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Pathophysiology and diagnostic evaluation of occupational asthma from exposure to wood dust and diisocyanates in the wood processing employees: A preliminary study

Prasetyo E.^{a, b}, Anies A.^c ✉, Widyastiti N.S.^c, **Suhartono S.^d**

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Abstract

AIM: This study is a preliminary study to analyze the etiology and pathophysiology of exposure to wood dust and diisocyanates in the wood processing industry in Jepara, Central Java, Indonesia. This study also provides a diagnostic evaluation of occupational asthma (OA) for ongoing exposure. METHODS: The research method was carried out with a systematic review of various previous findings and with a preliminary study of workers in the processing industry in

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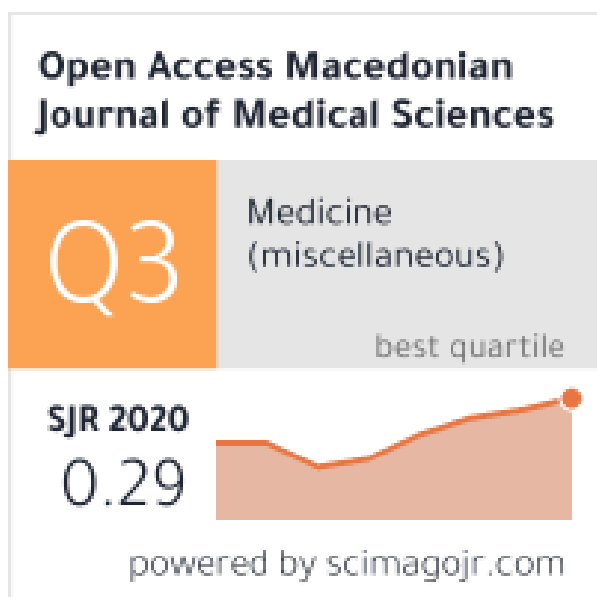
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Assessment of Students Nutritional Consumer Preferences and Behavior

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Abstract

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BACKGROUND: Malnutrition is an important risk factor for the development of many diseases. Medical examinations reveal that 80–85% of students have health disorders. The incidence of sickness among students has increased by 35% over the past 10 years, which is due to the malnutrition of students of higher educational institutions.

AIM: The objective of the study was to study the peculiarities and socio-organizational aspects of students' nutritional consumer preferences.

MATERIALS AND RESEARCH METHODS: The assessment of the characteristics of students' eating behavior was carried out on the base of the questionnaire survey data among students ($n = 333$) at the age of 18–24 years. Data were presented as arithmetic mean and standard deviation ($M \pm SD$). The distribution normality was determined by the Kolmogorov – Smirnov test. The Mann – Whitney test was used to compare the groups ($p < 0.05$).

RESULTS: About 77% of students save money on food. Only about 22% of students receive the desired food, 64% of men have to save money on food, while the share of women was 78%. 67% of the surveyed group regularly and at least 1–2 times a week visit catering establishments. Assessed by type of food service, 24% of students gave their marks to a fast-food establishment, while only 12% of students gave marks to a traditional canteen. Men consume fast food per day 1.6 times more than women. The relationship between material well-being and nutritional quality was analyzed ($r = 0.72$). Evaluation of nutritional status showed that 25% of girls and 17% of boys were underweight, overweight and obesity – in 10 and 18% respectively.

CONCLUSIONS: More than 50% of the participants do not have an idea of a rational and balanced diet; do not have the skills of preliminary planning and organization of meals. Therefore, we propose to improve the organizational and economic mechanisms of the public catering system of universities to solve the problem of nutrition improving in students.

Introduction

Nutrition is an important component of human health. In recent years, there are many problems in respect to nutrition, including shortcomings in the organization and planning of daily meals, consumer preferences in the choice of foods, and it cannot be said that the diet is satisfactory.

The growing popularity among students of fast food products with various flavors, dyes, and modified components causes the greatest concern among nutritionists. In addition, the rise in prices for food products leads to a rise in prices for products from public catering enterprises. In recent years, the decline in the population's ability to pay has exacerbated the already difficult situation with the nutrition of students. The entrepreneurs often use low-quality food in order to save money. Moreover, this process is not controlled

by anyone. Unfortunately, statistics of recent years show a sharp increase of young people suffering from obesity, diseases of the gastrointestinal tract, diseases of the cardiovascular system, and diabetes mellitus [1], [2], [3], [4], [5], [6], [7].

The work of Karabinskaya [8], Karelin *et al.* [9] Kuznetsov *et al.* [10] showed a direct correlation between indicators of eating disorders and the presence of complaints of deviations in the conditions of the gastrointestinal tract ($r = 0.49–0.67$). The reliable relationship was established between the time of study at the university and the morbidity of the gastrointestinal tract, as well as the number of students in need of dietary nutrition.

Gauss *et al.* [11], when assessing food preferences, revealed that persons complaining of various gastrointestinal symptoms, as a rule, have any taste preferences. In most cases, people with symptoms of irritable bowel syndrome



B-Line Artifact as a Diagnostic Tool in Various Conditions at the Emergency Department

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Abstract

BACKGROUND: B-line artifacts (BLAs) play an important role in identifying lung pathology. They may indicate different diseases. However, the diagnostic study of BLA as applied to emergency patients has not been well studied.

AIM: The aim of this study was to determine the diagnostic accuracy of BLA in various conditions.

METHODS: This was a retrospective observational study of emergency patients who had received lung ultrasound at Srinagarind Hospital's Emergency Department throughout January 2020–December 2020. Ultrasound artifacts were recorded. Ultrasonography findings were correlated with final diagnosis. Sensitivity and specificity were also calculated.

RESULTS: A total of 105 patients were evaluated. The most prevalent condition which BLA found in this study was pulmonary edema (44.12%) with 88.24% sensitivity and 46.48% specificity. BLA also indicated pneumonia with 66.67% sensitivity and 35.71% specificity. Diffuse BLA indicated pulmonary edema with 70% sensitivity and 70.42% specificity. Focal BLA indicated pneumonia with 28.57% sensitivity and 76.19% specificity.

CONCLUSIONS: The sensitivity of BLA for pulmonary edema and pneumonia diagnosis in this study was of moderate to good sensitivity, but low specificity. BLA may become crucial in the diagnosis of lung pathology in the emergency department.

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Introduction

Lung ultrasound (LUS) is an important tool amid the care of patients at the emergency department [1], [2], [3]. Nowadays, LUS is more widely used, especially in critically ill patients [4], [5]. LUS is based on the analysis of ultrasound artifacts. Of the many artifacts, B-line artifact (BLA) is caused by a reverberation phenomenon. Moreover, it is the crucial lung artifact applied in critically ill patients [4]. The characteristic of BLA [6] is as follows: (1) It arises from the pleural line, (2) it is hyperechoic, similar to the pleural line, (3) it is well-defined, similar in appearance to a laser, (4) the sign erases the normal A-lines and extends outward without fading to the bottom of the display screen, and (5) the sign moves with lung sliding. BLA is applied in numerous diseases such as pulmonary edema, congestive heart failure, lung contusions, pneumonia, and acute respiratory distress

syndrome [7], [8], [9], [10], [11], [12]. In addition, some literatures showed that BLA has been applied amid connective tissue diseases [13], [14], [15]. While they have been reported on in lung pathology, single focal BLA can also be observed in healthy populations [7].

The previous ultrasound studies [7], [8], [9], [10], [11], [12], [13], [14], [15] have examined selected groups of patients such as those exhibiting acute respiratory distress, dyspnea, or critically ill patients with LUS examination. With the introduction of LUS and training of emergency medicine residents, LUS has been increasingly used in the emergency departments in Thailand. Ultrasound findings through BLA in undifferentiated patients in the emergency department have never been documented. The clinical question addressed in this study was the following: For patients presenting themselves at the emergency department with variable conditions, which disease BLA can be used to confirm a diagnosis accurately?



Uncrossmatched Blood Transfusion for Resuscitation Patients at the Emergency Department

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BACKGROUND: Patients with uncontrolled blood loss often require immediate blood transfusion after the bleeding is stopped. If it is an emergency situation, blood that has not been tested for compatibility (uncrossmatched red blood cell [URBC] products) can be used. However, no studies have been conducted to evaluate the effectiveness of this protocol.

AIM: The aim of the study is to evaluate the effectiveness of URBC transfusion in Srinagarind Hospital's emergency department (ED).

METHODS: This was a cross-sectional study that reviewed the medical records of ninety Thai patients over 18 years of age who received at least one unit of blood through URBC transfusion in the Srinagarind Hospital ED from September 2016 to August 2018.

RESULTS: The average age of the patients was 47.23 ± 18.2 years, and 73.3% were male. A total of 149 units of URBC were provided, with 54.44% of recipients being trauma patients and 27.78% being gastrointestinal bleeding patients. The 24-h and in-hospital mortality rates were 58.89 and 72.22%, respectively. There were no cases of acute blood transfusion complications or inappropriate URBC transfusion.

CONCLUSIONS: The transfusion of URBC necessary in patients with uncontrolled bleeding. No complications were found due to acute blood transfusion.

Introduction

Thailand is ranked among the countries with the highest mortality rate from traffic accidents, representing 20 to 24.9 people/100,000 population [1]. The main causes of death in accident patients, especially within the first 48 h, are hemorrhage [2], [3] and coagulopathy at arrival to the hospital [4]. Treatment of blood loss consists of stopping the bleeding and performing a blood transfusion. If transfusion is performed at the earliest stages of injury, it can help reduce the risk of volume depletion, acidosis, diluted blood, and abnormal blood clotting [4], [5]. According to the advanced trauma life support guidelines (10th edition), if the patient still is experiencing a large amount of blood loss or is in shock after receiving at least one liter of fluids, they should receive type-specific blood. However, in an emergency situation in which there is no time to prepare type-specific blood, O Rh-negative blood that has not been tested for compatibility (uncrossmatched red blood cells [URBC]) may be used [6]. Srinagarind Hospital began implementing guidelines for uncrossmatched blood

transfusion using leukocyte-poor red cells (group O Rh-) in the emergency room in August 2016. According to these guidelines, URBC transfusion should be performed in accident patients with hemorrhagic shock of grade 3 or higher [7], cardiac arrest, or ABC (assessment of blood consumption) scores ≥ 2 [8]. This study was conducted to evaluate the effectiveness of this protocol at Srinagarind Hospital's emergency department (ED).

Methods

This was a cross-sectional study. The sample consisted of ninety patients over 18 years of age who received at least one unit of URBC transfusion in the Srinagarind Hospital ED from September 2016 to August 2018. Ethics approval was provided by The Khon Kaen University Ethics Committee for Human Research (HE611508). The sample size was calculated based on the proportion of URBC transfusions reported



Knowledge, Awareness, and Attitudes toward Umbilical Cord Blood Biobanking

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Abstract

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BACKGROUND: Umbilical Cord Blood (UCB) stem cells are a non-invasive, effective alternative source of hematopoietic stem cells for the treatment of a variety of diseases.

AIM: The aim of the study was to research knowledge, awareness, and attitudes of the general public and health professionals regarding the UCB storage.

MATERIALS AND METHODS: A cross-sectional study was conducted with an online survey (n = 408) using the snowball method.

RESULTS: A majority of respondents declared that they were not aware of UCB banking; however, people with an academic background in healthcare have a greater awareness of UCB banking. A subjective assessment found that their knowledge of UCB banking is better than that of non-professionals, however, they exhibited better knowledge and understanding of UCB use and banking in only a few aspects. People with an academic background in healthcare have a more polarized attitude toward cord blood banking and a higher percentage are unwilling to pay for UCB banking services. However, their preferences regarding public/private UCB banking do not differ significantly from those of non-professionals.

CONCLUSION: Here, we show that there is not much difference between the laic and professional categories in terms of knowledge about the specific purpose and characteristics of UCB storage.

Introduction

Since the first public umbilical cord blood (UCB) bank was founded at the New York Blood Center in the early 1990s [1], UCB banking has spread rapidly across the world [2]. According to World Marrow Donor Association [3], there are currently more than 790,000 frozen UCB units held in more than 160 public UCB banks worldwide.

There are also more than 220 private UCB banks worldwide holding 4 to 5 million samples [4]. Whereas public UCB banks operate at national level only, private UCB banks often operate internationally. Unlike public banks, which mainly store UCB, many private banks also collect and store UCT [5]. Public UCB banks procure, process, test, store, and release blood samples donated for allogeneic use at no cost to the donating parents, while private UCB banks charge a fee to collect, process, and store an infant's UCB and/or UCT for autologous or allogeneic family use [5]. There are also other models, such as family-managed or hybrid public-private banking. The hybrid model aims to merge the potential of public-sector allogeneic storage with the potential application of autologous storage in specific fields of regenerative medicine [6]. Moreover, Hauskeller and Beltrame [2] demonstrated that the interplay of technical, ethical,

economic, and logistical considerations, together with the performative role of regulations and the agency of institutional and corporate actors involved produces hybrid configurations of the networks in which UCB circulates. Motives for donating UCB to public UCB banks or for storing tissues in private UCB banks differ and can be influenced by health workers, the media, and other sources of information. An understanding of the attitudes of different segments of the population toward UCB banking can be useful for launching a targeted promotion of UCB donation and biobanking services and for expanding knowledge of its applications.

Awareness of UCB banking by parents and especially by women, who are the main decision makers regarding UCB donation and storage, is crucial to making a reasonable choice about UCB storage [7]. A review of UCB awareness studies found contradictory findings [8]. A number of studies reported a high level of awareness of UCB banking among women [9], [10], [11], while others reported a low level of awareness [7], [12], [13]. Further, knowledge and awareness of UCB banking among health professionals were relatively low [5], [14] despite these health professionals being identified by expectant parents as their preferred, key sources of information [5]. There are no consensus findings on the distribution of sources of knowledge regarding UCB.



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**KETERANGAN LOLOS KAJI ETIK
DESCRIPTION OF ETHICAL APPROVAL
"ETHICAL APPROVAL"**

No : 379/EA/KEPK-FKM/2019

Protokol penelitian yang diusulkan oleh :
The research protocol proposed by

Peneliti utama : Eko Prasetyo
Principle Investigator

Nama Institusi : Universitas Diponegoro
Name of the Institution

Anggota Peneliti : 1. Prof. Dr. dr. Anies, M.Kes., PKK
Member 2. Dr. dr. Nyoman Suci Widyastiti, M.Kes., Sp.PK 3. Dr. dr. Suhartono, M.Kes

Dengan judul :
Title

"Paparan Debu Kayu dan Diisocyanates sebagai Faktor Risiko Occupational Ashtma pada Pekerja di Industri Kayu"

" Exposure to Wood Dust and Diisocyanate as a Risk Factor for Occupational Ashtma in Workers in the Wood Industry"

Dinyatakan layak etik sesuai 7 (tujuh) Standart WHO 2011, yaitu 1) Nilai Sosial, 2) Nilai Ilmiah, 3) Pemerataan Beban dan Manfaat, 4) Risiko, 5) Bujukan/Eksploitasi, 6) Kerahasiaan dan Privacy, dan 7) Persetujuan Setelah Penjelasan, yang merujuk pada Pedoman CIMS 2016. Hal ini seperti yang ditunjukkan oleh terpenuhinya indicator setiap standar.

Declared to be ethically appropriate in accordance to 8 (seven) WHO 2011 Standarts, 1) Social Values, 2) Scientific Values, 3) Equitable Assesment And Benefits, 4) Risks, 5) Persuasion/Exploitation, 6) Confidentiality and Privacy, and 7) Informed Concent, referring to the 2016 CIOMS Guidelines. This is as indicated by the fulfillment of the indicators of each standart.

Pernyataan Laik Etik ini berlaku selama kurun waktu tanggal 29 Juli 2019 sampai dengan tanggal 29 Juli 2020

This declaration of ethics applies during the period July, 29 st 2019 until July, 29 st 2020

Semarang, 29 Juli 2019
Professor and Chairperson,

Prof. Dr. dr. Anies, M.Kes, PKK.
NIP. 195407221985011001