Urolithiasis in egypt areview of recent literature

Mohammed Abd El-Aziz Abd El-Ghafar

Urolithiasis appears to be an increasing problem in some areas in Egypt. In Cairo its incidence is increasing from 10 % of urological admission in 1966 (Altorgman), 23% in 1967 (Zahran) to 32.9 % of urological admission in 1978 (Hegazi). This may be due to increase protein intake (Robertson, W.G., et al, 1978 b, 1979 a) and change in pat-tern of socioeconomic factor during the last years. This assumption may be supported by the fact that the incidence of calcium oxalate stones is decreasing, 37.2 % in 1978 to 32% in 1979 and the increasing incidence of mixed calcium oxalate and uric acid stones from 14.8 % in 1978 to 24% in 1979. (Hegazi, A.B., 1978 and El Sayed, M.A.,1979).In other areas, East Delta (Mansoura), the urinary calculi patients in 1977 constituted 50% of the total number of urologic admissions while in 1983, the percentage was 39.8% . (El Kappany, H.A., 1977 and Abd El Samad, A.M., 1983). This may be explained by better measures of prevent-ion, better nutritional status, improved water supply and also better managment and one must remmber relative improve-ment of the socioeconomical conditions. (Abd El Samad. A.M.,1983).In Alexandria the incidence of urinary stones is low. Khalil in 1979 found that patients with urinary stones account for 23% of all urological admissions. This is probably because of the low incidence of bilharzial infestationin this part of Egypt. This explaination is further sup-ported by the fact that 41% of the stones are mixed calc-ium oxalate and phosphate and 25% are pure calcium oxalate.(Abdou, M.M., 1983).In Egypt, it is likely that hot, dry climate leads to formation of a more concentrated urine and stone forma-tion due to excessive prespiration. (Zahran, M.M., 1967).In Egypt also the type of diet affects urolithiasis formation, for example renal stones in Cairo Province are 45.3% of total urolithiasis (Hegazi, A.E., 1978) where the population of above average protein intake while they are in West and Middle Delta (Kafr El Sheikh, Gharbia and Behara Provinces) 23.1% of total urolithiasis (Al Refaei, M.A., 1967) where most of the population of rural areasget less protein intake. (Anderson, D.A., 1972, Chow, F.C., et al., 1974 and Robertson, W.G., et al., 1978b, 1979a, 1979c). On the contrary, vesical stones in Cairo were21.6 % of total urolithiasis (Hegazi, A.E., 1978) while in West and Middle Delta they were 30.1% (Al Refaei, M.A., 1967) this is because in the Delta area the population probably get high vegetable intake than Cairo.(Anderson,C.K., 1982). In Upper Egypt, farmers represented 47.6 % of cases (El Akkad, M.A., 1973) and this may be due to predominance of schistosoma haematobium, dehydration and socioeconomical pattern, also in Cairo it was found that bilharzial oases of urolithiasis represented 65.3% of the farmers and 34.7% of the otherwise occupation (Hegazi, A.E., 1978). Also in Mansoura cases of urolithiasis were mostly

among farmers, 48.11% of cases and the bilharzial cases were 73.89%, the next class was the professionals, 19.35% and this may be due to the influence of socioeconomic status and relative affluence of dietary habit and less activity which may lead to crystal aggregation and hence stone formation.In most of non bilharzial countries, the age peak is from 20 to 50 years of age, W. (Hamburger et al., 1969) and males are affected more frequently than females where the males to females ratio generally is 1.5/1 and sterile females are affected more than fertile females, this may be due to the effect of female estrogen hormones which in-crease urinary excretion of citrate while the testosterone decreases its excretion (Shorr et al., 1942), and may also partly be due to more exposure of males to sunlight and dehydration and lastly due to the anatomical difference between male and female urinary tract. Below 20 years oldthe incidence is relatively low 3% (Hamburger et al., 1969).In Egypt; generally the peak incidence occurs from20 - 30 years old but relatively higher than non bilharzial countries, 70.46 % (El Kappany, H.A., 1977), 63.5 % (Abd El Samad, A.M., 1988), 70.4% (Hegazi, A.E., 1978), 77% (Helmy, S.A., 1978); but the obvious difference is that the incid-ence below 20 years old is relatively high, 12.3% (El Kappany H.A., 1977), 14.5 % (Abd El Sammad, A.M., 1983) , 13.4% (Hegazi, A.E., 1978) and in first decade in Upper Egypt,17.1% (El Akkad, M.A., 1973) ; this may be due to the effect of bilharziasis and dehydration specially in rural areas.Males in Egypt are more highly affected than females with a ratio of 7.7/1 in Mansoura (El Kappany, H.A., 1977), 4.5/1 in Cairo (Hegazi, A.E., 1978), 6/1 in Alexandria (Abdou, M.M., 1983), 10.7/1 in Upper Egypt (El Akkad, M.A., 1973), the ratio is higher than that of non bilharzial count-ries, and it is more higher in Upper Egypt and this may be due to the fact that females in Upper Egypt are restrictedto their houses and not exposed to hot climate and dehydra-tion like females of lower Egypt.The percentage of renal stones in Egypt in relation to general incidence and bilharziasis is that in bilharzial cases it is lower than that of non bilharzial cases (30.7% and 43.2% in Cairo) and that is may be due to the impaired renal function in bilharzial.cases and so the kidneys cannot form hyper saturated urine as in normal kidneys (Hegazi,A.E.,1978).However in Upper Egypt (Assuit Province) it ishigher than that of lower Egypt, 43.2% and that may be due to the effect of dehydration and schistosoma haematobium in Upper Egypt (El Akkad, M.A., 1973). In East Delta thepercentage was 33% (Abd El Samad, A.M., 1983) and in Alexand-ria the percentage was 3D% (Khalil, M.A., 1979).The peak age incidence in Egypt generally is the third and fourth decades of life (Hegazi, A.E., 1978, Khalaf, M.1., 1971, El Kappany, H.A., 1977, and Abd El Samad, A.M., 1983) but in North, Middle and West Delta (Behaira, Gharbia andAlexandria) it is more in the fourth decade of life (Al Refaei, M.A., 1967 and Khalil, M.A., 1979) and in Upper Egypt thereis a high incidence in first decade of life , 17.1 % (El Akkad, M.A., 1973) and this coincides with non bilharzial countries. (Malek, R.S., 1977).Males are more affected than females and this ratio is in-creased in rural areas than towns where males to females ratio is 7.8/1 in Middle and Abst Delta (Al Refaei, M.,A., 1967) and in Alexandria it is 3.2/1 (Khalil, M.A., 1979) and that ratio in Egypt is higher than that of non bilharzial countries where in U.S.A. it was 2/1 (Coe, F.L., 1981) and this difference may be due to the fact that females in Egypt are mostly house wives and not exposed to dehydration and sunlight like males, but females in U.S.A. expose to

samefactors like males. As for laterality, left side is more affected in most areas of Egypt (except in Cairo) where the left/right ratio in bilharzial cases in Cairo was 1.46/1 (Hegazi, A.E., 1978), in Mansoura was 1.2/1 (El Kappany, H.A., 1977), 2.16/1 (Abd El Samad, A.M., 1983), in Behaira, El Gharbia and Kafr El Sheikh was 1.4/1 (El Refaei, M.A., 1967), in Alexandria was 1.07/1 (Khalil, M.A., 1979) and in Upper Egypt was 1.47/1(El Akkad, M.A., 1973); but in Cairo it was reversed where left/right ratio was 1/1.57 (Helmy, S.A., 1978) and in non bilharzial cases was 1/1.18 (Hegazi, A.E., 1978), that like non bilharzial countries where left/right was 1/1.15 (Blacklock, N.J., 1969).Combination of renal stones with ureteric stones was high in Egypt than non bilharzial countries where in England it was 7.3 % (Ghazali, S., 1975), but it was in Middle and West Delta 36.9 % (Al Refaei, M.A., 1967), in East Deltait was 26 % (El Kappany, H.A., 1977) and in Alexandria it was 12 % (Khalil, M.A., 1979) and this may be due to bilhar-zial ureteritis in Egypt.As for multiplicity, the percentage was equal in Egypt and non bilharzial countries and was about 40 % , and no special pattern was detected.Recurrence of renal stones is more in Egypt than in non bilharzial countries and more in rural areas than townswhere it was 19.4 % in East Delta (Abd El Samad A.M., 1983).6% in Alexandria (Khalil, M.H., 1979) and in Cairo 14.2% (Helmy, S.A., 1978); however in non bilharzial countries it was 9.739° with recurrence interval of 9 years (Malek, R.S., 1977); high rate in rural areas may be -due to shortage of educational programs, socioeconomical status, recurrent in fection and stasis of urine due to bilharziasis.The ureteral stones percentage of incidence was in Egypt more than that in non bilharzial countries, where in Cairo it was 27.8 % (Hegazi, A.E., 1978) and 32.6 % (Khalaf, M., 1971) and in Middle and Bbst Delta it was 41.6 % ofcases (Al Rafael, M.A., 1967) but in non bilharzial countries it was 20 % (Davison, A.M., 1981) and this may be due to bilharziasis and that emphasize this fact that ureteric cal-culi cases in Cairo was 40% in bilharzial cases and 21.3% in non bilharzial cases (Hegazi, A.E., 1978) but against this fact is that in Upper Egypt (where schistosoma haematobiumis endomic) it was 21.8 % (El Akkad, M.A., 1973).Ureteric calculi in Egypt has a peak incidence at the third and fourth decades of life (Hegazi, A.E., 1978, Khalil, I.M., 1979 and Abd El Samad, A.M., 1983) but in non bilharzial countries the age peak was at the sixth decade of life (Furlow, W.L. and Bucchiere, J.J., 1976).Males to females ratio is higher in Egypt than non bilharzial countries, 2.5 : 1 (Furlow, W.L. and Bucchiere, J.J., 1976) ; where in Middle and West Delta it was 12 : 1(Al Refaei, M.A., 1967) and in Alexandria it was 8.5 : 1 (Khalil, I.M., 1979).All studies in Egypt except one (study of Hegazi,A.E., 1978) mentioned that left side is more affected than right side that is because left side ureteritis occurs more due to bilharziasis (Al Refaei, M.A., 1967); but in non bilharzial countries it was equal on both sides generally with minimal deviations to the right or the left side (Fox, M., et al, 1965).All studies in Egypt showed that the majority of the stones get impaction in the lower third of ureter, 88.9% in Middle and West Delta (Al Refaei, M.A., 1967) ; this similar to non bilharzial countries, but in the later it is lower, only 61% of cases (Fox, M., et al., 1965).The incidence of vesical calculi in Egypt is higher than that of non bilharzial countries where it represent15% (Davison, A.M., 1981). In Egypt the pattern varies from one area to another where in Upper Egypt it accounts for 31.9% (El Akkad, M.A., 1973), Middle and West Delta 30.82% (Al Refaei, M.A., 1967), however the second range includes

Cairo 21.6% (Hegazi, A.E., 1978), 21.0% (Helmy, S.A., 1978) and East Delta 22.5 % (El Kappany, H.A., 1979) and 19.5% (Abd El Samad, A.M., 1983) and that may be due to the in-creased vegetable consumption in Middle and lest Delta and Upper Egypt, and also increased incidence of bilharziasis-142-in Upper Egypt.Vesical calculi disease is a disease of adult life and old age in both Egypt and non bilharzial countries but there is only one difference where it is also a disease of childhood in Egypt where in the first decade the incidence was 12% in Alexandria (Khalil, I.M., 1979) and also in East Delta it was 9.09% (El Kappany, H.A., 1979).Vesical stones disease is commonly a disease of males in both non bilharzial countries and Egypt.In Egypt the males to females ratio is high in towns, Alexandria 65.6 : 1 (Khalil, I.M., 1979) than rural areas, Middle and West Delta 31 : 1 (Al Refaei, M.A., 1967).Senile prostatic enlargement is associated with vesi-cal calculi in 25% of cases in Cairo (Hegazi, A.E., 1978) and in 29% of cases in East Delta (Abd El Samad, A.M., 1983), this is more than in Upper Egypt where it was 7.3 % of cases only. However bilharzial neck obstruction is associated with in14.6 % of cases in Upper Egypt (El Akkad, M.A., 1973) and in 1.3% only of cases in Cairo (Hegazi, A.E., 1978).The incidence of uretheral calculi is higher in Egypt than non bilharzial countries (0.5%, Blacklock N.J., 1969); however in Upper Egypt it is 3.1% (El Akkad, M.A., 1973) and in Alexandria 3.22% (Khalil, I.M., 1979), but in rural areas in Middle and West Delta it was 5.2 % (Al Refaei, M.A.,1967)- 143 -and in Cairo also it was more (5.1%, Hegazi, A.E., 1978).As for age peak, no special pattern was detected where in Egypt generally it was at the second, the thirdand the fourth decades of life.All cases were males in Egypt, but in Alexandria males to females ratio was 74 : 1 (Khalil, I.M., 1979).All studies in Egypt mentioned that posterior urethra is the common site of impaction like non bilharzial countries.