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Cannabis & Psychosis: The Interface Emerging Frontiers for Research

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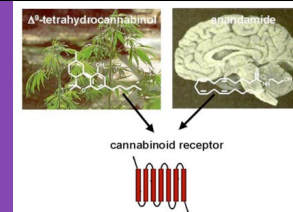
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ABSTRACT

INTRODUCTION: CANNABIS CONTINUES TO AFFECT MENTAL HEALTH. ITS ABUSE IS ON RISE GLOBALLY. IN CANADA A RISE BY 30% IN LAST TEN YEARS HAS BEEN OBSERVED IN HIGH SCHOOL STUDENTS. INTERRELATIONSHIP OF CANNABIS WITH PSYCHOSIS AND SCHIZOPHRENIA IS A COMPLEX ONE. CANNABIS IS HIGHLY COMORBID WITH PSYCHOSIS, & RELATED TO FUNCTIONAL DISABILITY AND OUTCOME. IT POSES SEVERAL CHALLENGES IN UNDERSTANDING CAUSAL RELATIONSHIP FOR COMORBIDITY, UNDERLYING NEUROCHEMICAL BASIS AND SPECIFICS OF SERVICE DEVELOPMENT. PREVALENCE OF CANNABIS VARIES FROM 20 TO 50% EARLY PSYCHOSIS. OBJECTIVE OF THIS PAPER IS TO REVIEW AVAILABLE LITERATURE TO IDENTIFY CHALLENGES FOR NEWER TARGETS OF RESEARCH AND PREVENTIVE MEASURES.

METHOD: RECENT LITERATURE FROM ELECTRONIC DATA BASE SEARCH IDENTIFIES ROLE AND RELATIONSHIP OF CANNABIS AND PSYCHOSIS.

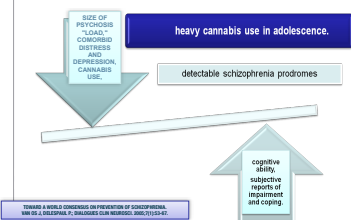
RESULTS: CANNABIS IS A RISK FACTOR FOR BOTH PSYCHOSIS AND SCHIZOPHRENIA & APPEARS TO HAVE CAUSAL RELATIONSHIP FOR EARLY AND LATERAGE PSYCHOSIS. MOOD SYMPTOMS ARE ALSO SIGNIFICANT BUT LESS RECOGNIZED.

UNDERSTANDING OF THE PROCESS AND CAUSES HAVE SIGNIFICANTLY ADVANCED WITH DISCOVERY OF CANNABINOID RECEPTORS AND ENDOGENOUS CANNABINOIDS. IT IS CLEAR THAT CANNABIS INCREASES BRAIN VULNERABILITY, CAUSES POORER OUTCOME AND MORE SIDE EFFECTS. CANNABIS CAUSES COGNITIVE DYSFUNCTION THAT PERHAPS WORKS AS A COMMON DENOMINATOR FOR THE RISK-VULNERABILITY. IT APPEARS TO HAVE INDEPENDENT GENETIC COMPONENT RELATED TO DISRUPTION IN NEUROTRANSMISSION AFFECTING NEURONAL PLASTICITY. MUCH LESS ATTENTION HAS BEEN PAID IN DEVELOPING SERVICES TARGETED TOWARDS HARM REDUCTION AND DEVELOPING THERAPEUTICS.

CONCLUSION: CANNABIS IS POTENTIAL RISK FACTOR FOR POORER OUTCOME IN PSYCHOSIS. NEW BIOLOGICAL AND SOCIAL SERVICE INITIATIVES WILL ADD VALUE TO EARLY PSYCHOSIS PROGRAMS.

TOWARDS A WORLD CONSENSUS ON PREVENTION OF SCHIZOPHRENIA.

CANNABIS RESEARCH: AN EVIDENCE AND ARGUMENT FOR SCHIZOPHRENIA PREVENTION



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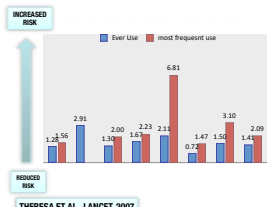
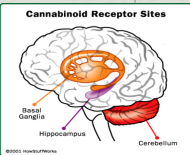
INTRODUCTION

CANNABIS IS A MAJOR PUBLIC HEALTH PROBLEM, HAVING SIGNIFICANT MENTAL HEALTH IMPACT. IT IS ONE OF THE MAIN COMORBIDITY IN PSYCHOSIS, THOUGH FOUND WITH VARYING DEGREE IN DIFFERENT CULTURES E.G. VERY LOW IN INDIAN STUDIES, 40-50% IN EUROPEAN COUNTRIES, 60-6% IN CANADIAN POPULATION & 60-70% IN USA POPULATIONS.. IT HAS BEEN FOUND BEYOND DOUBT TO BE ONE OF THE MAJOR RISK FACTOR FOR DEVELOPING PSYCHOSIS, PARTICULARLY USING CANNABIS IN THE AGE OF 13 TO 15 YEARS. COGNITIVE DYSFUNCTION APPEARS TO BE A COMMON DENOMINATOR IN PSYCHOSIS S WELL AS CANNABIS ABUSE. EVIDENCE FOR INVOLVEMENT OF CANNABIS IN DEVELOPING PSYCHOSIS HAS GATHERED FROM MULTIPLE SOURCES : EPIDEMIOLOGICAL, META ANALYSIS, NEUROCHEMICAL, RECEPTOR, IMAGING AND GENETIC STUDIES. IT IS SUGGESTED THAT THERE IS A POSSIBILITY OF CANNABIS UNMASKING THE VULNERABILITY AND CHANGING THE RESILIENCE IN INDIVIDUALS SUSCEPTIBLE TO SCHIZOPHRENIA. HOWEVER WHILE IN CLINICAL PRACTICE THIS HAS NOT RECEIVED SUFFICIENT ATTENTION, AND IN RESEARCH THERE ARE 'MISSING LINKS' IN 'PSYCHOSIS-RELATED TO CANNABIS'. THE PAPER DISCUSSES SOME OF THE IMPORTANT AREAS OF CLINICALLY RELEVANT RESEARCH REQUIRING ATTENTION IN INTEREST OF ENHANCING QUALITY OF SERVICE AND SAFETY OF PATIENTS. CANNABIS HAS A HISTORY OF 4000 YEARS. IT IS WORLD'S MOST ABUSED ILLICIT DRUG. THERE ARE 165 MILLION ABUSERS IN 172 COUNTRIES. IT HAS 64 METABOLITES AND MOST ACTIVE ONE IS TRIHYDROCANNABINOID (THC). A RECENT STUDY IN CANADA SHOWS THAT 60% BOYS AND 50 GIRLS IN HIGH SCHOOL USE MARIJUANA (2002) REGISTERING 40% INCREASE SINCE 1990, IN 12 YEARS.

A SYSTEMATIC HISTORICAL DEVELOPMENT IS WORTH A LOOK: -1200 BC INDUS VALLEY- FIVE SACRED PLANTS -> 1894 NO EVIDENCE OF MENTAL OR MORAL INJURIES -> 1928 RECREATIONAL USE BANNED IN UK -> 1942 REMOVED FROM AMERICAN PHARMACOPEIA -> 1961 60 NATIONS SIGNED 'END CANNABIS IN 25 YEARS -> 1985 THC ISOLATED -> 1970 CLEAR EVIDENCE OF PSYCHOLOGICAL EFFECT -> 1987 FIRST EVIDENCE OF LINK WITH SCHIZOPHRENIA -> 1988 CB RECEPTORS DISCOVERED BY HEWLETT & DEVANE -> 1992 FIRST ENDOCANNABINOID DISCOVERED -> 2000 AGAINST SHOWN TO REDUCE PLASTICITY -> 2002 EFFECT ON LONG TERM PLASTICITY -> 2005 CANNABIS BASED MEDICINE FOR MS IN 1970 IN CANADA

METHODS AND MATERIALS

AVAILABLE RESOURCES ON THE KEY WORD 'PSYCHOSIS' & 'CANNABIS' WAS SEARCHED IN ELECTRONIC RESOURCE, AND KEY FINDINGS WERE SUMMARIZED.

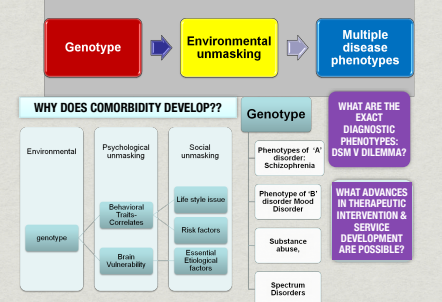


RESULTS

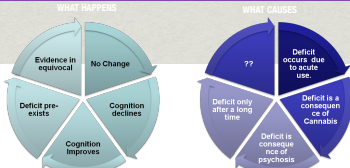
1. EVER USE OF CANNABIS IN UK IS ESTIMATED 40% WITH INCREASED RISK OF 1.4 TIMES PROJECTS 14% OF PSYCHOTIC OUTCOME IN YOUNG ADULTS IN UK
2. PROJECTED TREND IN SCHIZOPHRENIA HAS NOT PARALLELED TRENDS IN CANNABIS USE- MISMATCH.

WHAT DO WE KNOW WITH LIMITED EVIDENCE?
THE BRAIN CHANGES SEEN BY IMAGING INFLUENCE ON BRAIN DEVELOPMENT DURING ADOLESCENCE NATURE OF MOST TOXIC METABOLITE WHICH IS PSYCHOSIS - GENIC. ROLE OF CB RECEPTORS IN SCHIZOPHRENIA AND PSYCHOSIS THE PATHOGENESIS OF RISK. THE 'CANNABIS PHENOTYPE OF PSYCHOSIS' VALIDITY OF DIAGNOSIS - 'CANNABIS-INDUCED- PSYCHOSIS VS. CANNABIS-TOXIC- PSYCHOTIC STATE THERE ARE SEVERAL HYPOTHESES FOR WHY MENTAL ILLNESS AND SUBSTANCE ABUSE CO-OCCUR

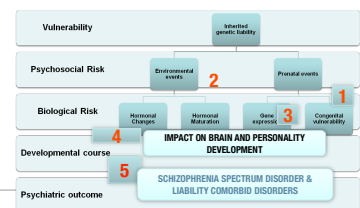
1. A SIMILAR NEUROBIOLOGICAL BASIS TO BOTH;
2. SUBSTANCE USE -- ALLEVIATE SOME OF THE SYMPTOMS OR THE SIDE EFFECTS
3. MAY PRECIPITATE MENTAL ILLNESSES OR LEAD TO BIOLOGICAL CHANGES THAT



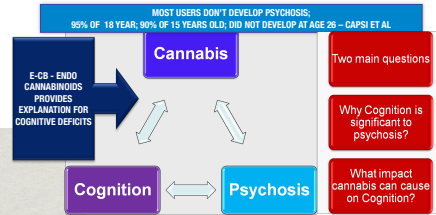
COGNITION IN PSYCHOSIS DUE TO CANNABIS USE: THE EVIDENCE



A RISK-VULNERABILITY MODEL FOR PREVENTION OF SCHIZOPHRENIA: POSSIBILITIES OF PREVENTIVE SITES IN PROCESS OF 'CAUSATION' (1,2,3,4,5)



DISCUSSION

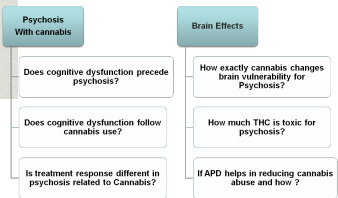


NEUROBIOLOGY OF COGNITION IS THE MOST CHALLENGING IN RESEARCH.



CONCLUSIONS

CANNABIS-COGNITION RESEARCH: QUESTIONS



TARGETS OF NEW RESEARCH

