

The Frequency of Staphylococcus aureus colonization in ospitalized Newborn and Children at Besat Hospital, Sanandaj, Iran

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Abstract

Background and objective: The aim of the current study was to determine the Frequency of Staphylococcus aureus colonization in hospitalized newborns and children.

Materials and methods: This cross-sectional study was conducted on 200 newborns and children referred to Besat Hospital in Sanandaj, Iran. Nasal swabs were taken from the patients at the time of admission and seven days after hospitalization. The isolates were identified as Staphylococcus aureus based on morphology, mannitol salt agar fermentation, catalase test, and coagulase test.

Results: The Staphylococcus aureus test was negative in all the newborns at the time of admission; however, it was positive in 10 newborns seven days after hospitalization. In addition, the Staphylococcus aureus test was positive in about 20% of the children at the time of admission to which 12 patients were added seven days after admission. The prevalence of Staphylococcus aureus after hospitalization was higher in the PICU than in the other hospital wards ($P<0.05$). Moreover, the most antibiotic resistance was related to amoxicillin ($P<0.05$).

Conclusion: The results showed that the prevalence of Staphylococcus aureus increased in the newborns and children one week after hospitalization. Therefore, it is recommended that the disinfection protocols of the hospital environment and the necessary instructions to prevent the transmission of infection from one person to another be followed more carefully.

Keywords: Staphylococcus aureus, nasal carriage, colonization, antibiotic susceptibility, hospitalization.

Estimation of Population Size of COVID-19 Patients Using Network Scale up in Jahrom, Spring 2020

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Abstract

Background and objective: The COVID-19 epidemic is currently the most important global health challenge. The aim of this study was to estimate the population size of COVID-19 patients in Jahrom, Iran, in the spring of 2020 using network scale up method.

Materials and methods: 2753 people from Jahrom were included in the study by electronic questionnaire. People were asked if they knew anyone with COVID-19 on their social network (probability method)? If yes, how many people do they know (frequency method)?

Results: Sixty percent (1592 people) of the subjects were women and the majority 76% (2028 people) resided in Jahrom. Seven percent (182 people) were from Khafr district. The estimated overall prevalence of COVID-19 by network scale up method was estimated to be 14.3(95% CI: 17.5, 11.2). The prevalence of COVID-19 was estimated to be 17% (95% CI: 19.9, 14.1) based on clinical signs. Among the covered sections, Jahrom city had the highest prevalence related to Khafr district with a prevalence of 42.9% (95% CI: 45.5, 13.5). According to calculations, the prevalence of COVID-19 was estimated at 14.7% in urban areas and 11.7% in rural areas.

Conclusion: The actual prevalence of COVID-19 in Jahrom county in the spring of 2020 was calculated several times as many as reported. Therefore, active diagnostics using extensive testing and diagnosis and isolation of asymptomatic patients can be useful for controlling the epidemic.

Keywords: COVID-19, estimation, network scale up, Jahrom

Antioxidant Potential and Antimicrobial Activity of *Laurus nobilis* Ethanolic Extract on *Shigella dysenteriae*, *Escherichia coli*, *Listeria monocytogenes* and *Staphylococcus aureus* “in vitro”

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Abstract

Background and objectives: Due to potential toxicity and other concerns, the current generation believes in natural products instead of synthetic ones. Therefore, one of the emerging technologies is the extraction of extracts from various plant organs and there in the pharmaceutical and food industries. In this study, ethanolic extract of *Laurus nobilis* was obtained and its antioxidant and antimicrobial activity was investigated.

Materials and methods: In this study, disk diffusion agar, well diffusion agar, minimum inhibitory concentration, and minimum bactericidal concentration were used to determine the antibacterial activity of *L. nobilis* ethanolic extract against *Shigella dysenteriae*, *Escherichia coli*, *Listeria monocytogenes* and *Staphylococcus aureus*. In addition, total phenol content, total flavonoids, and antioxidant activity (based on DPPH and ABTS free radical scavenging and β -carotene/linoleic acid bleaching tests) of the extract were investigated.

Results: Concentration of 60 mg/ml of the extract caused the highest antimicrobial effect. The mean diameter of the growth inhibition zone was larger for Gram-positive bacteria than for Gram-negative bacteria, and lower concentrations of the extract were required to prevent the growth of or kill *Staphylococcus aureus*. The contents of total phenols and flavonoids in *L. nobilis* extract were 29.32 mg of gallic acid and 19.16 mg of quercetin per gram of extract. The extract quenched DPPH and ABTS free radicals by 70.60 and 66.50% and inhibited the bleaching of β -carotene/linoleic acid solution by 59.34%.

Conclusion: The results of showed that of ethanolic extract of *Laurus nobilis* L leaves the extract is rich in phenolic and flavonoid contents with high antioxidant and antimicrobial activity.

Keywords: Ethanolic extract; *Laurus nobilis*; Antioxidant activity; Antimicrobial effect

The Classical Fever of Unknown Origin in Adult Patients Admitted to Dezful General Hospital during 2018-2020

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Abstract

Background and objective: Fever of unknown origin (FUO) is one of the clinical challenges in medicine. Most causes of FUO include infectious diseases, malignancies, non-infectious inflammatory causes, and unknown factors, but this prioritization may change under the influence of various factors such as geographic area, age, and access to laboratory-diagnostic facilities. The aim of this study was to determine the frequency of causes of FUO in this area in order to suggest a better clinical approach to achieve a faster diagnosis in patients with fever of unknown origin.

Materials and methods: In this cross-sectional, descriptive study, we studied all files of patients who admitted to Dezful General Hospital with an initial diagnosis of FUO during 2018-2019. In descriptive statistics, for qualitative variables, frequency table (percentage) and graph and for quantitative variables, central and dispersion indices including mean and standard deviation were used.

Results: The most common causes of FUO were infectious agents (50%), non-infectious (26.1%), unknown (13%) and malignancies (10.9%). Among the infectious agents, the highest frequency was related to the diagnosis of pneumonia, sepsis and extra pulmonary tuberculosis. About 71% of patients are diagnosed with non-invasive methods. No significant relationship was found between the four main causes of FUO and other variables during the analysis using Chi-Square Tests.

Conclusion: Although the pattern of causes of FUO in this study is compatible with most medical sources, but we suggest that in order to achieve a faster diagnosis of patients admitted with FUO in this area, always common and endemic diseases such as tuberculosis and thyroiditis and unusual clinical manifestations of some syndromes should be considered.

Keywords: FUO, Pneumonia, Sepsis, Extra pulmonary tuberculosis

Antimicrobial Activity of *Rubia florida* ethanolic Extract on Pathogenic Bacteria “*in vitro*”

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Abstract

Background and objectives: *Rubia florida* have various medicinal effects such as anti-cancer, antimicrobial and antioxidant and antiseptic properties. Therefore, the aim of this study was to evaluate the antibacterial effect of ethanolic extract of *R. florida* against pathogenic bacteria *Enterobacter aerogenes*, *Escherichia coli*, *Streptococcus pyogenes* and *Staphylococcus epidermidis*.

Materials and methods: Antimicrobial methods of disk diffusion agar, well diffusion agar, minimum inhibitory concentration, and minimum bactericidal concentration were used to evaluate the antibacterial effect of ethanolic extract of *R. florida* against *Enterobacter aerogenes*, *Escherichia coli*, *Streptococcus pyogenes* and *Staphylococcus epidermidis*.

Results: The antibacterial effect of the extract was concentration dependent and increasing its concentration increased the diameter of the growth inhibition zone. According to the results of disk diffusion agar and well diffusion agar tests, *Staphylococcus epidermidis* was the most sensitive bacterial strain to the extract. The diameter of growth inhibition zone in the presence of 40 mg/ml of extract for this strain in disk diffusion agar and well diffusion agar was 14.60 and 15.80 mm, respectively. In addition, the minimum inhibitory and bactericidal concentrations for Gram-positive bacteria were lower than for Gram-negative bacteria.

Conclusion: Ethanolic extract of *R. florida* can be used as a natural antimicrobial agent to prevent the growth of pathogenic microorganisms.

Keywords: *Rubia florida*; Ethanolic extract; Natural preservative; Antimicrobial effect