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Evaluation of Liquid Chromatography for Routine Quantification of Meropenem, Ceftazidime, and Piperacillin in Serum and Cerebrospinal Fluid

K N Jyothirmayi , Dr T K V Kesava Rao 2

Abstract

Critically ill patients often benefit from therapeutic drug monitoring (TDM) of -lactam antibiotics to reduce the risk of treatment failure. In this research, we created a rapid and easy-to-use high-performance liquid chromatography (HPLC) test for the detection of meropenem, ceftazidime, and piperacillin in human serum and for the quantification of meropenem in CSF.

Methods: An Atlantis® T3 5.0 m stationary phase was employed in this procedure. Mobile phase A was composed of 99.4 percent (m/m) water and 0.6 percent (m/m) formic acid (pH 2.30). Acetomtrile (93.6% m/m), water (6% m/m), and formic acid (0.4%) were the components of mobile phase B. Meropenem, ceftazidime, and piperacillin were all determined using a gradient elution technique. UV absorbance detection was performed at 309nm, 258nm, 235nm, and 260nm. An internal standard was included in the sample-preparation process, and acetonitrile methanol was used to precipitate the proteins.

Results The method's linearity, specificity, accuracy, and precision were all studied. Antibiotic compounds and an internal standard were tested for their stability. Single run duration was 23 minutes, while meropenem retention time was 7.222 minutes. Quantification of meropenem was performed from the LOD (0.1mg/l in serum and CSF) to the ULOQ (100mg/l in serum and 25mg/l in CSF). High interindividual variability in serum and CSF meropenem levels was seen in routine analysis, with a mean CSF/serum ratio of 0.129 0.03. Meropenem, ceftazidime, and piperacillin all passed an external validation using the proposed technique with a score of 0.092.

The results of this experiment show that it is possible to examine relationships between meropenem dose, serum concentration, and CSF concentration. Serum from humans may also be tested for ceftazidime and piperacillin. To learn more about how deeply meropenem enters cerebrospinal fluid, researchers may conduct larger-scale experiments. The described methodology is useful for measuring the chemicals in serum and CSF and may be suggested for use.



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Staphylococcus aureus and Enterobacteriaceae Biofilm Formation and Antibiotic Resistance in Clinical Samples Obtained from Patients With **Urinary Tract Infections**

M Vineela1, Dr Cheepurupalli Prasad2

Abstract

Community and hospital-acquired infections are caused by Gram-negative and Gram-positive bacteria, respectively. Antimicrobial resistance is one of the world's leading health concerns because of its rapid development, appearance, and dissemination among microorganisms. Bacteria employ biofilm development as a method of resistance. This research set out to determine whether or not Staphylococcus aureus and Enterobacteriaceae isolates exhibited antibiotic resistance patterns and whether or not they were capable of forming biofilms.

Methods: Patients with urinary tract and surgical site infections at Hôpital Biamba Marie Mutombo and Saint Joseph Hospital provided a total of 18 Staphylococcus aureus and 60 Enterobacteriaceae clinical isolates. Disk-diffusion testing was used to identify the antibiotic resistance pattern of the isolates. The capacity of bacterial strains for producing and forming un biofilm was evaluated using the microtiter plate technique.

Antibiotic and biofilm producer resistance was found to be very common among clinical isolates of S. aureus and Enterobacteriacea. The ampicillin-sulbactam, piperacillin-tazobactam, vancomycin, amoxicillin-clavulanic acid, levofloxacin, and aztreonam susceptibilities of S. aureus strains were all at 100%. Antibiotics including amoxicillin-clavulanic acid, erythromycin. and tetracycline were completely ineffective against strains of Escherichia coli, Enterobacter sp., Citrobacter sp., and Serratia sp. The capacity to create a biofilm was not linked to resistance to antibiotics.

The current study's findings support the establishment of MDR-Os and recommend establishing a program to track the development of antibiotic resistance.

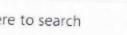
Keywords: Antibiotic resistance, Staphylococcus aureus, Enterobacteriaceae, Biofilm

Introduction

Since fewer or, in some cases, no effective antimicrobial

healthcare costs, and cost-effectiveness [3, 4]. Methicillin-

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Tithonia diversifolia and Senna didymobotrya Extracts Show **Effectiveness Against Fleas Without Harming Mammals**

A Venkateswara rao1, M Vincela2

Abstract

Traditional uses for the bio-pesticides Tithonia diversifolia and Senna didymobotrya are described here. There is a lack of evidence supporting their utility in flea control, and there is also concern about the safety of their aqueous extract.

Methods Acute toxicity in Wister rats and cutaneous and ocular irritation in Newzealand albino rabbit were evaluated using a technique previously published, and the antifleas activity of Tithonia diversifolia and Senna didymobotrya were compared with Chrysanthemum cinerariifolium. We started by making crude aqueous extracts of the flowers and leaves of T. diversifolia, S. didymobotrya, and C. cinerariifolium, and then we diluted those extracts and the placebos in a series of dilutions. Plant extracts were applied to strips of Whatman's filter paper no. 1 and tested for their antifleas properties using fleas collected from stray dogs. After 24 and 48 hours, we counted the number of alive fleas in the polypylene tubes to assess the level of activity.

The most effective treatment against fleas was found in T. diversifolia (93%), followed by C. cinerariifolium (90%) and S. didymobotrya (66.3%). The LD50 for all three plant extracts evaluated was more than 2000 mg kg, and there were no symptoms of ocular or skin toxicity.

In conclusion, further research is needed to determine whether the flowers of T. diversifolia can be utilized to manage jigger flea populations.

Key words: T diversifolia flowers; Fleas control, Jiggers

1. Introduction

Fleas are a kind of ectoparasite that may jump from a

illness. There are three human diseases that are linked to PATAVALA, KAKINADA





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Analysis of the Efficacy of Topical Aqueous Creams Containing Azadirachta Indica Leaf Extract for Healing Wounds

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Abstract

Background: Wound is one of the health indispositions with adverse socio-economic repercussions on the sufferer and those around them. Crude aqueous extract of Azadirachta indica leaves (AEAIL) preserves demonstrated potentials for wound healing. Developing the AEAIL into a topical aqueous cream might boost its effectiveness in wound therapy. purpose. The purpose of this research was to produce aqueous topical creams containing different concentrations of AEAIL as bioactive components, assess their stability and wound healing activity in male Wistar rats using hydroxyproline (HXP) as a biochemical marker.

Materials and methods: Creams containing 1.0, 1.5, 2.0 and 3.0 % w/w of AEAIL were made, evaluating their stability up to 14 days and measuring their wound healing capabilities in male Wistar rats using DMSO, cholesterol and distilled water as controls.

Results: All the batches of creams were stable in colour, pH, viscosity, etc. and demonstrated wound healing effects with the animals treated with the cream containing 1.5 % w/w of AEAIL having the greatest tissue HXP level (p > 0.05). The tissue HXP levels in the animals treated with DMSO, cholesterol and distilled water were lower than those of the test creams (p < 0.05). There was substantial marginal variations in percentage difference of their HXP level compared to those of the test creams (p < 0.05).

Conclusion: The aqueous extract of Azadirachta indica leaves manufactured as aqueous cream was stable and preserved its wound healing properties. This novel solution might potentially be employed in the treatment of bodily injuries.

Key words: Wound healing; Aqueous cream; Azadirachta indica leaves; Bioactive ingredient; Hydroxyproline;



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Development and Validation of a Gliadin Induced Intestinal Enteropathy Rat Model of Non-Celiac Gluten Sensitivity

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Background: Non-celiac gluten sensitivity (NCGS) is a phenomenon that is associated to the absorption of glutencontaining food. In the present work we created and validated an NCGS rat model.

Materials and Methods: Wistar rats were separated into 2 groups: control group (getting 0.02 M acetic acid solution) and gliadin group (receiving 1.5 mg/g of body weight of gliadin in acetic acid solution). Rats received its treatment by intra-gastric gavage on postnatal day 2, then three times a week for 6 weeks. Animals were examined for weight changes, intestinal permeability, histology, inflammatory cytokines, and anti-gliadin antibodies (AGA). Intestinal permeability was tested 24 h before to sacrifice by providing a lactulose/mannitol solution (500/250 mg/kg respectively), and collecting urine for 24 h. For histological study, small intestines were taken, fixed, and stained with hematoxylin and cosin. Intestinal gene expression of cytochrome P450 (CYP 3a62, CYP 3a9/18) and uptake transporters, breast cancer resistance protein (ABCG2), and P-glycoprotein (MDR1a) were examined by qRT-PCR. Blood was obtained for analysis of totalanti-gliadin antibodies (AGA), anti-gliadin immunoglobulins A and M (AGA-IgA and AGA-IgM), and pro-inflammatory cytokines.

Results: As compared to control, the gliadin group had lower body weight, increased intestinal permeability (p<0.05); mild villous atrophy, increased intraepithelial lymphocytes, mild inflammation; increases in total AGA and AGA-IgM, increased gene expression of pro-inflammatory cytokines, IL-6, TNF-a, and IFN-y, by 94%, 33%, and 46% (p < 0.05)



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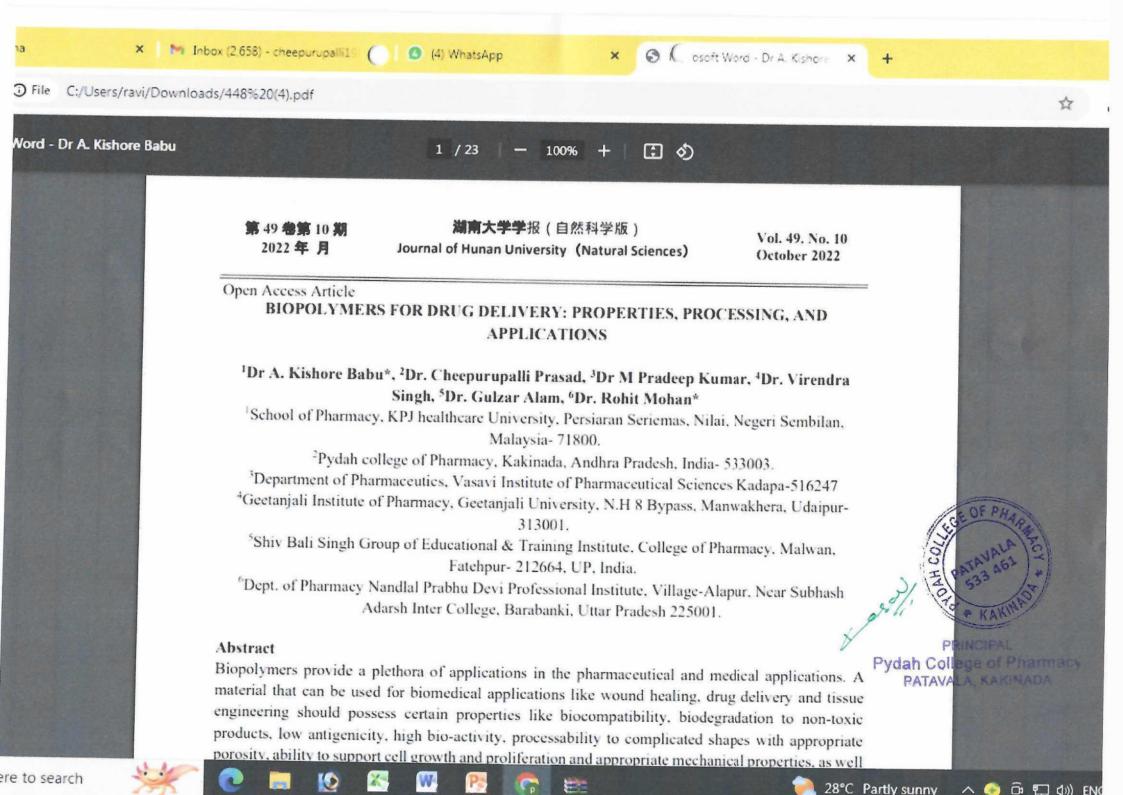
















glipizide, and Group 5 received citrate buffer for their diabetes.

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Comparative Studies on Safety of Glimepiride and Glipizide on Renal Microarchitecture and Oxidative Stress Markers of Pregnant Streptozotocin-Induced Diabetic Wistar Rats

Dr Cheepurupalli Prasad¹, B Sravana Sree²

Abstract

Introduction: Gestational diabetes mellitus (GDM) and Type 2 diabetes mellitus share the characteristics of a reduced insulin production and an impaired responsiveness to insulin. Oral hypoglycemics are preferable to insulin injections during pregnancy because they are safer and patients are more likely to take their medication as prescribed. The overarching purpose of this study was to compare and contrast the effects of glimepiride and glipizide on the kidney and several maternal parameters of pregnant streptozotocin (STZ)-induced diabetic rats. Thirty-five (35) female Sprague-Dawley rats weighing 120-160 g were split into five (5) groups to test the effects of different treatments. Streptozotocin (STZ) was injected intraperitoneally into groups 2-5 to cause diabetes mellitus. Group Group 1 received distilled water as a control, Group 2 received glimepiride, Group 3 received insulin, Group 4 received

Oxidative stress indicators, blood glucose level, body weight, hematological parameters, and lipid profile all improved significantly (p0.05) in the glimepiride and glipizide-treated groups compared to the diabetic and insulin-treated groups. Changes were much better than chance (p.05), treatment with glimepiride improved oxidative stress markers, body weight, and kidney histology relative to both the diabetic and glipizide groups

This study concludes that when compared to insulin, the two oral hypoglycemic medications are equally efficient in regulating glucose intolerance during pregnancy, renal oxidative stress, and cytoarchitectonic features of the kidney. Therefore, glimepiride may present as an attractive alternative medicine of choice for optimal management of glucose intolerance during pregnancy due to its ameliorative and restorative effects on renal oxidative stress and kidney microarchitectonic features.



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Evaluate Effectiveness of Hubbard Purification Rundown Process for Victims of Dioxin/Agent Orange and Related Strengths, Challenges

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Abstract

Objective: The purpose of this research was to analyze the efficiency of Hubbard purification rundown (PR) method for victims of agent orange in the centers of detoxification.

methodologies: The research was planned as a cross-sectional study integrating quantitative and qualitative methodologies and conducted out on 30 dioxin patients, 21 health professionals, and 299 medical records in Hanoi and Da Nang facilities for dioxin detoxification (CDD) of Vietnam.

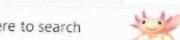
Results: A limited number of patients were clinically assessed before enrolling in and after concluding the therapy, 35%, and 0% correspondingly. In addition, 15% of patients did not complete their daily PR session in the second stage, while 20% of them were not examined daily for treatment success in the fourth step by health personnel. Furthermore, 20% of patients did not follow all 6 phases of the Hubbard PR program.

Although centers were sufficiently equipped in terms of infrastructure and equipment, the study showed that there remained barriers in implementing the Hubbard PR process, such as the lack of human resources, wasteful usage of equipment, and the lack of technology application for electronic medical records management. For patients, the obstacles include the lack of information and comprehension about the program, and high temperature during the PR sessions (63%), extended PR duration (47%), too many drugs and supplements (37%), as well as expensive cost of therapy (35%).

Conclusion: Ensuring adherence and compliance at all levels in the Hubbard PR process may have a favorable influence on the health improvement of dioxin patients.









Rupesh Ajinath Pawar et al / Journal of Current Science & Humanities 09 (4), 2021, 1-8

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Traditional Applications, Phytochemistry, and Pharmacological Effects of Cassia fistula

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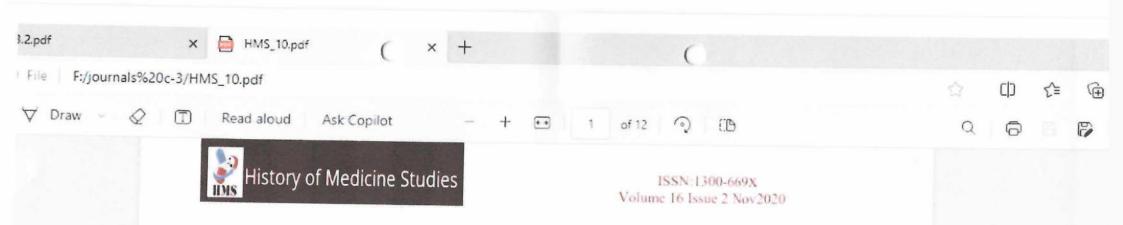
Abstract

People have always favored natural medicines because of the many negative effects of modern pharmaceuticals. Traditional specialists and herbalists are increasingly being sought out for their advice on how to manage stubborn medical conditions. The use of medicinal plants is crucial to the development of novel pharmaceuticals. In the ayurvedic medical system, the plant Cassia fistula, which is part of the Caesalpiniaceae family and is more often known as Amulthus and 'Indian Laburnum' in English, is used to treat a variety of ailments. The purpose of this page is to provide readers with all the information they need to do their own research on the traditional uses, therapeutic ingredients, characteristics, and effects, and chemical constituents of Cassia fistula. This page updates previous research on its pharmacological and phytochemical qualities. Anti-leishmanial function, killing fungi, killing bacteria and other microorganisms, killing fever, reducing fever, inhibiting oxidation, killing larval pests, killing fungi, and killing other microorganisms are just some of the activities revealed by the audit, along with anti-fiery activity, activity against tumor, cough suppressant, activity of the central nervous system, impact of clastogenic, and having tetracyclic activity. Reducing anxiety, soothing, and repairing effects, Actions that are hypolipidemic, hypocholesterolemic, leukotriene suppressing, hepatoprotective, and hypoglycemic. In conclusion,



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The Anticancer Activity of Abemaciclib Is Modulated by Sodium Butyrate in MDA-MB-231 Human Breast Cancer Cells.

B Sravana Sree 1, K N Jyothirmayi2

Abstract

Treatment options are restricted for triple negative breast cancer, the most aggressive subtype of breast cancer. Abemaciclib and sodium butyrate were tested to see whether they had any impact on MDA-MB-231 triple-negative breast cancer cells. Abemaciclib, sodium butyrate, and their combination each had an IC50 of 14.55 M, 7.08 mM, and 3.743 mM for their growthinhibiting activities, respectively. Synergy was shown by a reduction in IC50 to 2.55 M for abemacielib and 3.74 mM for butyrate. The IC50 of abemaciclib, butyrate, and their high and low dosage combinations were tested on three independent sets of four different cancer cell lines for 48 hours. A fifth group functioned as controls by receiving just entire medium. Cell migration, mRNA levels of CDK2, p16INK4a, and p53, and protein expression levels of cyclin D1, E2F2 transcription factor, phosphorylated AKT, nuclear factor kappa B (NF-B), retinoblastoma (Rb), and p16INK4a were measured across all treatment groups. The metastasis of cells was significantly suppressed by a combination therapy of abemaciclib and butyrate. Protein levels of E2F2, CDK2, and NF-B were all found to be lower, and the degree to which they were phosphorylated by AKT was also reduced, after receiving the combined therapy. The hypo-methylated condition of the DNA was reversed, and levels of Rb and p16INK4a were increased. Abemaciclib alone had no effect on cyclin D1 or p53 levels, while the combination dramatically decreased cyclin D1 and increased P53. When butyrate was added to abemaciclib, the antiproliferative and antimetastatic properties of abemaciclib were enhanced, and apoptotic activity was produced

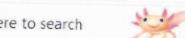
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Keywords: Breast cancer, TNBC, cell cycle, epigenetics, CDK4/6

Introduction

In terms of mortality rates, breast cancer is second only to lung cancer [1]. The lifetime chance of developing breast cancer is 1 in 8 for females [2]. Histopathology of the cells, grade, stage, and the molecular profile of the tumor are used to categorize breast cancer [1]. Breast cancer is

available treatment for this form of cancer. Several common markers of cancer development that contribute pydah ATAVALA, KAKINADA















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Antimicrobial Use, Adverse Effects, and Cost of Drug Therapy in Pediatric Respiratory Tract Infections: A Systematic Review and Meta-Analysis

Dr T K V Kesava Rao , A Venkateswara rao 2

Abstract

The purpose of this study is to examine the use of pharmaceuticals in the treatment of RTIs in children. A tertiary care teaching hospital conducted a cross-sectional observational study of 74 children with RTI. A systematic case record form was used to capture and analyze patient demographic and illness information, prescription history, adverse drug responses, and treatment costs. Treatment efficacy was evaluated in light of World Health Organization and Indian Academy of Pediatrics (IAP) recommendations.

The majority (54.05%) of the 74 patients were children (aged 0-1). Additionally, the majority (67.57%) of the patients were men. Pneumonia was the leading diagnosis (48.5%). 7.251.57 drugs per patient on average (from 3-16 drugs). Antibacterial drugs (100%) were the most often prescribed kind, followed by pain relievers fever reducers (95.94%), and then respiratory drugs(86.49%). Amoxicillin clavulanic acid (90.54%) and ceftriaxone (77.77%) were the two most common antibacterial drugs administered. Antihistamines (85.13%) and salbutamol (55.40%) were the most often given respiratory medications. The majority (75%) of prescription medications came directly from the WHO-EML, and generic names were used in 56.81% of all cases. According to the WHO and IAP recommendations, only 13.51 percent of patients received appropriate or rational medication treatment, while the remaining 35.14 percent received semi-rational drug therapy and 51.35 percent received illogical drug therapy. An adverse drug reaction (ADR) caused by an antibiotic, pain reliever, or fever reducer occurred in 16.22% of patients. The overall cost of antimicrobials was estimated at Rs. 286.17 per patient, with drugs costing an average of 314.69 Rs. The research found that antibacterials and respiratory medications were often overprescribed. Better and more prudent medication usage in pediatric patients may be possible with an increased focus on accurate diagnosis and treatment, patient education, and the availability of locally-effective recommendations.

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Keywords: Infections in children's lungs; The use of antibiotics; Proper dosing: Drug treatment cost estimates;

Adverse events in children





Rupesh Ajinath Pawar et al. / Journal of Current Science & Humanities 06 (4), 2018, 1-8

Available online at www.jcsonline.in Journal of Current Science & Humanities 06 (4), Nov



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The Relationship between High Absolute Lymphocyte Counts and FavorablePrognosis in Eribulin Therapy is seen in First-Line Chemotherapy for Metastatic Breast Cancer: CombinedAnalysis of Two Phase 2 Studies

A Venkateswara rao1. B Sravana Sree2 Associate Professor1, Assistant Professor2 PYDAH COLLEGE OF PHARMACY, KAKINADA YANAM ROAD, PATAVALA

Abstract

Background: The impact of prior chemotherapy on blood cell counts may necessitate an evaluation of baseline absolute lymphocyte count (ALC) and neutrophil- to-lymphocyte ratio (NLR) in first-line chemotherapy patients, despite their association with improved PFS and OS.

Methods:Two phase 2 studies (BIRICHEN and OMC-BC 03) were retrospectively assessed to determine the efficacy of first-line eribulin chemotherapy in patients with human epidermal growth factor receptor 2 (HER2)-negative metastatic breast cancer (MBC). For the sake of comparison, data from HER2-negative MBC patients treated at Osaka Medical and Pharmaceutical University Hospital between March 2013 and March 2017 who underwent first-line chemotherapy other than cribulin (treatment of physician's choice, TPC) were also studied.

Keywords: Metastatic breasteancer, Overall survival, Eribulin, Treatment of physician's choice, Absolute lymphocyte count participated in these studies with patients with first-line TPC Introduction who were treated at the same time.

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Development and Assessment of the Reliability and Validity of a Psychological Stress Scale for Catheterized Home Healthcare **Patients**

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Abstract

Background: Accidental dislodgement of tubes catheters from patients' bodies is prevalent in healthcare; making it a significant patient safety management concern. Additionally, the number of pati- ents requiring catheter care at home has grown with the growth in aging patients. Pain or stre- ss from directly introducing a tube catheter into the body causes unintended dislodgement. However, quantitative measures have not yet been devel-oped to measure patients' stress arising from dislodgement anxiety.

Aim: This research aims to design a psychological stress scale for patients using tubes/catheters at home (PSS-CP) and assess its reliability and validity.

Materials and Methods: The questionnaire was prepared via interviews with 10 patients utilizing tubes catheters at home. Reliability was assessed using the test-retest technique and Cronbach's a. Factorial and criterion-related validity were investigated using exploratory factor analysis and the 12-item General Health Questionnaire, respectively.

Results: The PSS-CP comprised 16 items across four factors: "anxiety about catheter dislodgement while moving or in



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