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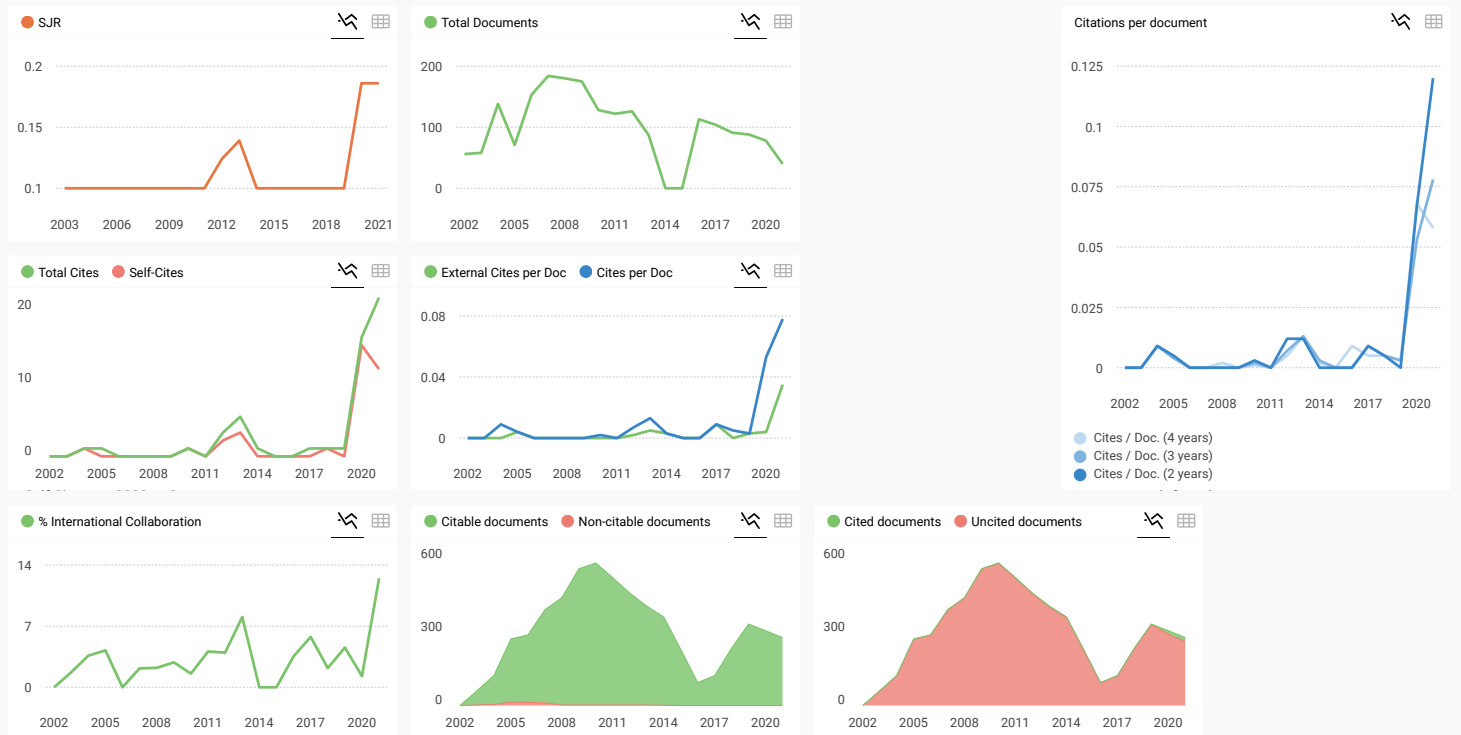
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Azerbaijan Medical Journal (ISSN: 0005-2523)

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Pharmacological and Nutraceuticals Profile of Citrus medica: A Vitamin C Rich Source

Journal ID : **AMJ-14-01-2023-11050**; Author : **Gazala Noor, Badruddeen, Juber Akhtar, Bhuwanendra Singh, Mohammad Ahmad, Mohammad Irfan Khan,**

Abstract : Citrus medica commonly known as citron is widely distributed in the himalayan regions of India. It contains various phytoconstituents like limonene, hesperetin, Vitamin C, phenolics, flavonones, iso-limonene, pectin, linalool, decanal, and nonanal etc. It is frequently used in traditional systems of medicine for the treatment of cardiac, thyroid, and oestrogen disorders. These activities are due to presence of phenolic and flavanoids content in it. It is also act as mutagenic and exhibits good antioxidant properties. The plant leaves, peels, fruits and their seeds have several pharmacological effects such as antioxidant (reduces reactive oxygen species and malondialdehyde), analgesic and anti-inflammatory activities (inhibit DPPH and hydrogen peroxide radical scavenging), antilipidaemic (by inhibiting HMG-CoA reductase) and estrogenic activity (increase vaginal epithelial cell cornification and uterine weight) etc. The purpose of this review is to highlight the source, geographical indication, phytochemistry, traditional uses, pharmacological effects and numerous nutraceuticals application of Citrus medica and its main constituent Vitamin C.

The Effect of Positive Thinking on Depression Level in Diabetes Mellitus Patients

Journal ID : **AMJ-14-01-2023-11049**; Author : **I Wayan Candra, I G A Harini, I Nengah Sumirta, I Dewa Made Ruspawan, I Made Mertha, Ni Nyoman Hartati, I Dewa Ayu Ketut Surinati, Ni Luh Putu Yunianti Suntari,**

Abstract : The effect of positive thinking on the level of depression in diabetic Mellitus patients. Diabetes mellitus is a chronic disease that cannot be cured. It is not contagious but has a high risk of disrupting one's life. This study aims to prove the effect of positive thinking on the level of depression in patients with diabetes mellitus. This type of research is a pre-experimental One-Group Pre-test-posttest Design. The sampling technique is purposive sampling. The number of samples in this study was 34 people. Data collection techniques used Beck Depression Inventory-II (BDI-II). The results of the investigation before treatment were positive thinking depression level in study subjects, mild depression in 12 people (35.3%), depression was 18 (52.29%), and significant depression for 4 people (11.8%). After being given a favorable thinking treatment, the depression level of the study subjects was: normal/not depressed in 1 person (2.9%), mild depression in 17 people (50%), moderate depression in 15 people (44.1%), and significant depression 1 person (2.9%). Paired t-test results: mean before treatment 21.9412, after treatment 19.1765, $t = 5.787$, and $p = 0.000$. There is a significant effect of positive thinking on the level of depression in patients with diabetes mellitus. Positive thinking can reduce depression levels in patients with diabetes mellitus.

Conversion Time of Covid-19 RT-PCR Test Among Health Workers

Journal ID : **AMJ-14-01-2023-11048**; Author : **Anita Puspitasari Dyah Nugroho, Herlina, Aninda Dinar Widiyanti, Farida Murtiani,**

Abstract : One of key sector to combat covid-19 is healthcare, whose worker are put in high risk affected physical, mental and social. Healthcare worker (HCW) defined as all staff involved to provide treatment for covid-19 patients and are put in higher risk to SARS-CoV-2 exposure than general population. In addition, infected HCW are required to work immediately as the amount of HCW is limited. Indonesia applied entry and exit test in five days to shorten isolation and quarantine period. The policy has also been applied to HCW in Sulianti Saroso Infectious Disease Hospital since January 2022. This study accounted 229 covid-19 confirmed healthcare worker in Sulianti Saroso Infectious Disease Hospital with admission date January 1st – February 28th, 2022. Conversion time was divided into two categories, less than equal to 10 days and more than 10 days. Our study showed out of all, only 20,5% of our healthcare workers had conversion ≤ 10 days. It means most of the result of exit test RT-PCR on day 5 after confirmed date was positive. We found correlation between symptoms and conversion time ($p = 0,0001$). We also found significant correlation between severity and conversion time ($p = 0,0001$) as in line to preceding studies. this study aimed to give recommendation and evaluation on exit test on day 5 for healthcare worker policy.

Effects of a health education intervention on insecticide treated nets use and its practices among pregnant women attending antenatal clinic in Royal hospital, Enugu State, Nigeria: A Pilot study

Journal ID : **AMJ-13-01-2023-11045**; Author : **Opara Monica Onyinyechi, Associate Professor Dr. Suriani Ismail, Dr. Ahmad Iqmer Nashriq,**

Abstract : Malaria remains the most prevalent parasite infection accountable for the high burden of disease and deaths in low-income countries. Approximately half of the global population lives in malaria-endemic areas, pregnant women and young children below the age of 5-years are considered as high-risk group for the transmission of malaria. A pilot study was conducted in Royal hospital, Enugu State, Nigeria. The health education intervention contents were prepared initially and pre-tested by piloting 30 pregnant women. The pre-test was done two times, with an interval of 10 days in order to evaluate the accuracy of the original findings with a retest. A total of 30 pregnant women participated in the study Majority of the pregnant women belong to Igbo ethnic group 27(90%). All the pregnant women live in the city 30(100%). The result of this study reported that a total of 29 respondents had good knowledge of malaria prevention practice. Results proved that health education could be an effective if it is included in routine sessions provided to pregnant women in order to encourage them to practice the use of ITN. This could not only be beneficial in preventing malaria and reducing its burden of disease, it can also improve maternal morbidity and mortality among pregnant women.



Effect of Pancreas Omentoplasty and Sleeve Gastrectomy on Body Weight, Blood Sugar Levels, and Interleukin-6 in Diabetic and Obese Rats

Journal ID : **AMJ-12-01-2023-11043**; Author : **Vicky Novitasari, Abdul Mughni, Ign Riwanto, Heri Nugroho, Nani Maharani,**

Abstract : This study described the effectiveness of pancreas omentoplasty with sleeve gastrectomy on weight reduction, improving blood sugar levels and interleukin-6 in diabetic and obese rats. A randomized control group pretest-posttest study design was performed on 12 male Wistar rats aged 6 weeks induced with obesity and type 2 diabetes mellitus (DM) and grouped into sleeve gastrectomy (SG) group (P1) and SG group with pancreatic omentoplasty (P2). SG is done by partially removing the stomach in the major curvature and suturing it. Omentoplasty is performed by suturing the omentum to the pancreas. Body weight, fasting blood glucose levels, and interleukin-6 (IL-6) were examined before and 10 days after treatment. None of the rats experienced postoperative drop-out, and examination showed that they were obese with homogeneous body weight, blood glucose, and IL-6 levels. Data analysis showed body weight, blood glucose levels, and IL-6 after treatment were significantly decreased in both groups compared to levels before treatment. The improvement of these parameters was found to be significantly better in the group that received sleeve gastrectomy and pancreatic omentoplasty. In conclusion, sleeve gastrectomy with pancreatic omentoplasty significantly reduce body weight, blood sugar levels, and IL-6 better than sleeve gastrectomy procedure alone.

Profile of patients with Noise Induced Hearing Loss (NIHL) at Neurotology Clinic, Dr Soetomo General Academic Hospital, Surabaya, Indonesia

Journal ID : **AMJ-12-01-2023-11042**; Author : **Adriadi Yanuar Saifurizal, Nyilo Purnami,**

Abstract : Noise-induced hearing loss (NIHL) is a hearing loss that develops gradually due to prolonged exposure to excessive intensity noise and usually comes from the work environment. This study was a retrospective descriptive study using medical record data at Neurotology Clinic, Dr. Soetomo Hospital, Surabaya, Indonesia, from January 2016 to December 2020. Male patients with NIHL were more than female patients. The ratio of male to female patients was 1.92 :1. Most NIHL patients were in 41-50 years age group, as many as 12 patients (31.58%). NIHL patients as many as 18 patients (47.37%) had a chief complaint of tinnitus, while 20 patients (52.63%) had complaints of hearing loss. Most of the patients' occupations were traders of 8 patients (21.05%). The length of work of NIHL patients showed that those who worked for less than 10 years were 12 patients (31.58%). The mean notch frequency typical of NIHL patients was found in 15 patients (39.47%) with a frequency of 4000 Hz, and 23 patients (60.53%) with a frequency of 6000 Hz, with a decrease in intensity of 59.50 dB and 65.54 dB. The chief complaint was tinnitus, which was more common than hearing loss. Most of the patients' occupations was traders, with the majority of patients had been working more than 10 years. Most hearing loss was mild with a characteristic notch frequency occurring more at 6000 Hz than 4000 Hz.

The Effect of Marriage with Lower Castes (Nyerod) In Traditional Balinese Wedding on The Psychology of Balinese Hindu Women: Case Report

Journal ID : **AMJ-12-01-2023-11041**; Author : **Anak Agung Ngurah Andika Damarnegara, Cokorda Bagus Jaya Lesmana, Ni Ketut Putri Ariani, I Gusti Ayu Indah Ardani,**

Abstract : Marriage in Bali, which is predominantly Hindu, still adheres to the caste (wangsa) system. So that the marriage that can be called ideal by the Balinese people is a marriage with the same caste, and if a different caste marriage is still a polemic in Balinese society. Different caste marriages in Bali cause adjustment to the new environment in the husband's family. This case aims to show that there is a relationship between different caste marriages (nyerod) that occur in Balinese women and her psychological status. A 30 years old Balinese woman came with psychological problems after she was married with different caste. Based on in-depth psychiatric interviews, psychological and psychometric examinations, as well as dynamic psychotherapy approaches, it was found that she wanted to end her marriage but she was confused because she had married with a lower caste husband (nyerod) and felt that her family was not willing to accept herself back if she divorced. The need for premarital counselling is certainly crucial to explain to couples who are about to get married, especially those of different castes to know the consequences and adjustments that must be made if they are going to have a different caste marriage to prevent psychological disorder.

PLATELET INDICES IN CHILDREN WITH CYANOTIC AND ACYANOTIC CONGENITAL HEART DISEASE UNDERGOING CARDIAC CATHETERIZATION

Journal ID : **AMJ-11-01-2023-11038**; Author : **Muqiemuddin Salim, Andi Cahyadi, Taufiq Hidayat, Mahrus A Rahman, Mia Ratwita Andarsini, I Ketut Alit Utamayasa, Maria Christina Shanty, Henry Wicaksono, I Dewa Gede Ugrasena, Teddy Ontoseno, Diah Kusuma Arumsari,**

Abstract : Platelet indices correlated with cardiovascular risk factors and mortality in children with congenital heart disease (CHD). Cyanotic CHD usually had a low platelet count with a high level of other platelet indices. This study evaluated the difference in platelet indices between cyanotic and acyanotic CHD undergoing cardiac catheterization. A retrospective study evaluated children with CHD, age 1 month until 18 years, hospitalized at Dr. Soetomo General Academic Hospital, Surabaya. Children were classified into acyanotic and cyanotic CHD based on echocardiography result and cyanotic signs. They undergo diagnostic or therapeutic catheterization procedures from January 2020 to December 2021. Platelet count, mean platelet volume (MPV), platelet crit (P-PCT), platelet large cell ratio (P-LCR), and platelet distribution width (PDW) were markers of platelet indices, examined by Hematology Analyzer SYSMEX XN 1000 from peripheral blood sampling. We used the independent sample t test to differentiate the mean of platelet indices between



acyanotic and cyanotic CHD with a significance level of $p < 0.05$ (two-tail test). There were 208 from 258 children had complete data. About 61 (29.3%) were cyanotic CHD, and 147 (70.7%) were acyanotic CHD. Boys in cyanotic CHD was more prevalent than in acyanotic CHD (65.6% vs 39.5; $p = 0.001$). Diagnostic catheterization was performed in 94 (45.2) % of children, and therapeutic catheterization was in 114 (54.8%) children. Platelet count was similar between cyanotic and acyanotic CHD ($p = 0.434$). Thrombocytosis with a platelet count above 450.000/mm³ occurred in 16.4% cyanotic CHD and 8.8% acyanotic CHD. The P-PCT had no significant differences between cyanotic and acyanotic CHD. The mean PDW, MPV and P-LCR in acyanotic CHD were lower than in cyanotic CHD; 9.5(SD=1.57) fL and 10.9(SD=2.41) fL with $p < 0.001$; 9.3(SD=0.79) and 9.8(SD=1.4) fL with $p = 0.007$; 19.1(SD=6.11) and 23.0(SD=8.52) with $p = 0.002$; respectively. Platelet indices in cyanotic CHD were higher in cyanotic CHD than acyanotic CHD, especially for PDW, MPV and P-LCR.

Characteristics of the Physical Environment Habitat and Infection Rate of Schistosomiasis Intermediate Host Snail (*Oncomelania hupensis lindoensis*) in Poso District, Indonesia

Journal ID : **AMJ-11-01-2023-11037**; Author : **Ade Kurniawan, Syamsuar Manyullei, Erniwati Ibrahim, Hasanuddin Ishak, Wahiduddin, Lalu Muhammad Saleh, Made Agus Nurjana, Rudi Hendro Putranto, Amir Su'udi,**

Abstract : Schistosomiasis is a neglected tropical disease that is transmitted by freshwater and snails, The intermediate snail that transmits schistosomiasis in Indonesia is *O.h. lindoensis*. The snail is amphibian. The survival of the *O.h. lindoensis* snail is supported by the appropriate climate and environmental habitat. Climate change towards schistosomiasis infection has important implications for the production, survival and fertility of schistosomiasis snails. This paper aims to describe the condition of the physical environment and the infection rate of *Sistosoma japonicum cercariae* in schistosomiasis intermediate snails in Dodolo Village, Poso Regency. The survey results from 25 habitats showed that the water temperature was between 200C-300C, 84% pH of the water was at a neutral acidity level (7), the soil pH of the snail habitat varied from 4.0 - 7, and 60% of the habitat type was found in the cacao plantation waterways. inhabitant. Cercarial infection rates range from 0-50%. Physical environmental factors such as water temperature, water pH, soil pH and habitat type support the breeding of the *O.h. lindoensis* snail. The level of cercarial infection in *O.h. lindoensis* snails differed between each habitat.

Effectiveness of the olive oil compared to the EDTA in the removal of separated instruments in straight and curved canals: A four-arm randomized controlled trial

Journal ID : **AMJ-10-01-2023-11035**; Author : **Ahmad Seri Al-Aloul, Ossama Aljabban, Mohammad Younis Hajeer, MHD Bahaa Aldin Alhaffar, Yasser Alayed Tolibah,**

Abstract : Separated Instruments have become a common problem nowadays during root canal treatment. Some previous studies have shown that olive oil has special properties to be used as a lubricant agent. No study has evaluated the effect of olive oil as a lubricant agent compared to EDTA in the removal of the separated instrument using ultrasonic tips. (2) Referred patients to the Department of Endodontics with the complication of separated instruments in the root canals of their lower first molars were screened. Two groups of patients (n=60) with separated instruments were included with equal numbers of straight and curved roots. Each group was exposed to the EDTA 17% or the olive oil during the application of ultrasonic tips according to the 'Terushi' technique with a 1:1 allocation ratio. The failure rate and the time required for removal of the separated instruments was calculated. Chi-square and student t tests were used to detect differences. In the curved canals groups, there were no significant differences between the EDTA and the olive oil in terms of the failure rate (13.4% and 7%, respectively; $P \approx 1.000$) and the mean removal time (2.50 and 2.22, respectively; $P = 0.665$). In the straight canals groups, there were significant differences between the EDTA and the olive oil in terms of the failure rate (0% and 33.4%, respectively; $P = 0.028$) and the mean operating time (1.40 and 2.10, respectively; $P = 0.042$). The olive oil can be used as a lubricant agent in the removal of the separated instrument in the curved canals with a high success rate and an appropriate operating time. However, the EDTA performed better in the straight canals with higher success rate and shorter operating time compared to the olive oil.

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Profile of patients with Noise Induced Hearing Loss (NIHL) at Neurotology Clinic, Dr Soetomo General Academic Hospital, Surabaya, Indonesia

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Keywords:

NIHL, Neurotology clinic, Human & health.

ABSTRACT

Noise-induced hearing loss (NIHL) is a hearing loss that develops gradually due to prolonged exposure to excessive intensity noise and usually comes from the work environment. This study was a retrospective descriptive study using medical record data at Neurotology Clinic, Dr. Soetomo Hospital, Surabaya, Indonesia, from January 2016 to December 2020. Male patients with NIHL were more than female patients. The ratio of male to female patients was 1.92 :1. Most NIHL patients were in 41-50 years age group, as many as 12 patients (31.58%). NIHL patients as many as 18 patients (47.37%) had a chief complaint of tinnitus, while 20 patients (52.63%) had complaints of hearing loss. Most of the patients' occupations were traders of 8 patients (21.05%). The length of work of NIHL patients showed that those who worked for less than 10 years were 12 patients (31.58%). The mean notch frequency typical of NIHL patients was found in 15 patients (39.47%) with a frequency of 4000 Hz, and 23 patients (60.53%) with a frequency of 6000 Hz, with a decrease in intensity of 59.50 dB and 65.54 dB. The chief complaint was tinnitus, which was more common than hearing loss. Most of the patients' occupations was traders, with the majority of patients had been working more than 10 years. Most hearing loss was mild with a characteristic notch frequency occurring more at 6000 Hz than 4000 Hz.



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1. Introduction

Noise-induced hearing loss (NIHL) is a hearing loss that develops gradually due to prolonged exposure to excessive intensity noise and usually comes from the work environment [1] Noise-induced hearing loss is the most common type of sensorineural hearing loss after presbycusis [1], [2]. The response of the auditory organ to noise is influenced by several factors, including duration of exposure, frequency, noise intensity, individual sensitivity, and other factors [1]. Signs and symptoms of NIHL according to the American College of Occupational Medicine Noise and Hearing Conservation Committee, are sensorineural, generally bilateral and symmetrical in both ears [3]. Noise-Induced Hearing loss (NIHL) is a global health problem,

often underestimated and leads to permanent hearing loss [4].

Worldwide, 12% or more of the global population is at risk of NIHL, the equivalent of more than 600 million people [5], [6]. A total of 360 million people worldwide have hearing loss, 180 million of whom are in Southeast Asia [7]. Indonesia is one of four countries in Southeast Asia with a fairly high prevalence of hearing loss [8].

Changes in hearing threshold due to noise exposure depend on the sound frequency, intensity and duration of exposure. Persistent increase in hearing threshold occurs due to exposure to very high intensity noise that causes damage to various cochlear structures, including damage to the organ of Corti, hair cells and stria vascularis [1], [3]. This process occurs because excessive sound stimulation for a long time can result in metabolic and vascular changes, resulting in degenerative damage to the structure of the hair cells of the organ [5]. The heaviest damage occurs at a frequency of 4000 Hz so that the pure tone audiogram shows a notch at a frequency of 3000-6000 Hz and the most common is at 4000 Hz which is called the Boiller maker's notch [1], [2], [5].

NIHL control is a strategic plan from the World Health Organization (WHO) to achieve the goal of Sound Hearing 2030, which is to prevent hearing loss by 50% by 2015 and 90% by 2030 [8]. Noise-induced hearing loss has a significant impact on quality, such as communication disorders, psychological status, social functioning and productivity at work. Prevention efforts need to be carried out, including controlling risk factors, early case finding, disease management, and disease rehabilitation [1], [2], [8].

The general objective of this study was to determine the profile of patients with noise-induced hearing loss at the Neurotology Clinic, Dr. Soetomo Hospital, Surabaya, Indonesia, from January 2016 to December 2020. The specific objective of this study was to obtain data on gender, age, chief complaint, occupation, length of work, average hearing threshold, degree of impairment, and frequency of hearing loss (notch).) in patients at the Neurotology Clinic, Dr. Soetomo Hospital, Surabaya, Indonesia, in the period from January 2016 to December 2020.

2. METHODS

This study was a retrospective descriptive study using medical record data at Neurotology Clinic, Dr. Soetomo Hospital, Surabaya, Indonesia, from January 2016 to December 2020 (5 years). The study sample was all patients diagnosed with NIHL who met the inclusion and exclusion criteria. Inclusion criteria were exposure to noise, sensorineural hearing loss with audiogram showing the frequency of hearing loss (notch) with hearing threshold >25dB, and productive age of 15-70 years. Exclusion criteria included family history of hearing loss (hereditary), outer and middle ear disorders, history of ototoxic drug use, and incomplete medical record data. All data collected in medical records were arranged into tables based on gender, age, chief complaint, occupation, length of work, average hearing threshold, degree of impairment, and frequency of hearing loss (notch).

3. RESULTS

A total of 38 patients diagnosed with NIHL met the inclusion and exclusion criteria at Neurotology Clinic, Dr. Soetomo Hospital, Surabaya, Indonesia.

Table 1. Gender and Age distribution

	N	Percentage (%)
Gender		

Male	25	65.79
Female	13	34.21
Total	38	100.00
Age group (years)		
15-20	1	2.63
>21-30	7	18.42
>31-40	10	26.32
>41-50	12	31.58
>51-60	6	15.79
≥60-70	2	5.26
Total	38	100.00

Male patients with NIHL were more than female patients. Male patients were 25 (65.79%) while female patients were 13 (34.21%). The ratio of male to female patients was 1.92: 1 (Table 1). Most NIHL patients were in 41-50 years age group, as many as 12 patients (31.58%), while the least was that in 15-20 years consisting only of 1 patient (2.63%). The youngest age of NIHL patients was 15 years old while the oldest was 70 years old (Table 2).

Table 2. Distribution of chief complaints

Chief complaints	N	Percentage (%)
Tinnitus	18	47.37
Hearingn Loss	20	52.63
Total	38	100.00

NIHL patients as many as 18 patients (47.37%) had a chief complaint of tinnitus, while 20 patients (52.63%) had complaints of hearing loss (Table 3).

Table 3. Type of work

Type of work	N	Percentage (%)
Traders	8	21.05
Salespersons	7	18.42
Doctors	6	15.79
Technicians	4	10.53
Laborers	4	10.53
Construction workers	3	7.89
Music teachers	3	7.89
Housewives	2	5.26
Journalists	1	2.63
Total	38	100.00

Most of the patients' occupations were traders of 8 patients (21.05%), followed by salespersons 7 patients (18.42%), doctors 6 patients (15.79%), laborers 4 patients (10.53%), technicians 4 patients (10.53%), music teacher 3 patients (7.89%), construction worker 3 patients (7.89%), housewife 2 patients (5.26%) and, the least, journalist, 1 patient (10.53%) (Table 4)

Table 4. Length of work

Length of work	N	Percentage (%)
≤10 years	12	31.58
≥10 years	26	68.42
Total	38	100.00

The length of work of NIHL patients showed that those who worked for less than 10 years were 12 patients (31.58%) and those who worked more than 10 years were 26 patients (68.42%) (Table 5).

Table 5. Hearing threshold value

Intensity	Frequency							Mean
	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	6000 Hz	8000 Hz	
AD (dB)	33.95	35.66	37.89	39.08	55.66	90.26	55.26	36.64
AS (dB)	33.95	34.21	34.21	31.97	50.92	62.63	53.89	34.01

Hearing thresholds for each frequency were 250 Hz, 500 Hz, 1000 Hz, 2000, 4000 Hz, 6000 Hz and 8000 Hz in the right and left ears. The lowest right ear hearing threshold was at the frequency of 250 Hz at 33.95 dB, the highest at the frequency of 6000 Hz at 90.26 dB. The lowest left ear hearing threshold was at the frequency of 2000 Hz at 31.97 dB, the highest at the frequency of 6000 Hz at 62.63 dB. The average hearing thresholds of right ear and left ear in this study was 36.64 dB and 34.01 dB (Table 6).

Table 6. Degree of hearing loss in right and left ears

	Left ears						Total
	Normal	Mild	Moderate	Moderately severe	Severe	Very severe	
Right Normal ears	3	2	0	0	0	0	5(13.16%)
Mild	0	19	1	1	1	0	22(57.89%)
Moderate	0	1	1	0	0	0	2(5.26%)
Moderately severe	0	1	2	3	0	0	6(15.79%)
Severe	0	0	0	0	2	0	2(5.26%)
Very severe	0	0	0	0	0	1	1(2.63%)
Total	3(7.89%)	23(60.53%)	4(10.53%)	4(10.53%)	3(7.89%)	1(2.63%)	38(100%)

Regarding the severity of NIHL in left ears, there were 3 patients with normal hearing, 23 patients with mild degree, 4 patients with moderate degree, 4 patients with moderately severe degree, 3 patients with severe degree and 1 patient with very severe degree. The severity of NIHL in right ears showed that there were 5 patients with normal hearing, 22 patients with mild degree, 2 moderate degree, 6 with moderately severe degree, 2 with severe degree, and 1 very severe degree (Table 7).

Table 7. Mean intensity at frequencies of 4000 Hz and 6000 Hz

Frequencies	Intensity	Number
4000 Hz	59.50 dB	15 (39.47%)
6000 Hz	65.54 dB	23 (60.53%)
Total		38 (100.00%)

The mean notch frequency typical of NIHL patients was found in 15 patients (39.47%) with a frequency of 4000 Hz, and 23 patients (60.53%) with a frequency of 6000 Hz, with a decrease in intensity of 59.50 dB

and 65.54 dB (Table 8), respectively.

4. DISCUSSION

In this study, 38 patients (5.14%) of 739 productive age patients complained of hearing loss at the Neurotology Clinic, Dr. Soetomo Hospital, Surabaya, Indonesia, between January 2016 and December 2020 were diagnosed with NIHL. This was in contrast to another study where the incidence of NIHL was 20% of outpatients with hearing loss [8]. This was because public awareness in Indonesia about NIHL was still low [9]. Excessive noise exposure could increase the production of reactive oxygen species in the cochlea, thus causing the risk of noise-induced hearing loss (NIHL) [10].

In this study, there were 25 male patients (65.79%) and 13 female patients (34.21%) (Table 1). This was in accordance with previous studies where the majority of NIHL patients were male because the majority of jobs with noise risk were carried out by males (miners, mechanics, workshops) [2], [11].

Most NIHL patients were found in 41-50 year age group, comprising 12 patients (31.58%), while the least was found in 15-20 years, only 1 patient (2.63%). The youngest age of the NIHL patient was 15 years, while the oldest was 70 years (Table 2). Another study also found a low risk at age less than 30 years (estimated exposure to noise in the workplace for 5-10 years), and an increasing risk at age over 30 years (estimated exposure to noise more than 10 years) [10]. The decline in hearing ability in elderly is also caused by degenerative factors of the auditory organ which generally begin at the age of 40 years and over with the hearing threshold falling by about 0.5 dB per year [12], [13]. There is a relationship between compliance with the use of ear protectors and Noise Induce Hearing Loss [14].

The chief complaint of as many as 18 NIHL patients (47.37%) was tinnitus, while the other 20 patients (52.63%) had complaints of hearing loss (Table 3). In a previous study, the incidence of tinnitus in chronic noise exposure ranged from 50% to 90% [15]. The tinnitus experienced was usually high-pitched (according to the disturbed frequency) and as many as 20% responded to Tinnitus Rehabilitation Therapy [16].

Patient occupation data showed that field workers (traders, salesmen, technicians, laborers and journalists) were 71.05% (Table 4). Previous research stated that 61% of NIHL patients were field workers, 12% were police, 23% were indoor workers with noisy environments, and the remaining 4% were in diverse occupations. This showed that noise exposure did not only occur in the field but also indoors which was obtained from habits such as wearing a headset when listening to music at a loud volume even though the surrounding environment was not noisy. Ears that are exposed to noise at first will feel disturbed by the noise, but then the ears adapt so they do not feel disturbed anymore because the sound is not as loud as at the beginning of the exposure [13].

This study found that there were 12 patients (31.58%) with working duration of less than 10 years and 26 patients (68.42%) with more than or equal to 10 years (Table 5). This was not much different from the results of other studies which found that hearing loss was experienced by workers with less than 10 years of work as many as 7 patients (17.1%) and 34 patients (82.9%) [14].

In this study, PTA values of the right and left ears were 38.99 and 39.03 dB, respectively (Table 6). The severity of NIHL patients in this study showed that the left ear in as many as 3 patients had normal hearing, 23 patients had mild, 4 patients had moderate, 4 patients had moderately severe, 3 patients had severe and 1 patient had very severe hearing loss [17]. Right ear with normal hearing was found in 5 patients, mild

degree in 22 patients, moderate degree in 2 patients, moderately severe degree in 6 patients, severe degree in 2 patients, and very severe degree in 1 patient. This was in accordance with a previous study in which hearing loss in NIHL belonged to SNHL with a mild degree (PTA 25-40 dB) [18].

Regarding the severity of NIHL in the left ears, as many as 3 patients showed normal hearing, 23 patients had mild degree, 4 patients had moderate degree, 4 patients had moderately severe degree, 3 patients had severe degree and 1 patient had very severe degree. The severity of the right ears showed normal hearing in 5 patients, mild in 22 patients, moderate in 2 patients, moderately severe in 6 patients, severe in 2 patients, and very severe in 1 patient (Table 7). This was consistent with another study in which the majority of patients had mild bilateral NIHL [19], [20].

This study found a characteristic notch frequency in 15 NIHL patients (39.47%) at 4000 Hz, and 23 NIHL patients (60.53%) at 6000 Hz. (Table 8). Another investigator found NIHL patients with a notch frequency of 3000 Hz in 7 patients (8.3%), 4000 Hz in 39 patients (46.4%), and 6000 Hz in 38 patients (45.3%). This was in accordance with the theory that generally, the frequency of hearing with decreasing intensity is between 3000 – 6000 Hz and the heaviest damage to the organ of Corti for sound receptors occurs at the frequency of 4000 Hz (4 K notches) [1].

5. CONCLUSION

Profile of patients with noise-induced hearing loss at Neurotology Clinic, Dr. Soetomo Hospital, Surabaya, Indonesia, from January 2016 to December 2020 showed that there were as many as 38 patients, the majority were males, with the most age group 41-50 years. The chief complaint was tinnitus, which was more common than hearing loss. Most of the patients' occupations was traders, with the majority of patients had been working more than 10 years. Most hearing loss was mild with a characteristic notch frequency occurring more at 6000 Hz than 4000 Hz.

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