African Journal of Internal Medicine ISSN 2326-7283 Vol. 3 (1), pp. 056-059, March, 2014. Available online at www.internationalscholarsjournals.org © International Scholars Journals

Full Length Research Paper

Aetiologies of ascites in a Department of Internal Medicine in Côte d'Ivoire (Sub-Saharan Africa)

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Accepted 13, March 2014

Ascites is a concern in Internal Medicine Departments due to the difficult etiological diagnostic. This study aims at identifying the main causes of (clear fluid) ascites in a Department of Internal Medicine. It was a retrospective transversal study undertaken from January 1st 2006 through December 31st 2011 in the Department of Internal Medicine of the University Teaching Hospital of Treichville based on 225 records of ascites patients admitted in the hospital. The hospital prevalence of ascites was 3.6%. The average age of patients as worked out was 44 ± 6 years [extremes: 19 and 80 years] and a sex-ratio of 1.3. Their medical histories were predominantly chronic viral hepatitis B (14.7%). The main motive of hospitalization was the edema-ascites-(74.7%) of progressive installation (97.3%). Ascites of grade 2 and 3 represented in respective order 48.8% and 44.4%. Their aspect was clear in 45.8% of the cases, transudative in 72.4% of the cases. The most recurrent cause was liver cirrhosis (61.9%) in transudative ascites and peritoneal tuberculosis (65.5%) in exudative ascites. In 1.3% of the cases it was liver bilharzias. Ascites represent a relatively frequent hospitalization motive. Despite the poor state of technical equipment throughout African countries, a general clinical checkup of sick people added to cyto-chemical and bacteriologic tests on the ascites fluid permit to point out the etiology in most cases.

Key words: Ascites, cirrhosis, tuberculosis, bilharzias hepatitis, Abidjan.

INTRODUCTION

Ascites is a fluid extravasation of the peritoneal cavity. It can be isolated or associated to lower limbs or generalized edemas. According to its importance, we distinguish high abundance ascites (grade 3), average abundance ascites (grade 2) and low abundance ascites (grade 1) (Moreau et al., 1999). Positive diagnosis of ascites is easy when it is of high or average abundance and is mainly based on a clinical checkup and an explorative puncture.

Ascites patient is generally consulted in external consultation. However, his hospitalization becomes mandatory in the event the ascites is at its inception in order to detect its causes or in case of complication. In Western countries, many studies have been undertaken on this disease, it is a frequent motive of consultation and hospitalization with as main causes cirrhosis (80-85%) and peritoneal carcinomatosis (10%) (Naveau et al., 2003; Fartoux et al., 2005; Lepori et al., 2000). In sub-Saharan Africa especially in Côte d'Ivoire, though ascites constitutes a recurrent motive of hospitalization of patients in Internal Medicine departments, it remains under documented (Dembelé et al., 2006). Thus it appeared important to us to undertake this study aiming at identifying the main causes of ascites in an Internal Medicine department in order to get scientific data likely to guide the clinician diagnostics in Sub-Saharan Africa. Thus we undertook to analyze epidemiological, clinical, biological, and etiological aspects of ascites in the Department of Internal Medicine of the University Teaching Hospital of Treichville, Abidjan.

MATERIALS AND METHODS

This study was a retrospective transversal one carried out from January 1st 2006 through December 31st 2011 in

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the Department of Internal Medicine A of the University Teaching Hospital of Treichville (CHU de Treichville). The study was carried out on all the patients with ascites who underwent an explorative puncture of their ascites (macroscopic aspect and biological analysis). Ascites was said to be transudative when the protein rate was < 30g/l and exudative when this rate was ≥ 30g/l. The ascites etiological research was based on clinical and paraclinical proofs. Thus we used the diagnostics of cirrhosis before the medical history of chronic alcoholism, viral hepatitis B or C, clinical, ultrasonic, laparoscopic or histologic aspects of the liver associating diffuse fibrosis and regeneration nodules; of peritoneal tuberculosis before the notion of tuberculosis contagium, clinical signs of tuberculosis impregnation, the positivity of intradermal reaction to tuberculin, the exudative aspect of ascites fluid containing a high rate of lymphocytes micro-granulations spread throughout the peritoneum either associated or not to laparoscopic adherence, follicles tuberculosis to histology and the favorable evolution under antituberculosis treatment; of right-sided or biventricular heart failure before the existence of clinical, radiographic, electrocardiographic and echocardiographic signs of right-sided or biventricular heart failure, of nephrotic syndrome before the proteinuria of 24 hours ≥ 3g/l and the hypo albuminemia < 30 g/l ; of the ascites of neoplastic origin before the existence or the inexistence of intra-abdominal malignant tumor, outside any other obvious cause, the dolorous clinical situation and the alteration of the general state of health, the exudative aspect of ascites fluid and the existence of malignant cells in the ascites fluid and the increase of tumor markers; of hepatic bilharzias before the geographical zone of origination known as bilharzias endemic zone, dysentery or hematuria history, the positivity of bilharzias serology, the presence of inflammatory hepatic granuloma around schistosoma eggs.

RESULTS

During the study scope of time over 6170 people admitted to hospital, 225 had ascites (3.6%). The sex-ratio was 1.3 and the average age of 44± 6 years [extremes: 19 and 80 years].

Patient health histories consisted of viral chronic hepatitis B for 14.7% of the cases, tubercular contagium for 11.5% of the cases, arterial hypertension as a cardiovascular risk factor for 6.7% of the cases and acute articular rheumatism for one case.

The onset mode of ascites was progressive for 97.3% of the cases and brutal for only 2.7% of the cases. 6.8% of the cases were grade 1 ascites, 48.8% of the cases were grade 2 ascites and 44.4% of the cases were grade 3 ascites. The motives (table1) for hospitalization were edema-ascitic for 74.7% of the cases, isolated ascites for 14.6% of the cases, anasarca state for 10.7% of the cases.

Ascites had a clear aspect in 45.8% of the cases, citrine yellow in 36.8% of the cases, hematic in 16% of the cases and murky in 1.4% of the cases. Chemically 72.4% of ascites were transudative and 27.6% of the cases were exudative. Cytologically, it contained lymphocytes in 15.5% of the cases and in polynuclear neutrophiles in 38.2% of the cases. In 2 cases ascites contained malignant cells. The culture of ascites fluid enabled us to single out Escherichia coli in 36% of the cases;

The causes of the 163 cases of transudative ascites were cirrhosis for 61.9% of the cases, biventricular heart failure in 19% of the cases, nephrotic syndrome in 17.2% of the cases, hepatic bilharzias in 1.3% of the cases and the syndrome of Demons Meig in 0.6%(table1). During the cirrhosis, we noted viral markers of hepatitis B in 75% of the cases, viral hepatitis C in 3% of the cases, B and C coinfection in 12% of the cases and non-identified etiologies in 10% of the cases.

HIV serology was positive in 21% of the cases in post hepatic B cirrhosis and negative in post hepatic C cirrhosis. The causes of biventricular heart failure were arterial hypertension in 65,5% of the cases, precarditis in 24.7% of the cases and mitral stricture due to rheumatism in 9.8% of the cases. The causes of exudative ascites were represented by peritoneal tuberculosis in 35 cases (56.4%) and cancers in 27 cases (43.6%) (table1). In peritoneal tuberculosis, HIV-1 serology was positive in 62.7% of the cases. Laparoscopy with hepatic biopsy punctures was carried out with 37 patients. Lesions observed with the laparoscopy were peritoneal micro-granulations with adherences in 30 cases (81.1%), a micronodular aspect of the liver due to cirrhosis in 3 cases (8.1%). The histologic study of biopsied hepatic lesions, there were tubercular follicles in 81.1% of the cases, of liver cirrhosis and bilharzias granuloma in 8.1% of the cases each and non-specific inflammatory aspect in 2.7% of the cases. Etiologies of neoplastic ascites were primitive liver cancer in 74.1% of the cases, colic recto cancer in 18.5% of the cases and pancreas cancers in 7.4% of the cases. Etiologies of ascites singled out were tuberculosis in 91% of the cases and liver cirrhosis in 9% of the cases. For 40 patients, the cause of ascites could not be determined i.e. 17.8% of the cases.

DISCUSSION

Ascites is a frequent motive for consultation in Internal Medicine departments in Sub-Saharan Africa with a prevalence of 3.66% in Mali (Dembele et al., 2006), of 9.68% in Guinea (Camara et al., 2010) and 3.6% in our study. We noted a male predominance confirming thus the data of African series (Dembele et al., 2006; Bouglougao et al., 2012). The average age was 44 years. The young age of patients also reported in other studies by other authors is in relation with the high proportion of

Table 1. demographic, clinical and etiological data

Parameters		Effective	%
Demographic			
Average Age	44± 6 years		
Sex-ratio	1.3		
Motives for hospitalization			
Edema-ascitic		168	74.7%
Isolated ascites		33	14.6%
Anasarca state		24	10.7%
Causes of the transudative ascites (protein rate < 30g/l)		**163**	
cirrhosis		101	61.9%
Biventricular heart failure		31	19%
Nephrotic syndrome		28	17.2%
Hepatic bilharzias		2	1.3%
Syndrome of Demons Meig		1	0.6%
causes of exudative ascites	**(**protein rate ≥ 30g/)	**62**	
Peritoneal Tuberculosis		35	56.4%
Cancers		27	43.6%

youth in African population and in concordance with the average age of dominant etiologies that are tuberculosis and post hepatic cirrhosis (Yao et al., 2009; Dembélé et al., 2006). The age of contamination to virus B and C takes place early in the childhood or at the birth. In Western countries, patients are rather aged people with an average age above 60 years (Naveau et al., 2003; Fartoux et al., 2005). Medical histories were numerous, by far dominated by viral chronic hepatitis B which is very cirrhogenous. Cirrhosis is the first cause of ascites in the world (Naveau et al., 2003; Fartoux et al., 2005).

Hospitalization motives (table1) were the edema-ascitic syndrome, isolated ascites and the anasarca state of progressive installation in most cases. If the edema-syndrome or the anasarca state associated to other signs in the first place orientate towards liver cirrhosis, right heart failure or nephrotic syndrome which constitutes the main causes, such is not the case for isolated ascites which requires at times invasive or more specific tests (Lepori et al., 2000 et al., 2000).

Ascites was of grade 2 or grade 3 in most cases. These results were consistent with the data of African series in relation with the delay of patient consultation (Dembele et al., 2006). In fact, abdominal distension is considered in our communities as a water-filled earthenware jar mystically introduced in the abdomen. Patients only go to hospital as a last resort, after the consulting of native doctors has proved unfruitful.

Biologically, quite a few checkups have been undertaken on ascites fluid contrary to Western countries. There were chemical checkups (proteins), cytologic (polynuclear, lymphocytes, of malignant cells) and bacteriologic. In Western countries, when the etiologic diagnostic is not obvious other more specific checkups are carried out in the ascites notably the dosage of amylase in the pancreatic, the Latico-dehydrogenase (LDH) in the lymphoma, the adenosine deaminase (ADA), the PCR for mycobacterium tuberculosis and the culture of ascites fluid on the Lowenstein milieu in the tuberculosis (Lepori et al., 2000). These checkups could contribute to reduce ascites rates from unknown origins which remain high in Africa: 10% in Guinea (Camara et al., 2010) and 17.8% in our study. The cytological and bacteriologic analysis of the ascites fluid revealed a high infection rate. This could be explained on the one hand by the treatment of abdominal distensions with African methods which consists in making several scarifications on the abdomen which is a cause of other infections and on the other hand through the puncture of iterative ascites which is undertaken at times in septic conditions in peripheral hospitals. We would like to lay emphasis on the importance of a rigorous asepsis during the puncture of ascites. As to the chemical analysis of the ascites fluid, it proved highly supportive of the etiologic research in our working conditions. As a matter of fact, it enabled us to make the distinction between transudative ascites and exudative ascites (table1). In the event of transudative ascites cirrhosis was by far the most frequent etiology as in the literature (Moreau et al., 1999; Dembele et al., 2006; Schuppman et al., 2008). The main causes of cirrhosis were the viruses of hepatitis B in 75%, of hepatitis C in 3% of the cases and both hepatitis B and C in 12% of the cases consistent with the data of another study carried out in Côte d'Ivoire: 74.4% for viral hepatitis B, 5.1% for viral hepatitis C and 15.4% for the co-infection viral hepatitis B and C (Lohoues Kouacou et al.). In Sub-Saharan Africa HIV and VHB co- infection is also important: 21.5% in Mali (Dao S et al., 2007) and 21% in

our study. Given that the HIV infection modifies the natural history and worsens viral hepatitis B prognostics, it would be better to integrate HIV research in the pre-therapeutic checkup of viral hepatitis B in order to provide a better coverage for patients. In France, the main causes of cirrhosis are alcohol in 50 to 70% of the cases, viral hepatitis B in 15 to 25% and viral hepatitis C in 5% (Anacreon et al., 2000; Fatoux et al., 2005).

In the tropical zone, before a transudative ascites, other affections should be sought namely hepatic bilhraziasis. Though it constitutes a rare cause with a prevalence comprised between 2 and 3% in African series (Dembele et al., 2003; Ramanampamonjy et al., 2007) and 1.3% in our study, it should be considered in case of hematuria, dysentery and the geographical origin of the patient. The diagnostic confirmation is provided by the positivity of bilharzias serology and the presence of hepatic granuloma around schistosoma eggs. In exudative ascites, peritoneal tuberculosis was the main cause as in almost all the studies carried out in Africa (Dembele et al., 2006; Ouattara et al., 2010) contrary to western countries where in most cases it follows the peritoneal invasion by an intra-abdominal cancer (Naveau et al., 2003; Lepori et al., 2000). This fact led African authors to assert that for any exudative ascites in a febrile situation with no evident cause, one should first and foremost think about tuberculosis (Dembele et al., 2006; Ouattara et al., 2010). The inflammatory aspect of the ascites fluid rich in lymphocytes associated with clinical context should be able to trigger antituberculosis treatment of our patients who are sometimes in very poor state. However when the etiologic diagnostic is not obvious, the laparoscopy with directed biopsis puncture of peritoneal and hepatic enable us to assert that when it highlights tuberculosis, epithelioid and gygantocellular follicles with central necrosis to histologic study (Ouattara et al., 2010). The prevalence of tuberculosis co-infection and HIV/aids was 62.7% of the cases. In 2009, the WHO estimated that this prevalence was 39% in Côte d'Ivoire and 30% among the newly infected people around the world (WHO, 2009). Tuberculosis and HIV infection which accelerates each other mutually form the so-called "cursed duo".

CONCLUSION

Ascites is a relatively frequent hospitalization motive in our study. Patients infected are generally male young adults who visit hospital at a late stage of the disease. The causes are numerous and various. Hepatic bilharzia is rare but it should be considered in tropical milieu. Despite the poor condition of hospital equipment in the African context, a complete clinical study of sicknesses and cyto-chemical checkups of the ascites fluid enables us to indicate the etiology dominated by liver cirrhosis in transudative ascites and tuberculosis in exudative ascites. The main cause of cirrhosis is the virus of hepatitis B. Tuberculosis and HIV as much as hepatitis B and HIV co-infection are very high. Preventive measures of viral hepatitis B and HIV should permit to reduce the prevalence of these affections.

CONFLICTS OF INTERESTS

Authors report no conflict of interest.

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