ORIGINAL ARTICLE

Assessment of Antibiotics Duration by Serum C-Reactive Protein in patients with Liver Abscess

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ABSTRACT

Aim: To assess the antibiotics duration by serum C - reactive protein in patients with liver abscess.
Methods: The cross sectional study was conducted on patients presented with ultrasound proven liver abscess at tertiary care Hospital Jamshoro / Hyderabad during January 2019 to April 2019. The inclusion criteria of the study were large sized or partially liquefied hepatic abscess (≥ 5cm in diameter), underwent percutaneous abscess drainage when the fluid is identified during ultrasonography and have been effective antibiotic treatment after percutaneous drainage. The duration of antibiotics and percutaneous drainage was observed while the C-reactive protein was also estimated to follow-up the treatment response. All patients had their baseline serum CRP levels tested on the day of abscess drainage followed by the repeated on 3rd and 7th day while the total number (in days) taken for the CRP value to normalize (<10mg/L) was also recorded.
Results: All patients completed the entire duration study which included a follow up period of six months. Total fifty patients with liver abscess were studied and followed up. The most common age group in present study was 40 to 49 years accounting for 75% of patients with mean age±SD was 49.83±6.62 followed by 30 to 39 years accounting for 20% of the patients. The male and female population observed as 35(70%) and 15(30%). The frequency observed for pyogenic and amoebic liver abscess as 10 and 30 patients. All patients received intravenous antibiotics for duration of at least two weeks and continued further as per response observed. All patients had their baseline serum CRP levels tested on the day of abscess drainage followed by the repeated on 3rd and 7th day while the total number (in days) taken for the CRP value to normalize (<10mg/L) was also recorded and found to be as 25.62 ±6.52 while the mean ± SD for antibiotic duration was 23.61±3.21.
Conclusion: CRP is an acute phase reactant and is a valuable tool to estimate the duration of antibiotic therapy in liver abscess results in reducing additional costs of prolonged antibiotic therapy and antibiotic resistance.
Keywords: Liver abscess, C-reactive protein, and Inflammatory marker

INTRODUCTION

A liver abscess is a suppurative sore in the liver parenchyma comprising of necrotic liver cells, discharge and neutrophils. There are three significant liver abscesses named amoebic, pyogenic and fungal. Abscess brought about by amoebic diseases can once in a while get optionally contaminated bringing about a blended liverabscess which isn't arranged independently. Overall amoebic abscesses are the most widely recognized while pyogenic abscesses are regular in the countries of the west. Immunocompromized status is a significant inclining factor particularly for the advancement of fungal abscess. Difficulties from pyogenic liver abscesses can create with summed up sepsis being the most well-known. Different complications can incorporate pleural emission, empyema, pneumonia and basal atelectasis. Abscesses may crack intraperitoneally, which can be lethal. Notwithstanding, the abscess doesn't burst, however builds up a controlled break bringing about a perihepatic pus. Pyogenic abscesses can likewise cause haemobilia and hepatic vein thrombosis. Difficulties from liver abscess can be optional to break of the abscess into the peritoneal, pleural or pericardial cavities.

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Helpful and supportive protocols and additionally drainage followed by anti-biotic treatment is the norm of care in instances of liver abscess, yet there are no very much characterized rules which characterize the specific length for anti-biotic treatment. Thus there is a need to distinguish an appropriate end point for anti-biotic treatment in the treatment of liver abscess, without influencing the abscess related results in patients with liver abscess through estimation of serum C-reactive protein as an inflammatory marker for antibiotic duration and resistance at tertiary care hospital.

PATIENTS AND METHODS

The cross sectional study was conducted on patients presented with ultrasound proven liver abscess at tertiary care Hospital Jamshoro / Hyderabad during January 2019 to April 2019. The inclusion criteria of the study was large sized or partially liquefied hepatic abscess (≥ 5cm in diameter), underwent percutaneous abscess drainage when the fluid is identified during ultrasonography and have been effective antibiotic treatment after percutaneous drainage while the exclusion criteria were multiple abscesses and ascites, a known intra-abdominal source that requires surgery and those who have already underwent for surgery and the individuals who refused to underwent percutaneous drainage. Patients satisfying the

inclusion criteria were included in the study after explaining the proposed treatment plan and taking an informed written consent for the same. The Preliminary data was obtained by taking clinical history, examination and basic pre-intervention laboratory tests. The presence of comorbidities was also noted while the management notes were recorded. The duration of antibiotics and percutaneous drainage was observed while the C-reactive protein was also estimated to follow-up the treatment response. All patients had their baseline serum CRP levels tested on the day of abscess drainage followed by the repeated on 3rd and 7th day while the total number (in days) taken for the CRP value to normalize (<10mg/L) was also recorded. The combination of intravenous antibiotics was given empirically later modified based on pus culture and sensitivity reports if positive. The subsidence of symptoms and the absence of a residual cavity on ultrasound were noted while any recurrence or failure of the treatment to cure the liver abscess was also recorded whereas the SPSS was used to analyze the study data.

RESULTS

All patients completed the entire duration study which included a follow up period of six months. Total fifty patients with liver abscess were studied and followed up. The most common age group in present study was 40 to 49 years accounting for 75% of patients with mean age ± SD was 49.83 ± 6.62 followed by 30 to 39 years accounting for 20% of the patients. The male and female population observed as 35 (70%) and 15 (30%). Regarding co-morbidities the diabetes mellitus and gallstone was observed in 27% and 22% population. The pain was the most common symptoms observed in our study as 90% followed by fever 85%, nausea and vomiting 60% and jaundice 20% population. The Total leukocyte count was found to be raised in 80% patients with mean ± SD as 19200± 5.71 while the right, left and both lobe liver abscess was observed as 70%, 20% and 10%. The culture and sensitivity were positive in 20% patients, amoebic serology in 60% patients, both positive in 10% patients and none positive in 10 patients. The common pathogens observed were Klebsiella, Escherichia coli, Proteus and Enterobacter. The frequency observed for pyogenic and amoebic liver abscess as 10 and 30 patients. All patients received intravenous antibiotics for duration of at least two weeks and continued further as per response observed. All patients underwent through percutaneous drainage procedure while patients were discharged after completion of their course of intravenous antibiotics and oral antibiotics were started and continued whereas the average duration of hospital stay (in days) was 11.43±3.82. All patients had their baseline serum CRP levels tested on the day of abscess drainage followed by the repeated on 3rd and 7th day while the total number (in days) taken for the CRP value to normalize (<10mg/L) was also recorded and found to be as 25.62 ±6.52 while the mean ± SD for antibiotic duration was 23.61±3.21. No any recurrences and complication was observed in study population during follow-up study period.

DISCUSSION

The CRP was used in present study as end point because its significance in acute inflammatory conditions is well documented. The most common age group in present study was 40 to 49 years and is consistent to the study by Ghosh S, et al[11] while Abusedera MA, et al[12] reported a mean age of 44.6 years in his study. The male population predominance in current series and is supported by study conducted by Singh S, et al.[13] The study by Singh O, et al[14] observed that gall bladder and CBD calculi was the most common coexisting pathology and is similar to being found in our study. The study by Barnes PF et al[15] observed the prevalence of diabetes was 10.42 percent among patients with liver abscess. In the study by Ghosh S, et al[11] the incidence of pain was 99 percent and that of fever was 94 percent. Mangukiya DO, et al[16] in their study on 400 patients with liver abscess showed an incidence of 97 percent and 74% for pain and fever respectively

Mathur S, et al[17] in his review of liver abscess observed that leukocytosis is seen in the majority of patients while Peter F Barnes et al.44 found leukocytosis in 91.55%. Abusedera MA, et al[12] in his study observed incidence of right lobe liver abscess (60.23%), left lobe abscesses (29.55%) and 10.23% abscesses extended in both lobes, the findings are similar to present study. Khan R, et al[18] reported an incidence of 68% of amoebic liver abscess, 21% of pyogenic and 3% of mixed and 8% percent for indeterminate

According to a study by Mangukiya DO, et al[16] Klebsiella was the most common organism isolated in cultures seen in 45% of patients followed by E.coli in 32% population. The study by Gao H, et al[19] found that the time taken for normalization of CRP was 21.44 days while in the study by Heneghan HM, et al[20] on liver abscesses, CRP is consistently elevated in all patients with liver abscess.

CONCLUSION

CRP is an acute phase reactant and is used to measure the adequacy of treatment response in several inflammatory conditions and is a valuable tool to estimate the duration of antibiotic therapy in liver abscess results in reducing additional costs of prolonged antibiotic therapy and antibiotic resistance.

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