-19 infection, can accelerate cytokine storms and increase immune system dysregulation.

Therefore, it has been reported that transaminase values were found to be high in patients who died as a result of COVID-19 disease (Chadalavada et al.,2020; Kaneko et al., 2020; Pott-Junior et al., 2021).

The microbiota in the intestines reduces the defense system that affects the liver through the general circulation (Schnabl et al., 2014; Belkaid et al., 2014; Newsome et al., 2021). The function of our body's microbiome mechanism affects the health of our physiological nervous system and the perfection of our sensory perceptions. The microbiome, brain, central nervous system, endocrine glands, and lymphoid organs all communicate with one another through the living body (Carabotti et al., 2015; Martin et al., 2018; Fung et al., 2017; Wang et al., 2014; Maeda et al., 2022). Studies on the relationship between the gut microbiome and the central nervous system have revealed that changes in the gut flora increase intestinal permeability, which makes it possible for neuroactive substances to enter the bloodstream (Galland et al., 2014). The extant body of scientific literature substantiates the proposition that various microbiota exhibit the capacity to synthesize bioactive compounds with discernible impacts on gene expression within the neurological milieu. Empirical investigations have delineated a nexus between alterations in microbiota composition and the manifestation of depressive states, modulation of social responsiveness, and the fortification of the immune system against deleterious modifications induced by stressors. These findings underscore the intricate interplay between the microbiome and neurobiological processes, thereby advancing our comprehension of the multifaceted influences exerted by microbial communities on mental health and physiological resilience (Madison et al., 2019). In certain scholarly investigations, findings have been documented suggesting that alterations in the microbiome can precipitate neurological modifications, demonstrating a transferability that extends beyond conspecifics and encompasses inter-species dynamics, notably observed in subjects undergoing fecal transplant procedures. (Napolitano et al., 2020; Chinna et al., 2020). The reciprocal interaction between the microbiome and the nervous system is characterized by a bidirectional relationship, indicating that their influence on each other is not unidirectional. The microbiome can affect how we think, but also our nervous system and lifestyle have a major effect on the composition of our microbiome (Sharon et al., 2016). The struggle to protect immunity lasts until the death of the person and explains why the flora in the digestive system fights for us like gladiators (Wiertsema et al., 2021). The brain alters intestinal permeability and secretions, and the digestive tract microbiome is normal unless there is intestinal disease.

Moreover, the endocrine secretions of the cerebral system, with consequential implications for microbial gene expression, possess the capacity to induce alterations in the constitution of the intestinal microbiota (Kho et al., 2019). Hormonal changes can cause disruptions in the flora of the digestive tract (Martin et al.,2019; Gilbert et al., 2018; Conlon et al., 2014). According to recent studies the administration of antibiotics results in a depletion of the indigenous gut microbiota, affording an advantageous milieu for the colonization of the gut epithelium by pathogenic microbiota. (Kelly et al., 2021; Ramirez et al., 2020; Ceccarelli et al., 2021). There have been studies on the signal pathways used by the gastrointestinal system to communicate with the brain (Looft et al., 2012; Khlevner et al., 2018). A neural network of more than 500 million neurons that controls the digestive system is intertwined with the enteric nervous system (Sasselli et al.,2012; Furness et al., 2014). This number of neurons is roughly five times that of the spinal cord's neurons. The enteric nervous system can be referred to as our second brain because of this. (Li et al., 2020). Some researchers are looking into the possibility of autonomous activation of this system. Additionally, they get signals from the prevertebral ganglia, the enteric nervous system, and the central nervous system via the vagus nerve (Furness et al., 2014). The nomenclature

"intestinal axis" is employed to delineate the complex network of biochemical signaling that transpires between the digestive system and the central nervous system (Arneth et al.,2018).

Nevertheless, the comprehensive impact of the microbiome on cerebral function is currently emerging, prompting the characterization of the reciprocal interplay between the microbiome and the central nervous system as the "microbiome-gut-brain axis." Notably, the absence of a typical gut microbiome during early developmental stages markedly influences an individual's stress response in adulthood (Agata et al., 2019). One of the first studies that turned the microbiome gut brain access into a hot research topic was a study in 2004 that showed differences in behavior between germ free and non germ free laboratory mice (Shen et al., 2015). The mice lacking a microbiome showed an exaggerated stress response. This was reversed when their gut was colonized by a bifidobacterium species.

Elimination of the gut microbiome and mice resulted in problems with spatial and working memory (Gutiérrez et al., 2022). In other studies, dietary modifications also altered the performance of mice on memory tasks. One potential mechanism for these changes is the nerve growth factor BDNF, which is short for brain derived neurotrophic factor (Bathina et al., 2015; Binder et al., 2004). This substance influences neuronal development, protects against stress induced damage, and is important in determining stress tolerance, mood, and cognitive function. Mice with healthy microbiomes have higher expression of BDNF in their brains, which might be why they have better memories. Another study showed that even in the absence of obesity, the microbiome associated with obesity can cause neurophysiological changes (Davis et al., 2016).

Researchers use donor mice for the development of two different types of microbiomes. One group was fed a diet with 13% fat calories, while the other was fed a diet with 60% fat calories. 10 weeks after the diets commenced, the researchers harvested their microbiomes. At this time, mice from the leaner group weighed an average of 24.5 grams, while mice from the high fat diet group weighed an average of 37 grams. Next, another group of mice, the microbiota recipients, were given antibiotics daily for two weeks to eliminate their original microbiomes. Three days after the end of the two week course of antibiotics, the mice were recolonized by donor microbiota from either the group that had been found, the high fat diet or from the group that had been fed the control diet (Rodriguez et al., 2019). Behavioral assessments were systematically executed, revealing a discernible reduction in exploratory behavior and a concurrent elevation in anxiety-related behaviors among recipients exposed to high-fat microbiota. Notwithstanding, locomotor activity and overall behavioral metrics remained within comparable ranges. Distance traveled was the same for both groups of recipient mice, indicating no effect of the different microbiomes on motor function (Luo et al., 2018). The mice which received the high fat diet microbiota also had increased intestinal permeability. The authors also examined markers for brain injury and inflammation and found that the high fat diet microbiota receiving mice had higher numbers for these markers. It is, of course, much more difficult to conduct studies regarding the relationship of the brain and the microbiome in humans.

Interesting link that is still being investigated is the correlation between autism and high levels of Clostridium bacteria in children's stools (Argou et al., 2018). Around 70% of people with autism suffer from gastrointestinal problems (Wasilewska et al., 2015). The gastrointestinal maladies in question may potentially correlate with a modified gut microbiome, leading to heightened intestinal permeability; however, it is imperative to acknowledge that substantial further inquiry is requisite before definitive conclusions can be drawn.It is possible that certain developments in gut flora may trigger autism, or that the two develop concurrently.

Upon traversing the birth canal, neonates encounter constituents of their maternal microbiome, constituting their inaugural exposure to bacteria that subsequently assume a pivotal role in the establishment and maturation of their indigenous microbiota (Dunn et al., 2017).

Alterations in dietary patterns have been demonstrated to exert substantial and expeditious impacts on the compositional framework of the gut microbiome in both human subjects and murine models. Notably, such modifications have been observed to exert discernible influences on cognitive processes, specifically memory and learning. Further exploration of the ramifications of the gut-brain axis microbiome interrelation on visceral organs, such as the liver, holds promise for enhancing our understanding of the pathophysiological sequelae induced by COVID-19. The principal emphasis of this systematic review centered on a research article and meta-analysis, aimed at providing a comprehensive synthesis of data elucidating the impact of gut microbiota on COVID-19 comorbidities, specifically with regard to hepatic injuries.

II. MATERIALS AND METHODS

The checklist's meta-analyses and observational PRISMA 2009 guidelines were followed in gathering the data for this study.

III. LITERATURE SEARCH

A systematic inquiry was conducted utilizing reputable databases, namely PubMed/MEDLINE, Excerpta Medica Database (EMBASE), and Web of Science, with the objective of identifying pertinent cohort studies, case-control studies, or randomized controlled trials that furnished comprehensive data regarding the nexus between the gut microbiome and COVID-19. The search encompassed publications available up to September 1, 2022 (Table 1). The terms related to the microbiota, the relationship between the liver and COVID-19, and the function of the microbiome in COVID-19 were combined with or used as synonyms in the literature search method.

To ascertain additional data sources within the obtained results, an exhaustive review of the reference lists from relevant research and review articles was systematically undertaken.

Table 1: General Characteristics of Included Studies

Ref.	Study Design	Comparison Criteria	Total Sample	Gut Microbiome Culture	COVID-19 Presence	Potantiel Gut Brain Axis Presence
Yeoh et al.	CC	GIS probiotic formula	178	Performed	+	+
Zuo et al.	CC	Fecal sample	69	Performed	+	+
Maeda et al.	CC	Fecal sample	108	Performed	+	+
Castrellon et al.	CC	GIS probiotic formula	300	Performed	+	+
Newsome et al.	RCS	Observational cohort study	93	Performed	+	+
Schult et al.	CC	Saliva and fecal samples	130	Performed	+	+
Jin et al.	CC	Retrospective bioinformatic data	651	Performed	+	+
Nobel et al.	CC	Retrospective bioinformatic data	516	Performed	+	+
Ceccarelli et al.	RCS	Observational cohort study	143	Performed	+	+

RCS: Retrospective Cohort Study CC: Case-Control GIS: Gastro Intestinal System

IV. STUDY SELECTION

A comprehensive literature review encompassing 80,891 records was conducted, culminating in the final inclusion of nine pertinent articles. The subsequent meta-analysis incorporated data derived from these nine selected studies. 2.188 patients with liver findings and COVID-19 disease were included in the studies that made up the meta-analysis in this study. Most of the data was collected prospectively for observational studies, all of which were case-control studies. The

majority of assessment items had a low risk of bias in studies. Figure 1 provides a summary of the chosen studies.

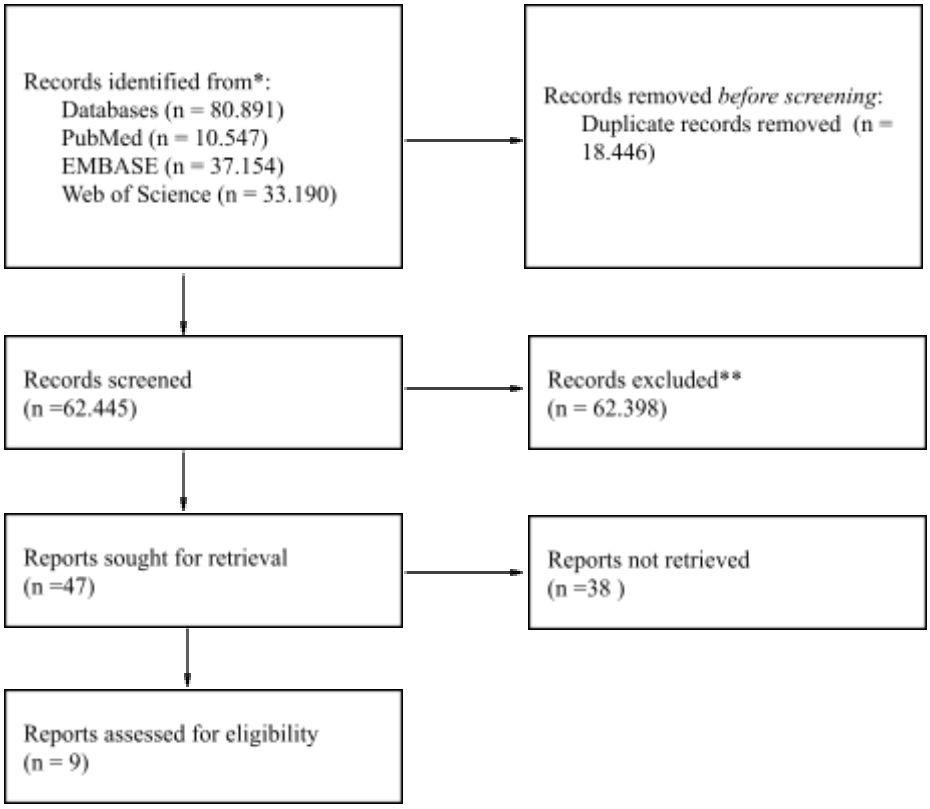

Figure 1: PRISMA Flow Chart of Study Selection

This study incorporated retrospective cohort studies and case-control investigations involving a cohort size of 69 or more participants. Inclusion criteria encompassed studies that reported on the risk of gastrointestinal system symptoms associated with COVID-19, or studies providing empirically derived data suitable for the computation of said risk estimates. Studies that included patients undergoing non-COVID-19, lacked a clear definition of the recovery period after illness follow-up, and failed to report high priority data were excluded from the main analysis. We only included the one report with the largest sample size to avoid publishing the same group or cohort of patients twice. The same investigators individually retrieved and downloaded the full texts of articles that were thought to be potentially admissible for analogy inclusion. Each downloaded file received a file number and a password that was known to both researchers.

V. DATA EXTRACTION AND PROCESSING

One researcher extracted data using a common data abstraction form, and another researcher double-checked the results. Data retrieval encompassed pertinent information on the study's objectives, COVID-19 typology, the interplay between the microbiome and COVID-19, sample size, demographic characteristics such as mean or median age and sex ratio, prevalence of comorbid conditions (e.g., cirrhosis, immune-specificity), incidence of COVID-19 among participants, and the associated risk estimation accompanied by a 95% confidence interval (95% CI). Utilizing Comprehensive Meta-Analysis Software tools tailored for case-control studies and randomized controlled trials, a meticulous assessment of bias risk was undertaken.

VI. STATISTICAL ANALYSIS

Analyses were conducted with Comprehensive Meta-Analysis Software (version 3.3.070, USA). Heterogeneity evaluation was conducted through the χ^2 test on Cochrane's Q statistic, with quantification facilitated by I^2 values. The I^2 values were interpreted as indicators of heterogeneity, acknowledging that higher I^2 values correspondingly denote greater heterogeneity in the data (Ramirez et. Al., 2020).

By inspecting funnel plots and performing a linear regression test of funnel plot asymmetry, we determined whether studies had any bias related to the sample size effect. (Hedges's test). Two -tailed statistical tests were used, and a P value of 0.05 was considered statistically significant.

VII. RESULTS

7.1 Association Between Gastrointestinal Microbiata and COVID-19

Effect size and 95% confidence interval were evaluated in this study. The standard error margin of 9 publications investigating randomized effects was found to be 0.934486 (Table 2). The heterogeneity within randomized trials is statistically significant ($p < 0.05$), and upon meticulous inspection of the funnel plot, no discernible evidence of publication bias was observed (Figure 2). According to the meta-analysis tree graph, the weights of the studies are significantly to the right of the 2 vertical lines. The confidence interval of each study has significant weights. The weights of the studies are significantly to the right of the 2 vertical lines indicated by meta analysis tree graph. As shown in Figure 2 and Table 3, the articles identified for meta-analysis were not found to be heterogeneous ($p<0.05$). These results show the net value of the effect weight for the study (Figure 3).

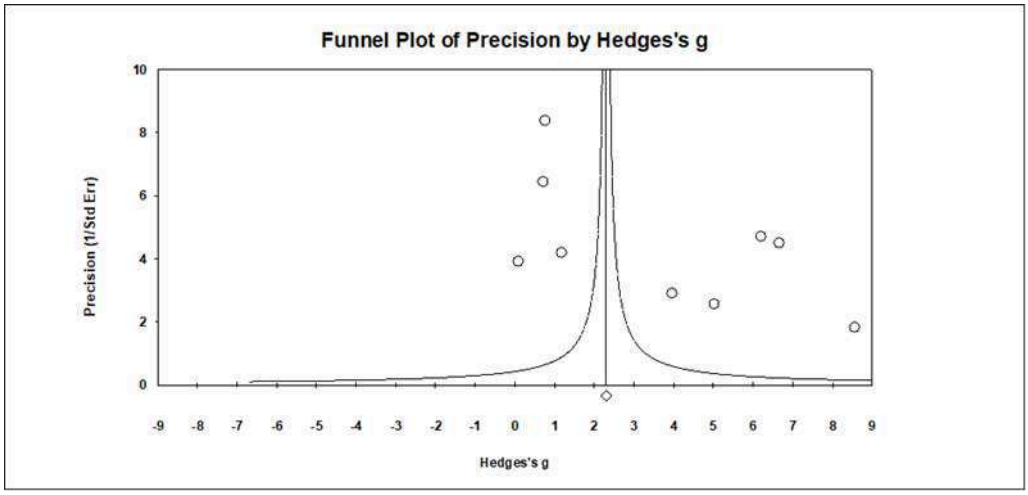

Figure 2: Publication Bias on Funnel Plot Inspection

Table 2: Effect Size of Gastrointestinal System Microbiata Association Between Immun System Response and Brain Axix

Study Model	Number Studies	Point Estimate	Standard Error	Variance	Lower limit	Upper limit
Fixed effects	9	2.302287	6.97E-02	4.86E-03	2.16565	2.438923
Random effects	9	3.661963	0.934486	0.873264	1.830404	5.493522

Effect Size and 95% Confidence Interva

Table 3: Heterogeneity of Study Results

Study Model	Test of null (2-Tail)		Heterogeneity			
Fixed effects	Z value	P value	Q-value	df (Q)	P-value	I-squared
Random effects	33.02492	0.000	1295.44022	8	0.000	99.38244931
Study Model	3.918692	0.000				

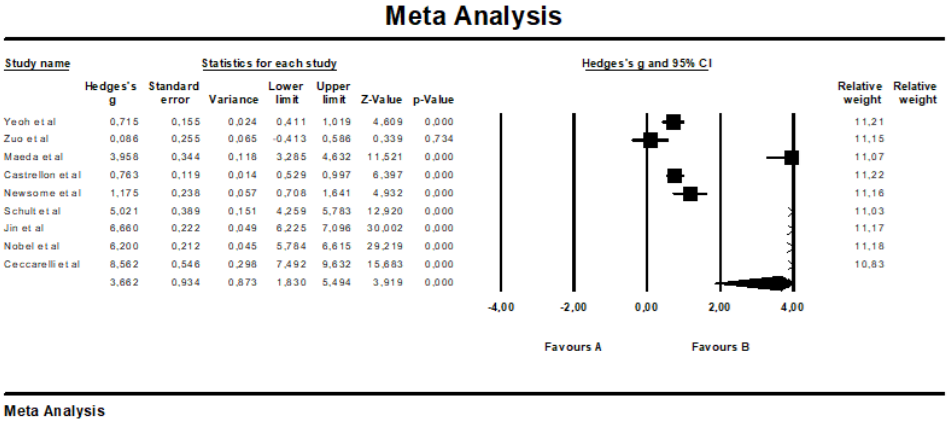

Figure 3: Meta-Analysis Tree Graph: The Weights of the Studies are Significantly to the Right of the 2 Vertical Lines

VIII. DISCUSSION

If the microorganisms in the intestinal flora provide sufficient serous structure protection, the neural communication with the brain is healthier. If we evaluate the immune system as a whole, any change in the flora may cause a decrease in the defense response to COVID-19 disease (Suganya et al., 2020). This interaction is in constant communication with the brain-gut neural axis (Ceccarelli et al., 2019). Studies report that recovery is accelerated if the intestinal microbiota is good in patients with COVID-19 disease and liver damage (Chowdhury et al., 2020; Farsi et al., 2020). According to this meta-analysis study data, it is understood that if the intestinal microbiota is healthy enough, the recovery processes of the patients are accelerated (Gagliardi et al., 2018).

Perturbations in the gut microbiome have been widely acknowledged in association with COVID-19 (Sun et al., 2022). The proposed interventions involve arresting viral proliferation within the gastrointestinal tract, mitigating inflammation of epithelial cells in the intestinal milieu (Somsouk et al., 2022), ameliorating the dysbiosis of gut bacteria induced by COVID-19, and reinstating the impaired transport and metabolism of tryptophan in individuals affected by the virus. Restore the mucus layer in the gastrointestinal tract and tight junction integrity to assure a return to normal intestinal permeability (Gold et al., 2021). After detoxifying the gut, it is necessary to create a microbiome that will support T memory cell function, which is essential not only for warding off neuropathy but also for protecting against the effects of future infections. There is now ample evidence that ongoing viral infection contributes to prolonged COVID-19. In this meta-analysis, almost all of these mechanisms of the defense system were examined. Spike protein circulating in the blood of people in plasma, even in the cells of people with COVID-19, up to 12 months after they were first infected. And these researchers said there must be a reservoir of chronic viral infection (Carvalho et al., 2021). This is present and this creates and then persists, possibly driving long-term COVID-19 and immune response of people especially neuropathic.

An impairment of T effector memory cells of the type that would be seen with chronic antigenic stimulation. So, steps to prevent viral proliferation in the gut, there are drugs that might

be used. Researhers mostly are using natural products and flavonoids figure very strongly into that pharmaceutical repertoire, especially those concerning containing quercetin (D'Andrea et al., 2015). Thus have effects of protease inhibition and that also destroy bacteriophages. There is very strong evidence that the Coronavirus, not only infects human cells but can infect bacteria and act as a bacteriophage (Górski et al., 2020).

Researhers now exploring the role of antibiotics along with these antiviral herbs, in particular amoxicillin, which in his studies actually proved to be the most effective. Dietary factors that could impact the activity of bacteriophages, polyphenols, especially the bioflavonoids. So since we don't know what stevia does in this particular setting, a study would use caution with stevia in patients who've had COVID-19. Now there also is a probiotic that has antiviral activity.

The Next Step: Reducing Epithelial Cell Inflammation

Inflammation increases the synthesis of nitric oxide, which results in an increase in the nitrate concentration of the inflamed tissue (Sharma et al., 2020). High nitrate environment, which is what's created, enhances the growth of many bacterial pathogens (Vázquez et al., 2016). But it inhibits the growth of many healthy anti-inflammatory natural bacteria. This is a vicious cycle. The high nitrate environment invites the growth of pathogenic bacteria, which then generate more inflammation and maintain this nitrate cycle. There are a number of natural products that researchers use for this purpose, quercetin. Mastic gum from the Mediterranean food pistachio lenticonus. Curcumin from turmeric, omega-3 fats, Magnolia bark, which is used a lot in Chinese medicine, and bovine serum immunoglobulins have all been shown in controlled studies to reverse intestinal inflammation (Thota et al., 2019). Because some of these also have antiviral effects, they do double duty. Quercetin has garnered particular attention in scientific inquiry due to its examined antiviral properties and its capacity to mitigate inflammation within the gastrointestinal tract. And there's several studies to that effect now.

Improving the gut microbiome. People who did not show these features had a much better outcome and recovered fully from COVID-19. A pivotal bacterial species known as Faecalibacterium prausnitzii holds keystone significance, primarily as a significant producer of the short-chain fatty acid butyrate. This compound, renowned for its pronounced anti-inflammatory effects, exerts its influence within the gastrointestinal tract and, consequently, throughout the entire physiological system. There are higher levels of certain other bacteria that are associated with inflammation, in particular a species called ruminococcus gnavus.

Another important gastrointestinal system protective agent is butyrate. When we look at the physiology of butyrate, it becomes pretty clear that. This is not just a coincidence, so next step is to try and restore the depleted bacteria and restrain the inflammatory bacteria once again in a general way. Bioflavonoids play a major role in doing that. Flavonoids, as curators of the gut microbiome, and they encourage the growth of and activity of certain species and inhibit certain other species. And at the same time, we need these flavonoid dependent bacteria because they make the flavonoids more available to human body. Butyrate is what is called a post biotic. It is produced by bacteria in the gut. It's not produced by human cells. About 80% of the energy that maintains the integrity of the lining of the large intestine comes from butyrate. The mitochondria in the large intestine depend on butyrate for their activity (Davie, 2003). Outside the gastrointestinal tract that rate has some important effects. It has main effects in the brain.

This is a volatile short chain fatty acid. It passes very readily through membranes which produced in the gastrointestinal tract, goes into the body, which circulates in the blood goes readily into the brain. One of the systemic effects of butyrate is is an inhibitor of an enzyme called histone deacetylase. Histone deacetylase inhibits certain genes and it has been shown that in the brain the presence of butyrate activates some quiescent genes, in particular a gene that's involved in producing a protein called brain derived neurotrophic factor (BDNF), which is really

important for recovery of neurons from damage and injury it also (Wei et al., 2014). Activates various complexes on cells called G protein coupled receptors. Some of them are only activated by butyrate, and they have important effects in regulating immune responses and inflammation. So the steps to be taken toward reversing gut bacterial dysbiosis among people with long COVID-19 from a dietary perspective, the science would suggest a high fiber polyphenol rich diet. That increases butyrate secretion production. It increases the growth of Faecalibacterium prausnitzii. The research criteria and adherence to a Mediterranean type diet was also shown to elevate fecal levels of fecal bacterium presidency. Bacteria called Enterococcus fetalis that's associated with worse outcomes in people hospitalized with COVID-19. It is a major stimulus to the production of gamma interferon, which plays a role in the cytokines storm of acute COVID-19 resveratrol.

A study report focused on adults with allergies investigated the efficacy of Bacillus coagulans, a soil-derived organism. In particular strain GB 130, which was studied in elderly people and found to decrease inflammatory markers like C reactive protein (Madempudi et al., 2019). This is a study that just came out on Ruminococcus Navis, and higher levels of Ruminococcus gnavus was associated with an increased risk of long COVID-19 and also converts tryptophane and essential amino acid to tryptamine. On a mean that has that promotes migraine headaches and migraine phenomena and migraine type phenomena play an important role in the physiology of neuropathic (Liu et al., 2022).

IX. CONCLUSION

Based on the study findings, this interaction in the gut microbiota shows us that there is an area we need to investigate against COVID-19 disease. Studies conducted for many years explain that the signaling pathways in the intestinal system are related to the brain. On the other hand, we can keep the most basic organs of our body, such as the liver, alive to the extent that we make the digestive system healthy. Therefore, the healthier we keep the digestive system, the better we can keep the liver health. As a result of the study, it was understood that our digestive system is the most important auxiliary element of our brain.

Future studies should reveal the basic pathways of this communication.

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Declaration of Conflicting Interest

The author declare no conflicts of interest.

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Evaluation of a Self/Learning Course Sexual Education Online Course, CESOLAA. Objective Accomplishment and Development Quality of Five Courses, 2021-2023

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SUMMARY

From 2017 to 2023 a Self/Learning Sexual Education Online Course, (CESOLAA), is evaluated on 5 population groups. 3 courses were Closed to: 7 Pre-graduate health-student carriers, Summer post graduate courses and Teachers Assistant from 17 schools and other 2 MOOC Open type courses for Teachers and Assistant´s Educator and other course for General Public over 10 years old. Anonymous exploration is applied on Objectives Achievements and Quality Development of each Course, using previous proved evaluation instrument. The Closed Courses reached 89,1% (1.883/2.114) of approval and the Open Course reached 6,1% (251/4.089).

The Objectives Achievements was classified as Good and Excellent in 95,2% for the Closed Courses and 91,8% for the Open Course. The Quality Development as Good and Excellent was classified in 96,6% and 93,1% for the 3 Closed Courses and 2 Open Courses, respectively. The big difference in these experiences, has been the significant lower proportion of participation in the Open Courses.

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Evaluación De Educación Sexual on Line De Auto Aprendizaje, Curso CESOLAA. Cumplimiento De Objetivos Y Calidad Del Desarrollo De Cinco Cursos, 2021- 2023

Ramiro Molina[α], Sebastián Alarcón[σ] & Temístocles Molina[ρ]

RESUMEN

De 2017 a 2023 se evalua un Curso de Educación Sexual On Line de Auto Aprendizaje, (CESOLAA), en 5 grupos poblacionales. 3 fueron cursos Cerrados: Estudiantes pregrado en carreras de Salud , Estudiantes de Postgrado en Cursos de Verano y Profesores de 17 establecimientos escolares y 2 fueron Cursos tipo MOOC, Abiertos: para Profesores y Asistentes de la educación y otro para Público General mayor de 10 años. Anónimamente se explora el Cumplimiento de los Objetivos y Calidad de su Desarrollo en cada curso, con instrumentos ya probados. La aprobación de los Cursos Cerrados fue 89, 1 % (1.883/2.114) y de los Cursos Abiertos en 6, 1% (251/4089). El Cumplimiento de los Objetivos fue calificado de Bueno y Excelente en 95, 2% en los Cerrados y de 91, 8% en los cursos Abiertos. La Calidad de ejecución Buena y Excelente fue calificada de 96, 6% y 93, 1% en los 3 cursos Cerrados y 2 cursos Abiertos, respectivamente. La gran diferencia en esta experiencia ha sido en la proporción de participación significativamente más baja en los Cursos Abiertos.

SUMMARY

From 2017 to 2023 a Self/Learning Sexual Education Online Course, (CESOLAA), is evaluated on 5 population groups. 3 courses were Closed to: 7 Pre-graduate health-student carriers, Summer post graduate courses and Teachers Assistant from 17 schools and other 2 MOOC Open type courses for Teachers and Assistant´s Educator and other course for General Public over 10 years old. Anonymous exploration is applied on Objectives Achievements and Quality Development of each Course, using previous proved evaluation instrument. The Closed Courses reached 89,1% (1.883/2.114) of approval and the Open Course reached 6,1% (251/4.089).

The Objectives Achievements was classified as Good and Excellent in 95,2% for the Closed Courses and 91,8% for the Open Course. The Quality Development as Good and Excellent was classified in 96,6% and 93,1% for the 3 Closed Courses and 2 Open Courses, respectively. The big difference in these experiences, has been the significant lower proportion of participation in the Open Courses.

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I. INTRODUCCIÓN

En 1981 se inicia el desarrollo del Centro de Medicina Reproductiva y Desarrollo Integral de la Adolescencia (CEMERA), en el Departamento de Obstetricia y Ginecología del Hospital Clínico de la Universidad de Chile (1, 2). Se creó e implementó un programa de atención integral

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para adolescentes embarazadas que incluyó un curso básico de Educación Sexual durante el control prenatal(3, 4). Este fue el inicio Curso de Educación Sexual Integral Escolar (ESIE), enfocado en la formación de Profesores, según lo recomendado por UNESCO y que continuó su construcción progresiva entre 1982 y 2005 (5, 6, 7, 8, 9).

Con esta experiencia docente, se inicia en 2014 la construcción del Curso de Educación Sexual On Line de Auto Aprendizaje, (CESOLAA) que se instala en 2016 como sitio WEB abierto y gratuito, en la Unidad de TIC´s para la innovación Educativa (UTIE) de la Escuela de Salud Pública de la Universidad de Chile (UCH), (10,11). Fue apoyado con una donación económica de una empresa privada, entregada directamente a la Rectoría de UCH y administrada bajo la supervisión de la Vicerectoría de Asuntos Estudiantiles y Comunitarios de la misma universidad. CESOLAA se inaugura oficialmente en enero de 2017, en la Facultad de Medicina de la UCH., compartiendo la responsabilidad docente con el Departamento de Obstetricia y Ginecología del Hospital Clínico Universitario de la U.CH.

De 2017 a 2023 se desarrollan 5 cursos de los cuales 3 fueron CERRADOS para público de instituciones específicas y 2 ABIERTOS tipo MOOC (Massive Open Online Courses) (12). De los tres Cursos CERRADOS, uno se aplicó en Estudiantes de Carreras de la Salud de la Facultad de Medicina de la U. de Chile (13), otro en Profesores y Asistentes de la educación de 17 establecimientos escolares de la Ilustre Municipalidad de Recoleta (14) y un tercero como Curso electivo en las Jornadas de Verano de la Escuela de Salud Pública durante 2019, 2020 y 2021 (15). De los dos Cursos ABIERTOS, uno fue diseñado para Profesores y Asistentes de la educación, (16) y otro dirigido a Población General (17).

Los 5 cursos constituyen una experiencia de validación docente que analiza el Cumplimiento de los Objetivos docentes y la Calidad de su Desarrollo, utilizando instrumentos de evaluación previamente probados en adolescentes (18).

II. MATERIAL Y MÉTODO

El curso está constituido por 17 capítulos con 213 preguntas finales; 17 clases expuestas por sus autoras y autores; disponibilidad de ejecución de 14 Videos-talleres originales con 76 preguntas; un curso de Radio en FM 102.5 UCH; 3 películas originales del curso y una película chilena premiada con un premio Oscar: La Mujer Fantástica, vía You Tube. Los 5 cursos, totalmente gratuitos y las personas o instituciones pueden aplicarlos total o parcialmente.

1. Los 3 cursos *CERRADOS* fueron dirigidos a: 1.- Estudiantes de las 8 Carreras de la Salud de la Facultad de Medicina como Curso de Formación General semestral , a la Facultad de Odontología y a la Facultad de Química y Farmacia de la Universidad de Chile, en los años 2018, 2019, 2020 y 2021. Se conoce como CESOMED (13).
2. Estudiantes, en curso de dos semanas en las Jornadas de Verano de la Escuela de Salud Pública de la Universidad de Chile en enero de 2018, 2019, 2020 y 2021. Se conoce como CESOVER (14).
3. Profesores y Asistentes de la Educación de 17 establecimientos escolares públicos, a solicitud de la Ilustre Municipalidad de Recoleta (sector norte de la Ciudad de Santiago), octubre de 2019 a diciembre de 2021. Se conoce como CESOREC (15) . Todo el material se entregó vía On Line a través de las plataformas específicas (10,11), con acceso totalmente gratuito. Los tres cursos CERRADOS tuvieron adaptaciones metodológicas en cuanto al uso del material didáctico, de acuerdo con la población receptora en el curso específico. Todas las herramientas estuvieron disponibles para el uso voluntario de las y los estudiantes, ya sea durante el Curso o posteriormente, si así le requirieran. Los 2 cursos ABIERTOS, de tipo MOOC (12), corresponde a los Cursos realizados entre marzo de 2017 y febrero de 2022, fecha de cierre para efectuar este análisis y fueron dirigidos. a:
4. Profesores y Asistentes de la educación de diferentes Paises: 81% de Chile y 19 % de otros Paises hispanoparlantes (16).

5. Público en General: Experiencia abierta totalmente. Se obtuvo: 87, 8% de Chile, 5, 7% de otros Paises hispanoparlantes y 6, 5% sin identificación de País (17). En ambos cursos las personas siguieron el método sugerido por el modelo, o bien siguieron su propio método para desarrollarlo. Cuando las/los participantes, terminan el curso completo, pueden solicitar el reconocimiento del curso si lo desean.

Estos curso ABIERTOS, no tienen un plazo específico de término, como tampoco se limita los tiempos de reinicio de las ejecuciones incompletas o en la corrección de las respuestas erróneas de las evaluaciones que se pueden repetir, las veces que fuere necesario. Los cursos ABIERTOS no tienen una asesoría docente directa y por lo tanto es la o él participante, quien debe buscar los errores o discrepancias en los temas tratados. Los Curso ABIERTOS, se recomienda que sean ejecutado por personas mayores de 10 años (10).

Todos los cursos: CERRADOS y ABIERTOS, tienen evaluaciones voluntarias del material didáctico que ejecutan las y los participantes, al término de cada uno de los 5 módulos del curso. Son evaluaciones anónimas y el sistema no permite identificar a las o los participantes que responden. Estas evaluaciones enfocan dos aspectos:

- Cumplimiento de los Objetivos del Curso y
- Calidad del Desarrollo del Curso.

Los instrumentos de evaluación tienen criterios probados y validados previamente en todos los cursos de Educación Sexual a través de encuestas anónimas en los cursos presenciales desarrollados desde 1998 (18).

III. RESULTADOS

3.1 Rendimiento comparativo de los 5 Cursos de CESOLAA

En la tabla N° 1 se observa la descripción de los 5 cursos y el rendimiento de cada uno de ellos.

Tabla N° 1: Descripción De Los 5 Cursos, CERRADOS Y ABIERTOS (MOOC) De CESOLAA. Proporción De Rendimiento Según Criterios De Aprobación

Participantesy Tipos de cursos 2017 a 2022	INSCRIPCIO INICIAL		APROBACION 1er MODULO		APROBACION 5to MODULO		% RENDIMIENTO POR INSCRIPCION INICIAL				
	N°	%	N°	%	N°	%	APROBACIÓN 1ER MÓDULO/Insc. Inicial		APROBACIÓN 5TO MÓDULO SEGÚN:		
	CURSOS CERRADOS						INSC RIP. INICIAL	Intervalo Conf 95%	INSC RIP. INICIAL	Intervalo Conf. 95%	Primer Módulo
1. Carreras de la Salud. 4 semestr.	636	30,1	601	29,1	601	31,9	94,5	(92,4-96,1)	94,5	(92,4-96,1)	100
2. Jorn. Ver. Esc. Salud Púb. 2 sem.	1.187	56,1	1.184	57,3	1.027	54,5	99,7	(99,3-99,9)	86,5	(84,4-88,4)	86,7
3. Prof Municipal Recoleta. 6 meses	291	13,8	282	13,6	255	13,5	96,9	(94,2-98,6)	87,6	(83,3-91,2)	90,4
TOTAL	2.114	100	2.067	100	1.883	100	97,8	(97,1-98,4)	89,1	(87,7-90,4)	91,1
	CURSOS ABIERTOS (tipo MOOC)										
4. Público en Gral III 2017 -II. 2022	931	22,8	230	56,8	177	70,5	24,7	(22.0-27,6)	19,0	(16,5-21,7)	77,0

5. Prof./As. Ed. III 2017 – II. 2022	3.158	77,2	175	43,2	74	29,5	5,5	(4,8-6,4)	2,3	(1,8-2,9)	42,3
TOTAL	4.089	100	405	100	251	100	9,9	(9,0-10,9)	6,1	(5,4-6,9)	62,0
Gran Total	6.203	100	2.472	100	2.134	100	39,9	(38,6-41,1)	34,4	(33,2-35,6)	86,3

El total de incripciones analizadas, (3 Cursos CERRADOS + 2 Cursos ABIERTOS), se desarrollaron entre marzo de 2017 y febrero de 2022 alcanzando a 6.203 personas inscritas. En los 3 Cursos CERRADOS hubo un total de 2.114 inscripciones iniciales de las cuales aprobaron los 5 Módulos 1.883 personas (89,1%) con un Intervalo de confianza de 95 %, entre 87,7-90,4. En los 2 Cursos ABIERTOS, tipo MOOC, hubo un total de 4.089 inscripciones de las cuales aprobaron los 5 Módulos 251 personas (6,1%) con un intervalo de confianza del 95% entre 5,4-6,9.

De los tres Cursos CERRADOS, uno fue ejecutado por: Estudiantes universitarios de Carreras de la Salud. Otro por inscritos en la Jornadas de Verano de la Escuela de Salud Pública de la UCH y un tercero por Profesores o Asistentes de la Educación Básica, Primaria o Secundaria de la Comuna de Recoleta. Tuvieron un plazo fijo de duración y con tiempos programados para cada uno de los 5 módulos, de acuerdo con la exigencia inicial del respectivo curso. Sin embargo, esto no se pudo cumplir desde el 18 de marzo de 2020, pues se inicio la pandemia con la suspensión de las actividades escolares con estudiantes. El rendimiento del 1er Módulo para los 3 cursos CERRADOS fue de 97,8% que desciende a 89,1%; en la aprobación del 5to Módulo (8,7% de descenso). El rendimiento se mantiene en 94,5% para las Carreras de la Salud ; desciende a 86,5% en las Jornadas de Verano (13,2% de descenso) y desciende a 87,6% en el Profesorado de Recoleta (9,3% de descenso).

Los 2 cursos ABIERTOS tipo MOOC, fueron ejecutados sin plazos fijos de término y sólo se entregaron las calificaciones a solicitud de las personas que terminaban con éxito el curso. Estos 2 cursos MOOC fueron observados desde Marzo de 2017, (inauguración de CESOLAA), a febrero de 2022, fecha del primer análisis de esta experiencia de 5 años, durante los cuales no estuvieron sujetos a plazo fijos de inscripción ni de término, como tampoco de plazos fijos para cada uno de los 5 módulos.

El % de rendimiento por inscripción inicial, del 1er Módulo, para los 2 cursos ABIERTOS fue de 9,9% que desciende a 6,1% en la aprobación del 5to Módulo (3,8% de descenso). El rendimiento desciende a 19,0% en el curso para Público en General (5,7% de descenso) y desciende a 2,3% en el curso para Profesores y As. Ed. (3,2% de descenso).

En el total de los cursos CERRADOS el 91,1% de las personas que aprueban el 1er Módulo, también aprueban el 5to Módulo. Sin embargo, esto ocurre en el 100% de las Carreras de la Salud (15) ; 86,7% en las Jornadas de Verano(Rev Med de Chile publicación en revisión) y 90,4% en el Profesorado de Recoleta (Cuadern. Med. Social. aceptado para Pub en XII 2023). En el total de los 2 cursos ABIERTOS, el 62% de las personas que aprueban el 1er Módulo tambien aprueban el 5to Módulo. En el curso para Público en General ocurre en 77% (17) y 42,3% en el curso de Profesores y Asistentes de la Educación (16).

3.2 Evaluación Anónima De Los Estudiantes Acerca Del Cumplimiento De Los Objetivos De Los 5 Cursos De CESOLAA

Tabla N° 2: Evaluación Del Cumplimiento De Los Objetivos Del Curso De Educación Sexual on Line en Sus Modalidades CERRADOS Y ABIERTOS Tipo MOOC

CURSOS	Deficiente		Insuficiente		Regular		Bueno		Excelente		Total		Bueno+Excel		Interv Conf. 95%
CERRADOS	N°	%	N°	%	N°	%	N°	%	N°	%	N°	%	N°	%	
1. CESOMED	13	0,5	20	0,8	104	3,9	598	22,7	1.901	72,1	2.636	100	2.499	94,8	(93,4-95,6)
2. CESOVER	59	1,2	25	0,5	170	3,4	785	15,6	4.006	79,4	5.045	100	4.791	95,0	(94,3-95,6)
3. CESOREC	3	0,2	4	0,3	37	2,8	200	15,3	1.067	81,4	1.311	100	1.267	96,6	(95,5-97,6)
SUBTOTAL	75	0,8	49	0,5	311	3,5	1.583	17,6	6.974	77,6	8.992	100	8.557	95,2	(94,7-95,6)
ABIERTOS															
4. PUB.GRA	71	1,9	76	2	165	4,3	848	22,2	2.654	69,6	3.814	100	3.502	91,8	(90,9-92,7)
5. PROFESOR	21	1,1	16	0,8	122	6,4	407	21,2	1.350	70,5	1.916	100	1.757	91,7	(90,4-92,9)
SUBTOTAL	92	1,6	92	1,6	287	5,0	1.255	21,9	4.004	69,9	5.730	100	5.259	91,8	(91,0-92,5)
GRAN TOTAL	167	1,1	141	1,0	598	4,1	2.838	19,3	10.978	74,5	14.722	100	13.816	93,8	(93,4-94,2)

1. CESOMED.- Curso de Ed. Sexual para Estudiantes Universitarios de la Salud. Fac. Med. Un.de Chile
2. CESOVER.- Curso de Ed. Sexual en Jornadas de Verano de la Esc. Salud Pub. Un. de Chile.
3. CESOREC.- Curso de Ed. Sexual para Profesores y As. Educación. Municipalidad de Recoleta.
4. ABIERTO para Público en General recomendado para mayores de 10 años. Tipo MOOC.
5. ABIERTO para Profesores y Asistentes de la Educación. Tipo MOOC.

Se aprecia en la Tabla N° 2 que la evaluación del Cumplimiento de los Objetivos de los 5 cursos tiene calificaciones de Bueno+Excelente en un promedio de 93,8% (13.816 de 14.722 respuestas totales).En los Cursos CERRADOS fue de 95,2% (8.557 de 8.992 respuestas totales).

En los Cursos ABIERTOS o MOOC las calificaciones de de Bueno+Excelente, tienen un promedio de 91,8% (5.259 de 5.730). Las calificaciones de Deficiente, Insuficiente y Regular alcanzaron 4,8% en los Cursos CERRADOS y de 8,2% en los Cursos ABIERTOS.

3.3 Evaluación Anónima De Los Estudiantes Acerca De La Calidad Del Desarrollo De Los 5 Cursos De CESOLAA

Tabla N° 3: Evaluación De La Calidad Del Desarrollo Del Curso De Educación Sexual on Line en Sus Modalidades CERRADOS Y ABIERTOS Tipo MOOC

CURSOS	Defici.		Insufic.		Regular		Bueno		Excelente		Total		Bueno+Excel		Intervalo de Confianza
CERRADOS	N°	%	N°	%	N°	%	N°	%	N°	%	N°	%	N°	%	
1. CESOMED	11	0,4	19	0,7	84	3,3	454	17,6	2.011	78,0	2.579	100	2.465	95,6	(94,7-96,3)
2. CESOVER	56	1,1	12	0,2	132	2,5	701	13,3	4.387	83,0	5.288	100	5.088	96,2	(95,7-96,7)
3. CESOREC	8	0,2	9	0,2	117	2,2	644	12,3	4.466	85,2	5.244	100	5.110	97,4	(97,0-97,9)
SUBTOTAL	75	0,6	40	0,3	333	2,5	1.799	13,7	10.864	82,9	13.111	100	12.663	96,6	(96,3-96,9)
ABIERTOS															
4. PUB.GRAL	6	1,9	51	1,3	154	3,9	760	19,1	2.936	73,8	3.977	100	3.696	92,9	(92,1-93,7)
5. PROFESOR	10	0,5	24	1,2	95	4,8	357	17,9	1.506	75,6	1.992	100	1.863	93,5	(92,4-94,6)

SUBTOTAL	86	1,4	75	1,3	249	4,2	1.117	18,7	4.442	74,4	5.969	100	5.559	93,1	(92,5-93,8)
GRAN TOTA	161	0,8	115	0,6	582	3,1	2.916	15,3	15.306	80,2	19.080	100	18.222	95,5	(92,5-95,8)

1. CESOMED.- Curso de Ed. Sexual para Estudiantes Universitarios de la Salud. Fac. Med. Un.de Chile
2. CESOVER.- Curso de Ed. Sexual en Jornadas de Verano de la Esc. Salud Pub. Un. de Chile.
3. CESOREC.- Curso de Ed. Sexual para Profesores y As. Educación. Municipalidad de Recoleta.
4. ABIERTO para Público en General recomendado para mayores de 10 años. Tipo MOOC.
5. ABIERTO para Profesores y Asistentes de la Educación. Tipo MOOC

Se aprecia en la Tabla Nº 3 que la evaluación de la Calidad del Desarrollo, Bueno+Excelente en los Cursos CERRADOS es de 96,6% y para los Cursos ABIERTOS o MOOC de 93,1%. Las calificaciones de Deficiente, Insuficiente y Regular alcanzaron a 3, 4% en los Cursos CERRADOS y 6,9% en los Cursos ABIERTOS.

En el total de cursos Cerrados y Abiertos, la calificación de Bueno y Excelente es de 95,5% y las calificaciones de Deficiente,Insuficiente y Regular alcanzan a 4,5%.

3.4 Resumen De La Evaluación Para Ambos Tipos De Curso De Educación Sexual on Line De Auto Aprendizaje. CERRADOS Y ABIERTOS

Tabla Nº 4: Resumen de Evaluación de los 5 cursos de Educación Sexual Integral Escolar ESIE, CESOLAA, en cuanto a Cumplimiento de Objetivos y Calidad de su Ejecución

Modalidad y TIPOS DE CURSOS	Aprobación Modulo 5º			Cumplimiento OBJETIVOS de los Cursos: Bueno+Excelente.				CALIDAD de Ejecución de los Cursos: Bueno + Excelente			
	1	2	3	4	5	6		7	8	9	
	Nº de Partici-pantes	% Curs Cerrad. Abiert.	% del total Cur-sos	Nº res-ponden pregunt	Nº de Buen + Excel	% Buen+ Exc.	Intervalo de Confianza 95%	Nº rep ponden pregun	Nº de Buen + Excel.	% Bue+ Excel.	Intervalo de Confianza 95%
CERRADOS											
1. CESOMED	601	31,9	28,2	527	515	97,7	(96,1-98,8)	515	491	95,3	(93,1-97,0)
2. CESOVER	1.027	54,6	48,1	1009	971	96,2	(94,9-97,3)	1.009	968	95,9	(94,5-97,1)
3. CESOREC	255	13,5	11,9	255	247	96,9	(93,9-98,6)	255	248	97,3	(94,4-98,9)
Subtotal	1.883	100	88,2	1.791	1.733	96,8	(95,8-97,5)	1.779	1.707	96,0	(94,9-96,8)
ABIERTOS											
4. PUB.GRAL	177	70,5	8,3	177	167	94,4	(89,9-97,3)	159	148	93,1	(88,0-96,5)
5. PROFESOR.	74	29,5	3,5	74	67	90,5	(81,5-96,1)	74	68	91,9	(83,2-97,0)
Subtotal	251	100	11,8	251	234	93,2	(89,4-96,0)	233	216	92,7	(88,6-95,7)
Gran Total	2.134	100	100	2.042	1.967	96,3	(95,4-97,1)	2.012	1.923	95,6	(94,6-96,4)

Numeración de las columnas:

1. Nº que aprueban el Módulo 5to de los cursos CERRADOS o ABIERTOS.
2. Proporción de estudiantes en cada uno de los dos tipo de cursos: CERRADOS o ABIERTO.
3. Proporción de estudiantes que aporta cada uno de los 5 cursos.
4. Número de Personas que responden en la evaluación de Cumplimiento de Objetivos.
5. Número de respuestas Bueno+Excelente del Cumplimiento en cada uno de los 5 cursos.
6. Proporción de respuestas de Cumplimiento Bueno+Excelente en cada uno de los 5 cursos.
7. Número de Personas que responden en la Evaluación de Calidad de cada uno de los 5 cursos.
8. Número de respuestas Bueno+Excelente de la Calidad cada uno de los 5 cursos.

9. Proporción de respuestas Buena+Excelente de la Calidad en cada uno de los 5 cursos.

La mayor proporción de los Cursos CERRADOS, (54,6%) provienen del Curso de Verano de la Escuela de Salud Pública y en los Cursos ABIERTOS el 70,5% provienen del Curso para Público en General, (columna 2).

Los Cursos CERRADOS aportan 88, 2% de los que aprobaron el Quinto Módulo y los Cursos ABIERTOS el 11, 8%, (columna 3).

En las columnas 4ta, 5ta y 6ta se analiza el grado Cumplimiento de los Objetivos. Los criterios de Bueno + Excelente en el Cumplimiento en los tres cursos CERRADOS alcanzan a 96, 8% y en los dos cursos ABIERTOS con 93, 2%, con un promedio final de 96,3%.

En las columnas 7ma, 8va y 9na se analiza la Calidad de la Ejecución. Los criterios de Bueno+ Excelente en los tres cursos CERRADOS alcanza a 96% y en los dos cursos ABIERTOS a 92, 7%, con un promedio final de 95, 6%.

IV. DISCUSIÓN

En esta experiencia docente en Educación Sexual On line de Auto Aprendizaje, de 5 años, 66% de las inscripciones se alcanzaron en los cursos ABIERTOS tipo MOOC y 34% en los cursos CERRADOS. Sin embargo, el rendimiento observado a través de la aprobación del 5to Módulo, fue de 88% en los CERRADOS y 12% en los ABIERTOS.

En este perfil, la oferta gratuita de contenidos en Educación Sexual Escolar Integral (ESIE), novedosa en Chile y otros países de la Region, explicaría el entusiasmo inicial en los Cursos ABIERTOS, especialmente en Profesores por ser profesionales que perciben directamente las consecuencias de la falta de ESIE, además de la presión social y cultural que muchos de ellas y ellos han tenido en su carrera como docente. Sin embargo, estos cursos son extensos y necesitan dedicarles tiempo de lectura, reflexión de los temas, desarrollo de talleres, contestación de preguntas y revisión de los errores que sin una disciplina o estímulo para el estudio, tienden a ser postergados o abandonados.

Los 3 cursos CERRADOS como propuesta institucional, tienen un excelente rendimiento, pues responden a un compromiso académico docente universitario en dos de ellos y a una política educacional estatal municipalizada en otro.

Esta experiencia On Line ABIERTA tipo MOOC, tambien ha mostrado un interés importante del estamento docente para formarse en ESIE. Para Chile, dada su longitud geográfica, la futura aceptación legal de la ESIE necesitará un modelo que permita la capacitación de docentes al mismo tiempo que desarrollen la capacitación de estudiantes, madres, padres y apoderadas/os.

Esto permitirá recuperar tiempo perdido en la aplicación de la educación Sexual Escolar. El éxito de estos Cursos MOOC dependerá de la institucionalización de la ESIE en Chile y del criterio del Ministerio de Educación para considerarlas como herramientas pedagógicamente válidas.

La evaluación anónima de los dos criterios: Cumplimiento de los Objetivos y Calidad del Desarrollo de los Cursos, es fundamental para validar esta experiencia On Line. La Evaluación del Cumplimiento de los Objetivos alcanzó 96,8% como Bueno y Excelente en los tres cursos CERRADOS y 93,3% para los dos Cursos ABIERTOS, con un promedio de 96,3% para ambos tipos de cursos.

La evaluación de la Calidad del Desarrollo del curso tuvo 4 criterios: Calidad de los Contenidos, Exposición Respetuosa y Clara, Aporte al Aprendizaje y la Percepción individual del conjunto de estos tres criterios.Estos alcanzaron el 96% de Bueno y Excelente en los cursos CERRADOS y de 92,7% en los cursos ABIERTOS. Con un promedio de 95,6 % para los 5 cursos.

En los Cursos CERRADOS la participación ha sido disciplinada como ocurre en cursos de inscripción voluntaria pero de término obligatorio y calificado.

En los Cursos ABIERTOS tipo MOOC, la experiencia ha sido diferente, pues del total de inscripciones fue casi el doble a las observadas en

los Cursos CERRADOS. Sin embargo, la obtención de la aprobación del curso fue baja para el Curso de Público en General (CPG) y para Profesores y Asistentes de la Educación (PAE), medidas por la aprobacion del 1er y 5to módulo del curso. En el CPG de las 931 que han accedido a la pagina WEB, se inscribieron 751 y aprobaron 230 el primer Módulo y 177 el quinto Módulo Lo cual se explica, por el gran interés que despierta el tema de sexualidad humana, pero al no ser materia del curriculum escolar no se desarrolla en forma regular.

Otro aspecto positivo ha sido la creación del cargo docente específico en Sexualidad, Afectividad y Género en la Unidad de Educación de la Municipalidad de Recoleta, quien desde septiembre de 2022 asume la responsabilidad del desarrollo de la ESIE en los 17 Establecimientos Escolares aplicando el Modelo ABIERTO MOOC del Curso de Educación Sexual On Line de Auto Aprendizaje, CESOLAA.

Esta experiencia docente ha dejado un libro de Educación Sexual Integral para el uso libre y gratuito de la comunidad de habla hispana, el cual se seguirá perfeccionando.

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Oxytocin Antagonist Atosiban for the Treatment of Preterm Labor: Clinical Trial Evidence

Bhupesh Dewan & Siddheshwar Shinde

ABSTRACT

Objective: This prospective multicentric study was designed to confirm the efficacy and safety of atosiban in preterm labor.

Methods: In a study across 14 sites in India, 406 patients with preterm labor symptoms received up to 48 hours of atosiban infusion. Tocolysis efficacy was gauged by the 72-hour undelivered rate, while safety was assessed via maternal-fetal and neonatal adverse events.

Results: In 400 evaluated patients, the gestation period in 89% of patients was prolonged for more than 48 hours and 83.75% of patients continued their pregnancy up to 72 hours. Amongst the tocolyzed patients, 77% of preterm births were prevented for more than 7 days. The mean duration of gestational period prolongation after the tocolysis was 31.28 days with a mean gestational age at delivery of 35.0 ± 3.15 weeks. Singleton and twin pregnancy prolongation rates for 72 hours were 84.95% and 67.86% respectively. Birth weight of more than 2500 grams was in 54.44% of neonates and an APGAR score of more than 7 after 5 minutes was in 91.82% of neonates. Patients receiving atosiban were more likely to have nausea (2.71%), tachycardia (2.46%), and headache (1.97%). No new or unexpected adverse events were reported in this study.

Keywords: preterm labor; oxytocin receptor antagonist; atosiban; tocolysis.

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Conclusion: Atosiban is effective in prolonging the gestational period by a mean of 31 days in patients with pre-term labor, with a low incidence of maternal-fetal adverse effects. The requirement of 'Neonatal Intensive Care Unit' admission for the newborn is reduced, thus saving a huge cost associated with hospitalization.

Keywords: preterm labor; oxytocin receptor antagonist; atosiban; tocolysis.

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I. INTRODUCTION

Preterm labor is defined as regular uterine contractions leading to cervical changes before 37 weeks of completed gestation that may result in preterm birth and is 'extremely preterm' (less than 28 weeks), 'very preterm' (28 to <32 weeks) and 'late preterm' (32 to <37 weeks). [1,2]The estimated global preterm birth rate is 10.6% and India contributes 23.4% of global preterm births. [3]Moreover, India alone accounts for 61.2% of preterm labor cases in Southern Asia.[4]

Preterm birth resulting from preterm labor poses a considerable risk to infants' health and survival, especially if it happens during the early stages of pregnancy. Premature infants, having underdeveloped organ systems, become highly susceptible to various complications, both in the short term and in the long term. These complications can significantly impact their health and well-being. The majority of newborn morbidities include cerebral palsy, cognitive impairment, blindness, deafness, respiratory illness, and complications of neonatal intensive care.[5] Globally, preterm birth complications accounted for 17.8% of all deaths and became a leading cause of death in children under 5 years of age. [6]Currently, the main focus of treatment for preterm labor is directed toward pharmacologically inhibiting uterine contractions using tocolytic agents.[7]The primary objective of tocolytic therapy is to achieve a delay in preterm delivery, providing a long enough time for antenatal corticosteroids which promote fetal lung maturation and improve neonatal outcomes. Additionally, the delay in delivery allows for the

safe transfer of the mother to an equipped facility to provide optimal neonatal care. By extending the duration of pregnancy, tocolytic therapy aims to maximize the chances of a healthier outcome for both the mother and the newborn.[8]

Oxytocin causes uterine contractions through a direct effect on membrane-bound receptors that exist on the myometrium and decidua parietalis.[9] In the myometrium, the oxytocin and oxytocin-receptor complex activates phospholipase C, leading to the production of inositol 1, 4, 5-triphosphate, which increases intracellular free calcium. Calcium ions bind to calmodulin, forming a complex known as Ca^{2+}-calmodulin. This complex plays an important role in activating myosin light-chain kinase, a key enzyme responsible for inducing contractions in the myometrial muscle.[10] In decidua, oxytocin interacts with its receptor and releases prostaglandins. These locally produced prostaglandins increase the uterine sensitivity to oxytocin and increase the number of gap junctions in the adjacent myometrium.[11]The onset of labor involves a combination of factors that contribute to its progression. Cervical changes, persistent uterine contractions, and activation of the decidua and myometrial membranes contribute to labor.[12]

The oxytocin system, which acts via uterine oxytocin receptors, plays a central role in the mechanisms of human parturition. Increased concentrations of oxytocin receptors appear to be important in the onset of preterm labor.[1] [3]Atosiban is an oxytocin analog with modification of amino acids located at positions 1, 2, 4, and 8.[10] It competes with oxytocin binding at oxytocin receptors resulting in reduced myometrial contraction.[14]

Atosiban is the only oxytocin antagonist in use for the treatment of preterm labor in Europe and other countries.[15]The European Medicines Agency (EMA, EU) in 2000 and the Central Drugs Standard Control Organization (CDSCO, India) in 2015 authorized the use of atosiban in preterm labor. In clinical practice, atosiban is the most common tocolytic agent administered to pregnant women presenting with preterm labor. This study was conducted to generate clinical evidence for the efficacy and safety of atosiban in preterm labor.

II. MATERIALS AND METHODS

2.1 Ethics

The study was performed in compliance with the requirements of the Central Drugs Standard Control Organization (CDSCO),India. The study protocol was approved by the Subject Expert Committee (SEC) nominated by the CDSCO andthe Institutional Ethics Committee of each study center. The study was performed in accordance with the International Council for Harmonization for Good Clinical Practice, Declaration of Helsinki and New Drugs and Clinical Trials, Rules, 2019 India. Informed consent was obtained from all participants before enrolment.

2.2 Participants

The study was conducted from March 2017 to January 2022 at obstetric units of 14 geographically distributed sites across India. A total of 406 pregnant patients with>24 gestational weeks who presented with preterm labor were included in the study. A diagnosis of preterm labor was based on the presence of regular uterine contractions—defined as >4 contractions of ≥30 seconds' duration every 30 minutes - confirmed by cardiotocography, alongside evidence of cervical dilatation of 0–3 cm in nulliparous women or 1–3 cm in primi- or multiparous women with ≥50 % effacement. Patients with chorioamnionitis, ruptured membranes, vaginal bleeding, preeclampsia, intrauterine growth restriction, intrauterine fetal death, congenital or acquired uterine malformation, severe placental insufficiency, placenta previa, abruptio placentae, fetal distressor women who were otherwise judged inappropriate for inclusion in the study by the investigator were excluded.

2.3 Atosiban Regimen

Atosiban (Tosiban™, Zuventus Healthcare Limited, India)was administered as a single intravenous bolus dose of 6.75 mg over 1 minute followed by an intravenous infusion (using an

infusion pump or diluted in normal saline) at a speed of300 mcg/minfor3 hours and continued it at a speed of 100 mcg/min fora period of 45 hours. The woman who didn't respond and hadsigns oflabor progress was considered for re-treatment with atosibanor another alternative tocolytic agent at the investigator's discretion.

2.4 Outcome Measures

The outcomes of the study measured were:(a) the proportion of patients remaining undelivered at 48 hours, 72 hours and 7 days after the start of atosiban treatment; (b) time gained in-utero, defined as the number of days gained in-utero after the start of atosiban tocolysis;(c) the proportion of patients re-treated with atosiban and/or alternative tocolytic agents;(d) incidences of adverse events.

2.5 Statistical Analysis

Descriptive statistics were used to summarize baseline characteristics and represented as mean ± standard deviation (SD). Non-continuous data was presented in number and percentage. Paired student's t-test was used to assess change in maternal characteristics from baseline to 48 and 72 hours.A p-value of less than 0.05 was considered statistically significant.Adverse Events were assessed as the number and percentage. The data were analyzed using STATA/IC15.0 software (StataCorp LLC).The study sample size of 400 patients was sufficient to show at least 65% atosiban tocolytic efficacy as compared to the published data[16,17] with a 95% level of significance and 80% power.

III. RESULTS

3.1 Disposition of Patients

A total of 406 patients with preterm labor were enrolled in the study based on the eligibility criteria. During the study, 5 patients discontinued the study due to adverse events and 1 patient dropped out from the study on her own (left against medical advice). At the end of the study, 400 patients completed the study and were considered for the statistical analysis. The flow diagram of the study is displayed in Figure 1.

3.2 Study Population

The age range of patients was 18 to 48 years, with a mean of 25.37 ± 4.84 years.The average gestational age during enrolment in the study was 30.5 weeks. The median gravidity, parity and abortions were 2 (IQR: 2; range: 0-10), 1 (IQR: 1; range: 0-9) and 0 (IQR: 0; range: 0–6), respectively. The demographic characteristics of the study population are shown in Table 1.

3.3 Efficacy Assessment

3.3.1 Overall Efficacy of Atosiban

The overall success rate in prolongation of pregnancy by 48 hours was 89% (356/400). The prolongation of pregnancy by72 hours or more was achieved in 83.75% (335/400) patients, of which, 77% (308/400) got their pregnancy extended by more than 7 days.

3.3.2 Time Gained In-Utero after Initiation of Treatment

The overall mean number of days gained after the start of atosiban was 31.28 days, whereas, in the subgroup of patients with a singleton pregnancy, the interval until delivery was 32.40 days, and in patients with twin pregnancies 16.46 days. The duration of pregnancy prolongation in subgroups is given in Table 2. Prolongation in pregnancies beyond 34 weeks was observed in 62% (231/372) of patientsand48% (110/231) of them gave birth after 37 weeks of gestation.

3.3.3 Tocolytic Effect Based on Gestational Age

Among the enrolled patients, 14.50%, 51.75% and 33.75% population belonged to the extremely preterm (<28 weeks), very preterm (28 to <32 weeks)and late preterm (32 to<37 weeks) groups, respectively. The success rate at 72 hours of atosiban was 84.48%in the 'extremely preterm' group, 87.44% in the 'very preterm group and 77.78%in the 'late preterm group.The details of the tocolytic efficacy of atosiban at 48 hours, 72 hours and day 7 are given in Table 3.

3.3.4 Tocolytic Effect Based on the Type of Gestation

Among the enrolled patients, 372 patients carried singleton pregnancy of which 84.95% of patients

remained undelivered at 72 hours. Among the 28 patients with twin pregnancies, 67.86% of the patients remained undeliveredat72 hours. The success rates of atosiban in singleton and twin pregnancies are given in Table 3.

3.3.5 Tocolytic Effect Based on Parity of Pregnancy

There were 46.75% of nulliparous patients who underwent atosiban tocolytic whereas 33% of primiparous and 20.25%of multiparous patients received atosiban in preterm labor (Table 3).

3.3.6 Tocolytic Effect with Different Cervical Dilatation

A total of 54% of patients had a cervical dilatation of 2 cm or more, while 46% of patients had a cervical dilatation of less than 2 cm. The success rate of atosiban treatment between these two cases is given in Table3.

The mean cervical dilatation was 1.66 ± 0.85 cm on admission, with a gradual reduction to 1.23 ± 0.99 cm and 1.1 ± 1.04 cm at 48 hours and 72 hours respectively. The mean frequency of uterine contractions per 30 min showed a gradual reduction from 3.97 ± 1.41 to 1.38 ± 1.60 (mean difference: 2.59, 95% CI: 2.38 to 2.83) from the time of admission to the completion of treatment (i.e. 48 hours) and 1.13 ± 1.67 (mean difference: 2.84, 95%CI: 2.50 to 2.96) at 72 hours. Similarly, the mean cervical effacement (%) gradually reduced from 44.94 ± 16.91 to 30.1 ± 21.11 (mean difference: 14.84, 95%CI: 13.27 to 17.05) and 28.48 ± 23.13 (mean difference: 16.46, 95%CI: 12.12 to 18.20) at 48 hours and 72 hours respectively. All these parameters showed a significant change ($p<0.001$) from baseline.

3.4 Need of Retreatment with Atosiban or Alternative Tocolytics

There was no requirement for alternative tocolytics during the first 48 hours of atosiban treatment. Retreatment with atosiban or alternative tocolysis was required in 14 patients after the completion of the study treatment. Alternate tocolytics (Isoxsuprine, and Nifedipine) were used in 6 (1.5%)patients whereas 8 (2%) patients were retreated with atosiban after 48 hours (mean 13.3 days, 95% CI: 3.8-22.8 days). The mean number of days gained *in-utero* was 31.27 ± 24.48 days excluding these patients.

3.5 Safety Assessment

3.5.1 Neonatal Outcomes

APGAR (Appearance, Pulse, Grimace, Activity and Respiration) test was performed to assess the health of newborns. The mean APGAR score at 1 min was 7.92 ± 1.53 and at 5 min of birth was 8.77 ± 1.31. Out of 428 neonates, 393 (91.82%) hadan APGAR score of more than 7 after 5 minutes.The average neonatal birth weight was 2318 ± 242.64 gm. A total of 233 (54.44%) babies were born weighing more than 2500 gm. Data on neonatal outcomes are shown in Table 4.

3.5.2 Safety Analysis based on Maternal, Fetal and Neonatal Adverse Events

The treatment with atosiban injection was well tolerated by the patients. Amongst 45 (11.08%) patients, 49 instances of adverse events were observed.The most frequent adverse events were nausea (11 incidences, 2.71%), tachycardia (10 incidences, 2.46%), headache (8 incidences, 1.97%), epigastric pain, and constipation (3 incidences each, 0.70%), dizziness, dyspnea and fever (2 incidences each, 0.47%). Five patients (1.23%) discontinued due to adverse events. Fetal and neonatal adverse events observed were bradycardia (2 fetuses, 0.47%) and hypoxia(1 fetus, 0.23%), congenital anomaly of heart and respiratory distress (1 neonate, 0.23%). No new or unexpected adverse events were reported in the study.

3.5.3 Clinical Laboratory Tests, Vital Sign Examination

After completion of treatment, no clinically significant changes were noted in the laboratory data of the patients as compared to the baseline.Vital signs examination during the study showed no clinically significant changes as compared to the baseline. Fetal heart rate was monitored using cardiotocography at the time of admission and after every 12 hours till 72 hours.

IV. DISCUSSION

Premature delivery is a common problem during pregnancy, and the rates of preterm birth vary from country to country. According to a systematic review and modeling analysis, 81% of preterm births occur in countries in sub-Saharan Africa and South Asia. [3]Comparatively, India has a higher rate of preterm birth complications, ranking second as the common cause of 'under-5 mortality' as observed in 2019, with preterm birth complications accounting for 6.3% to 25.7% of all under-5 deaths. [18]It is important to diagnose the causes of premature delivery and low birth weight babies to improve the birth outcomes, and to find ways to make existing interventions more effective and clinically evident.

In this study, patients who were experiencing labor contractions with gestational age>24 weeks of pregnancy were hospitalized and treated with atosiban to prolong pregnancy. Out of these patients, 89% of them, were able to continue pregnancy for at least 48 hours after receiving atosiban as a tocolytic agent. The results are consistent with published studies with atosiban where it was found to be effective in delaying delivery for at least 48 hours in a significant proportion of patients.[19-22]

The use of atosiban in patients with preterm labor was effective in delaying delivery, with a low rate of maternal or fetal adverse effects. [23-25]Our findings in the current study indicate that the usage of atosiban did not lead to any significant or severe adverse effects in the mother or fetus.Mild adverse events were observed in 12% of patients consisting of nausea, tachycardia, and headache. The published studies show consistently, a lower incidence of adverse effects associated with the usage of atosiban in pregnancy, suggesting better tolerability as compared to the other tocolytics. [17,26,27]These findings highlight the advantages of atosiban in terms of maternal tolerability and safety.

In the current study, the mean duration gained *in-utero*after atosiban treatment was 31 days, and for those who were enrolled at gestational age <28 weeks was prolonged to 47.4 days. Similar results were reported in earlier published clinical studies with the mean number of days gained *in-utero*ranging from 31 to 35 days with atosiban treatment.[16,28,29]In the case of twin pregnancies, among 28 patients, 75% of them remained undelivered after 48 hours of atosiban tocolysis and 54%of the patients were able to continue their pregnancy for more than 7 days without experiencing any complications. Published data on atosiban demonstrates similar efficacy in postponing delivery in twin pregnancies.[16,30]

It was observed that there was a comparable success rate in prolonging pregnancy among cases of extremely preterm labor, very preterm labor, and late preterm labor p=0.311; Pearson chi^2 test).Similar findings were reported by Salim *et al.* in a randomized clinical trial where it was observed that 70% of patients with early preterm labor (before 28 weeks) and 68.3% of patients with late preterm labor (after 28 weeks) did not deliver within 48 hours after receiving atosiban treatment. [16]Another prospective clinical study demonstrated atosiban as a viable and successful tocolytic option in 18 and 24 weeks of pregnancy.[31]

Khalil *et al.* showed that initial cervical changes have a significant impact on the success of atosiban and the prolongation of pregnancy. [32]Kashanian *et al.* reported that atosiban is effective in uterine hyperactivity in the active phase of labor. [33]The present study achieved uterine quiescence within48 hours following the administration of atosiban (p<0.001). Similar results were observed in one of our earlier published clinical study, where atosiban reduced the frequency of uterine contractions significantly (p<0.001).[34]

Preterm labor is a multifactorial condition associated with a high risk of morbidity and mortality, particularly at early gestational ages. The major concern of extreme preterm birth is the significant risk of neonatal mortality as the survival rates are very low in such pregnancies (0.4% at 22 weeks, 7% at 24 weeks, 77% at 28 weeks and 97% at 36 weeks).[35] Tocolytics can improve neonatal survival rates by approximately 3% per day with a concomitant reduction in neonatal morbidity.[7]In this study, 97.5% of

neonates survived without major complications. Neonatal Intensive Care Unit (NICU) admission was not required in 79% of the neonates. The mean neonatal birth weight was 2318 ± 242 gm. Despite 195 (46%) of the newborns having low birth weight, only 90 required (21.02%) NICU admission. Takagi *et al* reported that newborns with birth weights of at least 2000 grams had a 95% survival rate. [36] There is a positive correlation between birth weight and neonatal survival. The findings revealed that newborns with higher birth weights have a better chance of survival.

An optimal tocolytic agent would effectively postpone delivery with minimal maternal and fetal adverse effects.Our findings show that atosiban had fewer failures within 48 hours,which is in line with the published clinical data[37] and highlights the importance of atosiban- based tocolysis in preterm labor and favors its use as a first-line treatment in preterm labor due to its efficacy and good safety profile. This study did not have a comparative arm but on comparing with the published data, it shows benefits in safety over other tocolytic agents.

V. CONCLUSION

Atosiban is an effective tocolytic agent acting through oxytocin receptor antagonism, and the clinical data suggests that it helps in delaying delivery by a mean of 31 days in patients with preterm labor, with a low rate of maternal-fetal adverse effects.The requirement of NICU admission is reduced, thus saving a huge cost associated with hospitalization. This was an open-label study without a comparator arm, future randomized comparative studies on a larger population are recommended.

Conflict of Interest: The authors declare that they have no conflict of interest.

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Ethical Approval:

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional ethics committee, the Indian Council of Medical Research (ICMR), and the Declaration of Helsinki. Approval was obtained from the Institutional Ethics Committee of each study center. Informed consent was obtained from all individual participants included in the study.

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Author Contributions

Bhupesh Dewan contributed to the study design, interpretation of the data, and manuscript editing and revising. Siddheshwar Shinde contributed to the data acquisition and drafting of the manuscript. Both authors are responsible for the integrity of the data and the accuracy of the analysis and approve the final version of the manuscript for submission.

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Table 1: Maternal Baseline Data

Characteristics	Enrolled patients (n=406)	Patients considered for final statistical analysis (n=400)
Maternal age (years)	25.37 ± 4.84	25.36 ± 4.84
Body mass index (kg/m²)	23.40 ± 3.44	23.38 ± 3.45
Average gestational age at admission (weeks)	30.5 ± 2.5	30.5 ± 2.5
Type of Gestation		
Nulliparous	189 (46.55)	187 (46.75)
Primiparous	134 (33.01)	132 (33.00)
Multiparous	83 (20.44)	81 (20.25)
Type of pregnancy		
Singleton	378 (93.10)	372 (93.00)
Twins	28 (6.90)	28 (7.00)
Gestational age groups		
<28 weeks	59 (14.53)	58 (14.50)
≥28 to < 32 weeks	210 (51.72)	207 (51.75)
≥32 to <37 weeks	137 (33.74)	135 (33.75)
Cervical dilatation		
<2 cm	187 (46.06)	184 (46.00)
≥2 cm	219 (53.94)	216 (54.00)
Previous preterm delivery	149 (36.70)	146 (36.50)

Datain Mean ± SD and n (%)

Table 2: Prolongation of Pregnancy

Overall time gained *in-utero*	31.28 ± 24.44 days
Gestational age at admission	
<28 weeks	47.44 ± 31.37 days
≥28 to <32 weeks	34.49 ± 23.45 days
≥32 to <37 weeks	19.42 ± 16.50 days
Cervical dilatation at the start of treatment	
<2 cm	36.28 ± 25.07 days
≥2 cm	27.03 ± 23.12 days
Type of gestation	
Singletons	32.40 ± 24.45 days
Twin	16.46 ± 19.36 days
Parity of pregnancy	

Nulliparous	32.39 ± 26.32 days
Primiparous	29.91 ± 23.81 days
Multiparous	30.98 ± 20.87 days

Data inMean ± SD

Table 3: Tocolytic Efficacy of Atosiban

	48 hr, n (%)	72 hr, n (%)	Day 7 n (%)
Gestational age			
<28 weeks		49 (84.48)	46 (79.31)
≥28 to < 32 weeks	189 (91.30)	181 (87.44)	173 (83.58)
≥32 to <37 weeks	117 (86.67)	105 (77.78)	89 (65.93)
Type of gestation			
Singletons	335 (90.05)	316 (84.95)	293 (78.76)
Twin	21 (75.00)	19 (67.86)	15 (53.57)
Parity of pregnancy			
Nulliparous	162 (86.63)	151 (80.75)	139 (74.33)
Primiparous	118 (89.40)	109 (82.58)	98 (74.24)
Multiparous	76 (93.83)	75 (92.59)	71 (87.65)
Cervical dilatation at the start of treatment			
Overall			
<2 cm	169 (91.85)	161 (87.5)	156 (84.78)
≥2 cm	187 (86.57)	174 (80.56)	152 (70.37)
Twin pregnancies			
<2 cm	9 (90)	8 (80)	8 (80)
≥2 cm	12 (66.67)	11 (61.11)	7 (38.89)

Table 4: Neonatal Outcomes

Neonatal Birth Record (n)	428
Gestational age at birth, weeks (Mean ± SD)	35.00 ± 3.15
Birth weight, gm (Mean ± SD)	2318 ± 242.64
Neonates with birth weights less than 2500 gm, n (%)	195 (45.56%)
APGAR Score	
APGAR score 1 minute after birth (Mean ± SD)	7.92 ± 1.538 (7-9)[a]
APGAR score 5 minutes after birth (Mean ± SD)	8.77 ± 1.31 9 (8-10)[a]
APGAR score ≥7 after 1 minute, n (%)	346 (80.84)
APGAR score ≥7 after 5 minutes, n (%)	393 (91.82)
NICU admission, n (%)	90 (21.02)

[a]*Data in Median(IQR)*

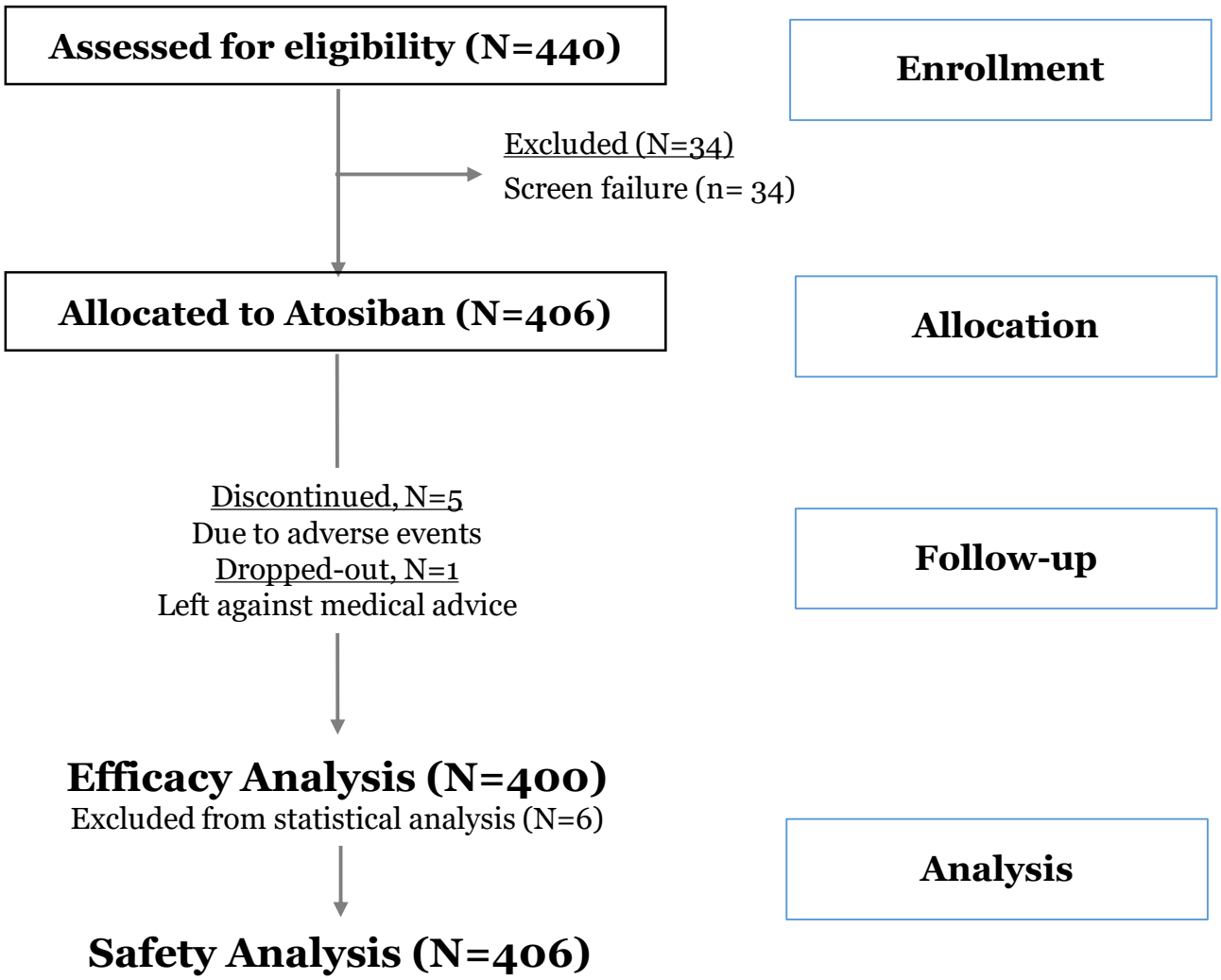

Figure 1: Consort Flowchart of the Study

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Video-Assisted Thoracic Surgery for Pulmonary Hydatid Disease

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ABSTRACT

Background: Pulmonary hydatid cyst (PHC) is a parasitic infectious disease, that is endemic in various regions worldwide. Thoracoscopic treatment remains the treatment of choice for PHC.

The objective of this study is to assess the feasibility of video-assisted thoracic surgery (VATS) and compare the outcomes of patients undergoing uniportal VATS (U-VATS) with those undergoing multiportal VATS (M-VATS) for the treatment of PHC.

Methods: A retrospective analysis of medical records from 134 patients who underwent VATS for PHC between January 2018 and January 2022 was conducted. Among them, 90 (67%) patients underwent M-VATS, while 44 (33%) patients underwent U-VATS.

Keywords: pulmonary hydatid cyst (PHC). video-assisted thoracic surgery (VATS). uniportal VATS (U-VATS). multiportal VATS (M-VATS)

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Parameters including patient characteristics, cyst diameter, surgical duration, time to drain removal, length of hospital stay and complications were compared between the M-VATS and U-VATS groups.

Results: There were no significant differences in patient characteristics, cyst diameter and surgical duration between the two groups.

The time to drain removal and length of hospital stay in the U-VATS group were significantly shorter than those of the M-VATS group.

Postoperative complications were not significantly different between the two groups. There was no postoperative mortality in either group. Throughout the follow-up period, no recurrence was observed in either group.

Conclusions: VATS with uni or multiportal was determined to be a safe and effective technique for the treatment of PHC and can serve as an alternative to traditional thoracotomy.

Keywords: pulmonary hydatid cyst (PHC). video-assisted thoracic surgery (VATS). uniportal VATS (U-VATS). multiportal VATS (M-VATS).

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I. INTRODUCTION

Hydatid disease, also referred to as echinococcosis or hydatidosis, is a parasitic infectious disease that is common in rural regions where cattle and dogs are in abundance. The disease affects all ages, both sexes, and no organs or tissues are spared (1). The causal parasite of the disease is Echinococcus Granulosus, for which humans can serve as intermediate hosts (2).

In Morocco, hydatid disease is endemic with an incidence rate of 4.55/100000 individuals (3).

The liver is the most frequently affected site, accounting for 60-80% of cases, followed by the lungs, which account for 10–30%. Unlike in adults, pulmonary hydatid disease is more common than hepatic hydatid disease in pediatric patients (4).

Pulmonary hydatid cyst (PHC) is often symptomatic and may lead significant morbidity. Surgical intervention remains the gold standard in the treatment of PHC. The aim of surgical management includes complete elimination of the parasite, preservation of the utmost of the healthy tissue, prevention of intraoperative rupture, ligation of bronchial fistula and capitonnage of the residual cavity (5, 6). These can be achieved through either the traditional postero-lateral thoracotomy or a minimally invasive approach.

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Indeed, video-assisted thoracic surgery (VATS) appears to be an excellent alternative to thoracotomy, offering well-established advantages (1, 5, 6).

Our goal of this study was to present a series of cases involving the management of PHC using VATS. We aimed to assess the benefits of this approach and compare the outcomes between patients undergoing uniportal VATS (U-VATS) and those undergoing multiportal VATS (M-VATS).

II. MATERIALS AND METHODS

2.1 Patients and Data Collection

We have retrospectively collected and reviewed the medical records of 134 consecutive patients who underwent surgery for PHC at our department between January 2018 and January 2022. We excluded patients with intrathoracic extrapulmonary cysts from this study and no specific selection criteria were applied for the VATS approach.

We divided the patients into two groups: Group A consisted of 44 (33%) patients who underwent U-VATS, while Group B comprised 90 (67%) patients who underwent M-VATS. Conversion to thoracotomy was necessary in 12 patients (13.3%). The reasons for conversion included intolerance to single lung ventilation (n=4), severe adhesions (n=6) and central localized cysts (n=2).

We collected demographic data, cyst's characteristics, intraoperative and postoperative data.

All patients underwent physical examination and routine laboratory tests. In the preoperative evaluation, chest X-rays and thoracic computed tomography (CT) scan (as shown in Figure 1 and 2) were used to determine the location, size, and integrity of the cysts. The presence of hepatic cysts was established through abdominal ultra-sonography. Flexible bronchoscopy was selectively performed in patients with a history of hemoptysis to rule out a concomitant endobronchial disease. Serologic testing was used routinely for diagnostic workup.

For complicated hydatid cysts, preoperative preparation based on albendazole treatment, antibiotics and postural drainage is necessary.

2.2 Surgical Technique

Video-assisted thoracoscopic surgery (Figure 2) was performed under general anesthesia with the use of double lumen tube in order to isolate the affected lung during surgery and to avoid the possible spillage of cyst contents into the contralateral bronchus. The patient was placed in a lateral decubitus position.

A M-VATS using a standardized three-port anterior approach. A 3–4 cm utility incision was made in the 4th intercostal space along the mid-axillary line. A 1 cm camera port was made in the 6th or 7th intercostal space along the anterior axillary line to create an access port for observation and a 1.5-cm incision was made in the posterior axillary line at the same level of the camera port.

For U-VATS, a 4–5 cm incision was made in the anterior to mid axillary line usually in the fifth intercostal space, or according to the location of the cystic lesion. The camera was mostly held in the posterior part of the incision by the assistant surgeon.

The utility incision was protected with an incision protector (Ring Protector*). The lung was spared from adhesions of chest wall and the cyst was identified and surrounded by 10% hypertonic saline to prevent dissemination in case of a ruptured laminated membrane.

The choice of surgical technique depended on the location, size, and intact state of the hydatid cyst.

For cysts located deep inside the lung parenchyma, the technique was needle aspiration plus cystotomy plus bronchial fistula suturing and capitonnage of the residual cavity.

For geant superficial cysts, a technique of needle aspiration plus cystotomy plus partial pericystectomy plus bronchial fistula suturing and capitonnage of the residual cavity.

For small superficial cysts, wedge resection was performed.

For complicated cysts with destroyed lungs, the anatomical resections (lobectomy or segmentectomy) were used.

For cysts ruptured into the pleural cavity, the decortication may be needed.

The surgical intervention was completed following chest tube placement into the pleural space and closure of the chest. All cysts were subjected to histopathologic examination to confirm the diagnosis.

2.3 Follow-up

Patients were followed up by chest X-rays at 1, 3, 6 and 12 months after surgery and every year thereafter. All patients received postoperative Albendazole treatment at a dose of 10 mg/kg per day, administered for three courses of 21 days each. Between each course, patients did not take the drug for 7 days.

Liver function tests were checked at the end of each course. If the tests were abnormal, the next treatment of Albendazole was postponed until the liver enzymes were normal.

2.4 Statistical Analysis

Continuous variables were reported as mean and standard deviation. Categorical variables were reported as frequency and proportion.

The statistical analysis has been performed by Fisher's exact test for categorical variables and Student's t-test for continuous variables, utilizing SPSS version 17.0 software. The difference was considered as significant for p values ≤0.05.

Fig. 1: Preoperative CT Scan Showing Hydatid cyst in left Upper Lobe Destrying Culmen

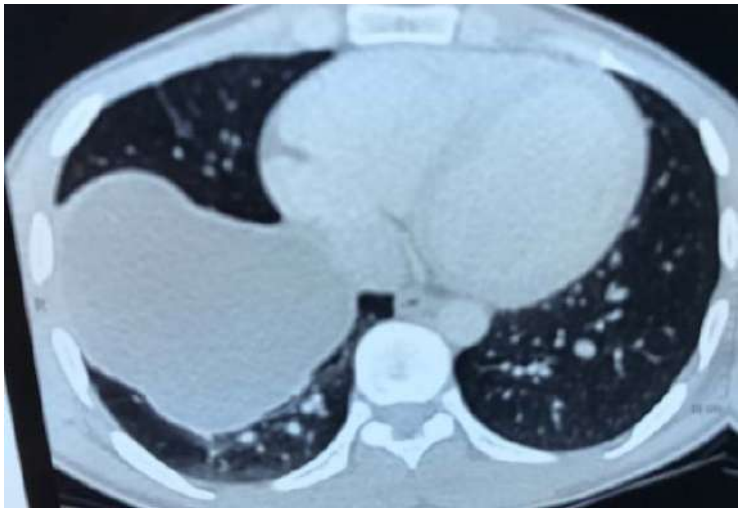

Fig. 2: Preoperative CT Scan Showing Intact Hydatid Cyst in the Right Lower Lobe

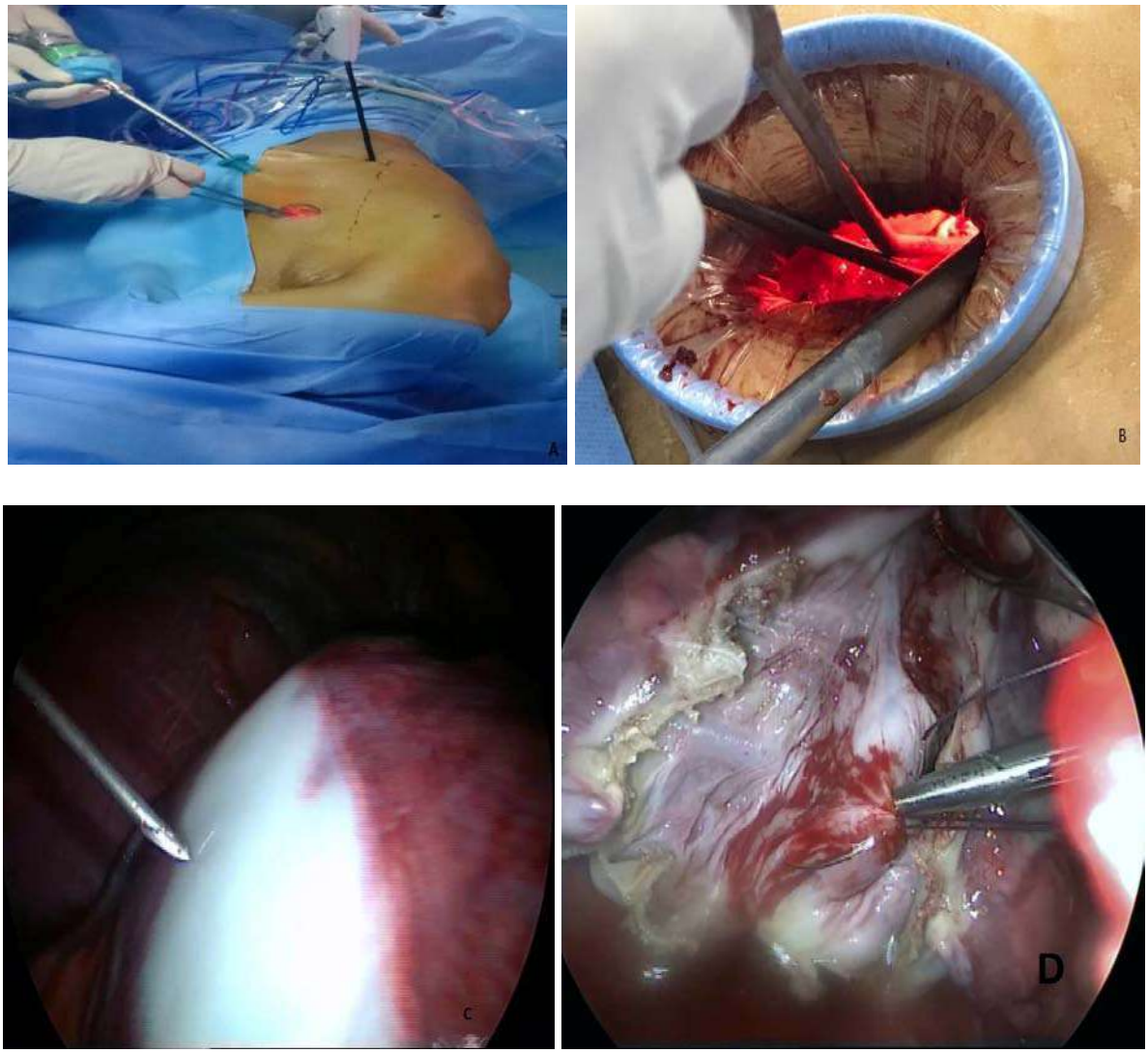

Fig. 3: Incision and Surgical Instrumentation of Multiportal VATS (A) and Uniportal VATS (B). A Needle Aspiration (C). Bronchial Fistula Suturing (D)

III. RESULTS

In this retrospective study, 134 patients with PHC were collected. Group A consisted of 44 (33%) patients of whom 22 were female (50%) and the mean age was 32.25± 17.24 years (range 6-81 years). Among the 90 (67%) patients in Group B, 46 were female (51.1%) and the mean age was 35.14±16.68 years (range 8-78 years). 73 patients (54.5%) were from pastoral areas and had a long history of close and prolonged contact with domestic animals. Liver cystic lesions were found in 95 (70.9%) cases. The characteristics of the patients are shown in Table 1. The demographic characteristics_were not significantly different between the two groups.

115 (85.8%) patients were symptomatic. The presenting signs and symptoms of patients are shown in Table 2. The most common symptom was chest pain, followed by hemoptysis and cough. There was no significant statistical difference in the rate of symptoms between the 2 groups.

In total, 176 cysts operated in both groups. 74 cysts were located in the left lung and 102 cysts in the right lung. Dimensions of the cyst lesions varied from 1.5 to 12 cm. 8 patients (6%) presented with multiple cysts and 36 patients (26.9%) with cyst rupture. Perioperative characteristics of pulmonary hydatid cyst in two groups are shown in Table 3.

There was no significant statistical difference in the average diameter of the cysts, location and number of the cysts, anatomical location and operation type of PHC between the 2 groups (P >0.05). Mean length of surgery was comparable between the two groups (136.74±54.23 minutes versus 98.15±32.75 minutes; p=0.35).

The postoperative complications were not significantly different between the two groups. The time to drain removal and length of hospital stay were significantly shorter in U-VATS group (2.6±1.7 versus 4.7±1 and 3.1±1.4 versus 5.2±1.3; p< 0.05, respectively). Postoperative outcomes are shown in table 4.

No postoperative mortality was seen in either group. The patients were followed up for an average of 14.2 months (range 2-50 months) and no recurrence, no mortality was reported among the operated patients of both groups.

IV. DISCUSSION

Hydatid disease is a major health problem in Morocco. PHC is often symptomatic, as shown in our study. Symptoms are probably due to the mass effect or bronchial opening of the cyst (6).

Medical management may be applied in ruptured hydatid cysts or in preventing recurrences after surgery. In our study, preoperative medical therapy was administered in 36 (26.9%) patients with ruptured cyst, and all patients received Albendazole as postoperative medical treatment for a duration of 6 months.

Surgery remains the gold standard for patients with PHC, associated with low rates of morbidity and mortality (5, 7). VATS treatment of PHC was first described by Becmeur in 1994 (8-10). From that time, several studies were presented (5, 9, 11-13).

The principal objectives of the surgery are to remove the cyst, to prevent the cyst rupture at the operative site, to close the bronchial openings and to manage the residual cavity (2).

Preoperative assessment of a patient with PHC for VATS removal allows determining the number, the diameter and the localization of the cysts (5, 7, 14). In our experience, all types of cyst are most suitable for U-VATS and M-VATS.

In the study by Mehta and al (1), the authors showed that VATS is feasible for the management of single and uncomplicated lung hydatid cyst, and they found shorter operative duration, earlier drain removal and less postoperative analgesia treatment.

Alpay and colleagues (5) found that VATS approach was better in terms of chest pain, cosmetic result, length of surgery, drainage volume and duration of chest tube.

In 2018, Ocakcioglu et al (14) performed the first U-VATS removal for PHC in 18 patients. One year later, Abu Akar et al (8) also reported a

comparative evaluation of U-VATS patients (n=23) versus thoracotomy patients (n=16) in the management of lung hydatid disease. They concluded that a single thoracoscopic approach is a safe option that can be used as an alternative to open surgery.

In the literature, the rate of conversion is 12.6% (1, 16). In our study, it was 13.3%.

To summarize, all studies favoring VATS treatment of PHC had significant rates of complication or morbidity, consistent with our study.

Just two recurrences after VATS approach were reported out of 221 patients in the literature (7). No recurrence was seen during the period of follow-up in our study. Boubia et al reported that the long-term prognosis was excellent (15).

V. CONCLUSION

VATS is an effective, feasible and safe surgical approach in the treatment of PHC. It has the advantages of shorter time to drain removal and the hospital stay time. Thoracoscopy can be used as an alternative to thoracotomy, in the hands of experienced surgeons.

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Declaration of conflicting interests

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Table 1: General Characteristics of the Patients

Characteristics	All (N=134)	Group A (N=44)	Group B (N=90)	*P* Value
Age, mean, SD	33.5 16.3	32.25 17.24	35.14 16.68	--------
Age range, yr	6-81	6-81	8-78	--------
Female sex, n, (%)	68/134 50.7%	22/44 50%	46/90 51.1%	1
Chronic smoking, n, (%)	16/134 12%	5/44 11.36	11/90 12.22%	1
Diabetes, n, (%)	1/134 0.7%	1/44 2.27%	0 0%	0.33
Hypertension, n, (%)	2/134 1.5%	1/44 2.27%	1/90 1.11%	0.55
Tuberculosis, n, (%)	7/134 5.2%	1/44 2.27%	6/90 6.66%	0.43
Operated lung hydatid cyst, n, (%)	13/134 9.7%	3/44 6.81%	10/90 11.11%	0.54
Operated liver hydatid cyst, n, (%)	10/134 7.5%	6/44 13.63%	4/90 4.44%	0.08
Rural areas, n, (%)	73/134 54.5%	23/44 52.27%	50/90 55.56%	0.85
Concomitant (liver-lung), n, (%)	95/134 70.9%	30/44 68.18%	65/90 72.22%	0.68
Symptomatic, n, (%)	115/134 85.8%	38/44 86.37%	77/90 85.56%	1

Table 2: Distribution of the Patients According to Symptoms

Symptom	All (N=134)	Group A (N=44)	Group B (N=90)	*P* Value
Chest pain	69/134 51.5%	25/44 56.81%	44/90 48.88%	0.46
Cough	53/134 39.6%	18/44 40.9%	35/90 38.88%	0.85
Hemoptysis	55/134 41%	16/44 36.36%	39/90 43.33%	0.46
Dyspnea	21/134 15.7%	8/44 18.18%	13/90 14.44%	0.62
Hydatoptysis	36/134 26.9%	13/44 29.54%	23/90 25.55%	0.68
Vomiting	26/134 19.4%	11/44 25%	15/90 16.66%	0.25
Fever	12/134 9%	4/44 9.09%	8/90 8.88%	1

Table 3: Perioperative Characteristics of PHC

Variables	Group A (62 cysts)	Group B (114 cysts)	*P* value
Diameter of the cyst, mean, SD	7.34 3.24	5.53 2.12	0.43
Cyst number (%) • 1 • ≥2	47 (75.8%) 15 (24.2%)	112 (98.24%) 2 (1.76%)	0.17
Location zone, n (%) • Peripheral • Central	28 (45.16%) 34 (54.84%)	92 (80.7%) 22 (19.3%)	0.09
Anatomic location, n • Right lung • Right upper • Right middle • Right lower • Left lung • Left upper • Left lower	 38 9 5 24 24 6 18	 64 13 11 40 50 24 26	 0.63 0.79 0.74 0.06 0.37
Operation type, n (%) • Cystotomy and capitonnage • Pericystectomy and capitonnage • Wedge resection • Segmentectomy • Lobectomy • decortication	 32 (51.61%) 21 (33.87%) 8 (12.9%) 0 (0%) 1 (1.62%) 2 (3.22%)	 56 (49.12%) 25 (21.93%) 29 (25.44%) 3 (2.63%) 1 (0.88%) 3 (2.63%)	 0.87 0.11 0.06 0.55 1 1
Length of surgery (min), mean, SD	136.74 54.23	98.15 32.75	0.35

Table 4: Postoperative Evaluation of Groups

	All (N=134)		Group A (N=44)	Group B (N=90)	*P* value
Postoperative complication, nb (%)	12/134 19.14%		5/44 11.36%	7/90 7.78%	0.53
Time to drain removal (day), mean, SD	3.1 1.5		2.6 1.7	4.7 1	0.001
Hospital stay time (day), mean, SD	4.6 1.2		3.1 1.4	5.2 1.3	< 0.001

Plastic Coverage of a Lentigo-Maligna Defect in the Cheek, an Alternative Practice Concept

Andreas Born & Hans-Ulrich Markmann

INTRODUCTION

We have already presented our concept to close more extensive defects after tumor resection of basal cell carcinoma in the head and neck region in scientific journals [1, 2]. Essentially, the procedure consists of suturing a defect wound by approximation with an overlocking hem suture. over a period of about 3 months. The granulating wound is additionally covered by a collagen membrane and protected with a custom-made, stitched-on dressing plate. It seems to us to be logical to do this also for resection defects of other resection defects of other entities.

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Plastic Coverage of a Lentigo-Maligna Defect in the Cheek, an Alternative Practice Concept

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I. INTRODUCTION

We have already presented our concept to close more extensive defects after tumor resection of basal cell carcinoma in the head and neck region in scientific journals [1, 2]. Essentially, the procedure consists of suturing a defect wound by approximation with an overlocking hem suture. over a period of about 3 months. The granulating wound is additionally covered by a collagen membrane and protected with a custom-made, stitched-on dressing plate. It seems to us to be logical to do this also for resection defects of other resection defects of other entities.

1.1 Anamnesis and Diagnosis

A 55-year-old male patient presented to our office in October 2021 for treatment of a suspicious dark skin tumor of the right cheek.

Anamnestically, a melanoma was known in the patient's father. Alio loco, a "lentigo maligna" had already been suspected. Therefore, a dermatological evaluation was obtained in consultation with a specialist. Since the findings there did not exclude the possibility of a benign finding, we initially decided on a close excision biopsy, which was then performed shortly thereafter. The histological evaluation by the Pathological Institute of the Marienhospital Stuttgart and the reference by the Laboratory for Special Dermatology, Microscopy and Molecular Dermatology of the University Dermatological Clinic Tübingen resulted in the diagnosis: "Lentigo maligna (melanoma in situ, Clark Level I), ...marginal to the sides" (Fig. 1) Thereupon, resection was performed with a safety margin of 10 mm according to the guidelines [3, 4, 5].

According to the image of a clock, four circular marginal incisions 0 - 3 o'clock, 3 - 6 o'clock, 6 - 9 o'clock, 9 -12 o'clock were taken and cranial, medial and caudal several from the tumor base. In the 6 - 9 o'clock region, a tumor spur required recutting until an R0 resection could be achieved (Figs. 2 - 5).

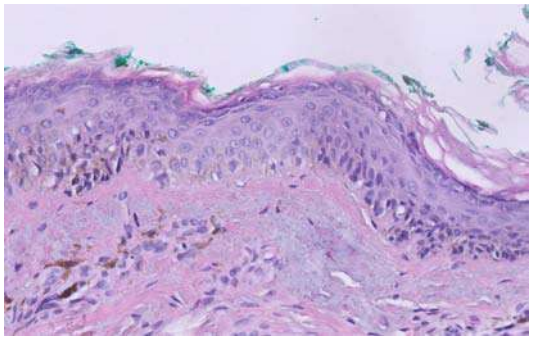

Fig. 1: Histological Confirmation of a Lentigo Maligna

Fig. 2: Right Cheek with Planned Resection

1.2 Ttherapy and Course of Treatment

Given the well-documented clinical effectiveness of this methodology, we found it relatively easy to convince patients of this off- label use approach.

The main advantage of this procedure is that it avoids the need to elevate costly suture flaps with extensive incisions. These procedures can each be performed under local anesthesia with minimal

surgical effort. The system consists of 3 partial steps:

Contraction of the wound edges already from the histographically confirmed excision via a circular overlocked hem suture (Maprolen 5/0 non-absorbable, Cutgut, Markneu- kirchen). 2.

Covering of the open wound by suturing a 15 x 20 mm Mucograft® membrane (Geistlich Biomaterials, Baden-Baden, Germany) into the developing defect. 3. Wound dressing by means of a customized pad (HS-Thermo bleach, clear, fexible foil 1.0 x 120mm Ø, Henry Schein, Langen).

Fig. 3: Resection Defect Intraoperatively

Fig. 4: Resection Defect with 1st Circular, Overlapping Hem Suture

Fig. 5: Covering with a Knotted Bandage Until Histologically Tumor-Free Margins are Secur

The contraction of the wound edges already in the first session of histographically confirmed tumor excision with up to 5 mm wound reduction in diameter is always amazing (Fig. 4). Distortion of the wound margins is not an obstacle due to the uniform reduction for the eventually due resection (second session) as in this case in the 6-9 o'clock section. The covering of open granulating wounds by absorbable membranes (Fig. 6) has been sufficiently described, so that this could be easily implemented in the technique of wound contraction [6, 7]. Overknot dressings are required to press the membranes or split skin grafts onto the support [Fig. 5]. In the facial region, however, these overtie dressings are impractical because they are cosmetically disturbing, and the disinfecting pastes and ointments, such as those used for the iodoform aureomycin tamponades commonly used in our field, in turn impede wound healing.

Furthermore, the odor is usually perceived as unpleasant by patients. Therefore, we have transferred the dressing plates used in oral surgery to the extraoral area. An impression of the surgical site is taken preoperatively with alginate compound, from which a plaster model is made (Fig. 7). A dressing plate is pulled over this using the thermoforming method and provided with perforations (Fig. 8). The perforations serve on the one hand to allow the wound secretion to drain off or to be cleaned with saline/water from the outside and ensure normal air circulation even under the cover. Fixation sutures can additionally be pulled through the perforations or they can be used again for anchoring "tension belt sutures". The transparency of the plastic allows continuous observation of the wound without the need for constant dressing changes.

Fig. 6: Wound Defect with Sutured Mucograft Membrane

Fig. 7: Plaster Cast of the Wound Defect of the Right Cheek Preoperatively. Blocking Out the Cavity with Pink Modeling Wax

Fig. 8: Dentally Fabricated Dressing Plate with Perforations on the Plaster Cast of the Right Cheek

After the resection margins were tumor-free, the mucograft membrane was stitched onto the wound with absorbable Marlin 6-0 sutures in the third session. The first wound contraction already showed a significant reduction of the open wound area. At the same time, the second overlocked suture was applied. The dressing plate fixed with 5-0-Maprolen sutures remained in situ for 10 days. The patient was encouraged to moisten the wound with water, which has a cleansing effect and promotes epithelialization.

Fig. 9: Cheek Right with the Fixed Dressing Plate

Fig. 10: State after the 3rd Wound Contraction

Fig. 11: After Completion of Wound Contraction

Three weeks later, another wound contraction was performed in the fourth session (Fig. 10).

Since we had made the experience during longer observation over two years that the scar plate expands again somewhat due to traction from the wound edges (Figs. 11 - 12), we performed another scar excision with multilayer wound closure 10 months later - earlier was not possible due to scheduling reasons. The subcutaneous sutures should compensate for the centrifugal scar traction (Figs. 13 -14). Histology of the excised scar tissue showed no evidence of residual tumor.

Fig. 12: Healing After Wound Contraction Approx. 10 Months Later

Fig. 13: Scar Excision Intraoperatively. The Gaping of the Wound Edges Due to Centrifugal Scar Traction is Clearly Visible

Fig. 14: Multilayer Plastic Wound Closure After Scar Excision

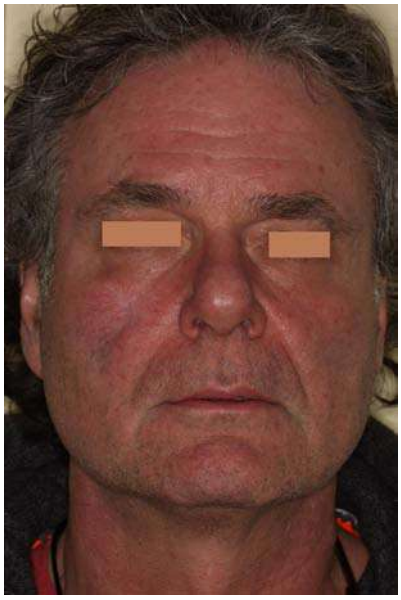

Fig. 15: Final Image After 1,5 Years

II. DISCUSSION

Defects in the facial region of more than 1 cm in diameter are usually be treated with elaborate regional flap techniques which, depending on the type of incision, are associated with long scarring, depending on the type of incision. The procedure presented by us flap elevation and pulls the wound edges in usually 3 - 4 sessions by means of a circular, overlocked suture. suture. We see the advantages in the fact that larger defects can be defects can be treated. The procedure is comparatively low risk in terms of morbidity and is associated with much less scarring. scarring.

The sessions are performed on an outpatient basis under local anesthesia, with comparatively low effort and cost. No patient to whom we offered this procedure [2] opted for the the classical procedures of plastic surgery in the head and neck area. head and neck region. Compliance was good in all patients and satisfaction with satisfaction with the course and outcome was high, as in this case. this case. The duration of 3 - 4 months until wound closure was interestingly not was not perceived by any patient as a major disadvantage. perceived as a major disadvantage.

From our point of view, when used on younger patients, the operative patients, the surgical correction with multilayer wound closure to prevent to prevent the scar plate from pulling apart as a 4th step. This is a certain shortcoming.

However, even with more extensive flap plasty, surgical correction may be necessary.

III. CONCLUSION FOR THE PRACTICE

In our opinion, the concept of wound contraction of facial defects after tumor resection presented by us represents a real alternative for patients.

Compliance ethical guidelines

The patient, who could be identified from images or other information within the or other information within the manuscript, has given his or her written written consent.

Conflict of Interest

A. Born and U. Markmann declare that there is no conflict of interest exists.

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