3.3.2 Number of Research Papers Academic Year 2022-2023

Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication
Radiological evidence in clinical prevalence of hematological changes in multidrug resistant pulmonary tuberculosis.	Smitha T	Pharmacy Practice	International Journal of Health Sciences, 6(S1), 9699–9712.	2022
Hydroalcoholic extract of Ashwagandha improves sleep by modulating GABA/Histamine Receptors and EEG slow wave pattern invitro-invivo experimental models	Sindgi Vasudeva Murthy, Syeda Nishat Fathima, Mote Rakesh	Pharmacology	Prev Nutr Food Sci. 2022 Mar 31; 27(1): 108–120.	2022
Predictors for Mortality in Multidrug Resistant Pulmonary Tuberculosis Patients in a South Indian Region.	Smitha T	Pharmacy Practice	Journal of Communicable Diseases, 54(04), 62-68. DOI: https://doi.org/10.24321/0019.5138.202304	2022
Development of scoring and stratification of sever lung involvement in Multidrug-Resistant Pulmonary Tuberculosis Patients.	Smitha T, Murthy S.V.	Pharmacy Practice	Current Research in Tuberculosis. 15(1). 1-11. 10.17311/crt.2023.1.11	2022
Comprehensive review on role of cd27cells in t cell immunity	I Shalini	Pharmaceutical Analysis	Neuroquantology	2022

Synthesis and Evaluation of 1,3-Thiazolidin-4-one derivatives as Antihyperglycemic Agent	**Baswaraju Macha**	**Pharmaceutical Chemistry**	**International Journal of Pharmacy and Biological Sciences**	**2022**

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Research Article

Predictors for Mortality in Multidrug Resista Pulmonary Tuberculosis Patients in a Sou Indian Region

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A B S T R A C T

Background: Although various factors depicting the mortality in drug resistant tuberculosis available there exist no concise data factors contributing to mortality globally. The predictors for mo in multi drug resistant tuberculosis patients vary from localities

Objectives: The study aimed to find the factors contributing to mo in multi drug resistant tuberculosis in Warangal district of Telan

Materials and Methods: The prospective study determinin predictors of mortality in multidrug resistant pulmonary tuberc patients had a sample size of 296. The follow-up of the patient conducted for twenty four months to determine the treatment out Patients' mortality was noted from the hospital case sheets, rel and healthcare facilitators' viz., National tuberculosis elimir program supervisors, Auxiliary Nursing Midwifery in case of de home. Patients' demography was denoted in number and percer Predictors for mortality determined using binary logistic regr analysis. The predictor variables significant with p<0.2 in univ analysis were considered for binary logistic regression analysi dependent variable was the occurrence of event - mortality ar independent variables chosen from the available literature.

Results: The predictors for mortality identified as low body v of 16-30kg (p=0.002; aOR=10.43); comorbids (p=0.002; aOR= severe radiological manifestations at admission to hospital (p=(aOR=6.98) and incompliance to treatment (p=0.0001; aOR=5. the present study.

CRT Current Research in Tuberculosis

OPEN ACCESS

Development of Scoring and Stratification of Severe Lung Involvement in Multidrug-Resistant Pulmonary Tuberculosis Patients

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ABSTRACT

Background and Objective: The probability of the presence of risk factors and clinical outcomes in multidrug-resistant pulmonary tuberculosis subjects is undermined. A clinical prediction model was established based on radiological examination. To assess the effectiveness of the prediction model and strengthen both the diagnostic and prognostic applications, we developed and validated a scoring system employing radiological examination. **Materials and Methods:** The radiological grading categorized severe lung involvement. The study recorded the patient's hemogram and medical history. Radiological grading and clinical investigations were chosen as dependent variables and independent variables, respectively. Data were analyzed using bivariate logistic regression with $p<0.2$ and multivariate logistic regression analysis with $p<0.05$. Independent predictor variables and their regression coefficient (β) evaluated. The constant in this study was based on the Framingham study. **Results:** Hematological changes were observed in the grading of lung severity using ANOVA. The regression analysis identified a history of multidrug-resistant tuberculosis ($p = 0.0001$) and resistance to more than one anti-tubercular drug ($p = 0.026$) and a few parameters of hemogram as predictors for an intense lung infection. This study segregated the study subjects into risk categories and evaluated the performance of the scoring system. **Conclusion:** The score developed helps in stratifying the patients at severe risk of lung involvement alerting the healthcare professional for patients' better pharmaceutical care.

KEYWORDS

Anemia, clinical prediction, hemogram, multidrug-resistant pulmonary tuberculosis, radiological manifestations, lung grading, pharmaceutical care

INTRODUCTION

Pulmonary Tuberculosis (TB), a leading cause of death worldwide, ranks ninth above human immunovirus and acquired immunodeficiency. Approximately 10.4 million people were affected with TB in 2019 and more than 50% of cases were reported in India, Indonesia, China, the Philippines and Pakistan[1]. The existence of resistance-causing mutations in susceptible bacilli during anti-TB treatment has gradually become the dominant strain[2]. The frequency of single mutations can be prevented if appropriate

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Radiological evidence in clinical prevalence of hematological changes in multidrug resistant pulmonary tuberculosis

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Abstract---Background: Globally, tuberculosis is the leading cause of death. India accounts for the highest proportion of drug resistant tuberculosis among all other countries. Objectives: This study investigated the changes in hematological parameters with respect to radiological evidences in multidrug resistant tuberculosis patients. Materials and Methods: The study enrolled a total of 273 patients with the confirmative diagnosis of multidrug resistant tuberculosis. The radiological evidences were classified into mild, moderate and severe lung involvement. Results: The chest radiographs illustrated tracheal deviation (74), loss of lung volume (35), pleural effusion (25), lobar collapse and fibrotic manifestations. The defensive leucocytes, phagocytic neutrophils, anucleated platelet cells and platelet volume observed an increase with severe lung grading ($p<0.0001$). Reduced lymphocyte count, mean platelet size observed with the intense lung involvement. Prevalence of normocytic, normochromic anemia, anisocytosis was prominent in these patients. The erythrocyte sedimentation rate observed no significant changes in the categorized radiological grades of lung. Radiological grading reported a weak positive correlation with the hematological parameters. Conclusion: The study noticed the changes in the complete blood count parameters with radiological signs and recommend monitoring of these investigations in determining the progression of the lung involvement in the multidrug resistant pulmonary tuberculosis patients.

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Hydroalcoholic Extract of Ashwagandha Improves Sleep by Modulating GABA/Histamine Receptors and EEG Slow-Wave Pattern in *In Vitro* - *In Vivo* Experimental Models

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ABSTRACT: *Withania somnifera* (ashwagandha) has been used traditionally as a remedy for insomnia and to enhance cognitive function. The effects of ashwagandha extract (AE, 35% withanolide glycosides, Shoden®) on the expression levels of γ-aminobutyric acid (GABA)$_A$ρ1 and histamine H3 receptors in *Rattus norvegicus* glioblastoma (C6) cell lines were studied using semiquantitative reverse transcriptase-polymerase chain reactions. The effects of AE on sleep onset and duration were studied in Swiss albino mice using the pentobarbital-induced sleep model. Furthermore, the effects on nonrapid eye movement (NREM) and rapid eye movement sleep patterns were studied in Wistar rats with electroencephalogram (EEG) to support the improvement in sleep quality. There was an increase in gene expression levels of GABA$_A$ρ1 receptor (1.38 and 1.94 folds) and histamine H3 (1.14 and 1.29 folds) receptors induced by AE at doses of 15 and 30 μg/mL compared to control. AE at doses of 10, 25, and 50 mg/kg body weight showed a significant decrease in time to sleep onset and increased total sleep duration in the pentobarbital-induced sleep model. At 50 mg/kg body weight dosage level, a 34% decrease (P<0.0001) in sleep onset time and 47% increase (P<0.0001) in sleep duration was observed. The EEG study showed significant improvement in alpha, beta, theta, delta, and gamma bands at doses of 10, 25, and 50 mg/kg body weight with delta waves showing increases of 30%, 46% (P<0.05), and 34%, respectively. The induction of sleep, GABA-mimetic action, NREM sleep, and the effects on slow-wave cycles support the calming property of AE in improving the quality of sleep.

Keywords: ashwagandha, brain waves, GABA-mimetic, sleep, withanolide glycosides

INTRODUCTION

Sleep is a resting state of the body involving behavioral, physiological, and electrophysiological parameters. By recording the electrical activity of the brain (electroencephalogram, EEG) during sleep, it has been revealed that sleep is an active process that is tightly regulated. The necessity of sleep is also regulated and it depends on how long we stay awake. Moreover, the longer we stay awake, most times, the more intense our sleep becomes. Furthermore, the quantitative analysis of the sleep EEG resulted in the discovery of a slow-wave activity as a marker of sleep intensity, which closely reflects the homeostatic regulation of sleep.

The awake state is heterogeneous, being characterized by desynchronized EEG oscillations of low amplitude and mixed frequencies, and variable amounts of muscle activity. Active or motivated wakefulness is rich in theta (4~9 Hz) and gamma (40~300 Hz) EEG frequency ranges, whereas quiet wakefulness is characterized by slower EEG frequencies, including alpha (7~15 Hz) and beta (β~30 Hz). Using EEG and electromyogram recordings, it is possible to recognize two distinct sleep states: nonrapid eye movement (NREM) and rapid eye movement (REM)—that alternate cyclically across sleep. NREM sleep is characterized by high-amplitude low-frequency delta oscillations (0.5~4.0 Hz) and spindles (bursts of 7~15 Hz oscillations) in the EEG and low postural muscle tone. The EEG during REM sleep is dominated by theta and gamma oscillations, with a complete loss of muscle tone in axial postural muscles (REM muscle atonia) (Eban-Rothschild et al., 2018). Taken together, these observations have led to the aphorism that NREM sleep is characterized by an inactive brain in an active body, whereas REM sleep is characterized by an active brain in an inactive body (Purves et al., 2001).

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Synthesis and Evaluation of 1, 3-Thiazolidin-4-One Derivatives as Antihyperglycemic Agent

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Abstract

Thiazolidinedione (TZD) class of drugs which were approved for the management of type 2 diabetes mellitus exemplified by rosiglitazone and pioglitazone (PG), act by modulation of PPARγ receptors. Rosiglitazone was found to induce heart failure due to fluid retention and hence it has been withdrawn from market. Concerns were also raised recently on the apparent risk of bladder cancer with the use of Pioglitazone. Based on the advances and better understanding of antidiabetic agents, rational approaches have been applied for further development of the newer antidjabetic agents. The dual agonists of PPAR-α/γ, PPAR-α/δ, PPAR-δ\α, PPAR pan agonists and selective PPARC modulators and partial agonists are cardinal attractive targets for medicinal chemists in this sojourn. Attempts were reported to develop such agents several modifications on thiazolidinedione ring and the substituents were made. This research paper presents the design of new series of thiazolidinones with pyridine/pyrimidine tail and cyclopropyl\alkyl and aryl substituent with an ethoxy linker and their evaluation for antihyperglycemic activity. Some of the new thiazolidin-4-one derivatives were found to be equipotent to pioglitazone in lowering blood glucose in streptozotocin induced diabetic rats.

Keywords

Thiazolidinedione; Type2 Diabetes mellitus; synthesis; antihyperglycemic

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1.0 INTRODUCTION

Diabetes has become a leading killer disease in recent years. The statistical report of 2021. on diabetes, indicated that a whopping 537 million people were suffering with this disease which is estimated to reach 643 million by 2030. Astounding 6.7 million people which is one death in every five seconds. High incidences of diabetes have been reported from low- and middle-income countries which account for 3 in 4 people. The currently available drugs for the treatment of diabetes were associated with several untoward effects.[1] 1, 3-Thiazolidin-4-ones have gained importance due to their wide spectrum of biological and pharmacological activities such as anti-microbial, antitubercular, anti-inflammatory, analgesic, antihistaminic, anti-parkinsonism, antitumor, hypolipidemic, antioxidant and antihyperglycemic activities. Numerous TZDs have been employed in clinical management of DM and are associated with various untoward effects including weight gain, fluid retention and heart failure. Further modifications of 1,3-thiazolidin-4-ones were reported as a new class of agents associated with partial agonistic activity, a new class osf antihyperglycemic agents. Hence, the attention of researchers is focused on the development of novel agents which are devoid of such side effects associated with TZD. Thus, 1,3-