MEASURMENT OF SOME TRACE ELEMENTS AND PROTEIN OF HYDATID CYSTS FLUID IN SHEEP AND COW

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ABSTRACT

The amount of four minerals (Magnesium, Calcium, Selenium and copper) and total protein of hydatid cysts fluid obtained from lung and liver of sheep and cow was checked. Magnesium (Mg^{+2}) and calcium (Ca^{+2}) showed higher levels in cysts of sheep than those of cow which was (8.38, 29.11, 7.90, 25.70 mmol/L) respectively whereas the selenium (Se^{+}) and copper (Cu^{+}) showed a little differences in both species. Total protein amonts were found to have wide range in both animal species.

INTRODUCTION

Hydatid cyst is the larval stage of *Echinococcus granulosus* occurring in averiety of ruminants and man. The adult being found in dogs[(1)]. The cysts in different organs like liver, lung, spleen, kidney and brain[(2)], having avarious types and sizes these might reach a (50 cm) in diameter and contain (3.5) litters of fluid[(3)]. The colourless or yellowish coloured fluid contains a complexity of protein, Lipid, glucose, minerals and enzymes[(4)].

The cyst which occurs in a specific organs might contain certain chemical substances while those occurring in other organs don't contain them for example the cyst of the liver contain bile pigments while the cysts of the kidney contain traces of urea[(5)]. In the present article data of some in minerals and proteins of the hydatid cysts fluid which collected from different organs of sheep and cow were masured.

MATERIALS AND METHODS

(1) **clinical material:** Hydatid cyst of lungs from (22) sheep of livers from (24) sheep of lung from (25) cow's and of liver from (14) cow's were obtaineal after the animals being slaughtered. (30ml) of fluid was extracted from each cyst those cyst which were fertile (containing scolices) were sieved through a filter paper to get rid of the scolices, fluid was then analysed.

(2) **Apparatus:** Measurment of (Mg^{+2} and Ca^{+2}) were perfor-med though flame photometer. Estimated of (Sc and Cu) were done by (NAKI-1 TOA- japan) while the total protein determination by (Unicam specific gravity – 800 uv. Spectrophotometer).

RESULTS

The fluid of $^{(22)}$ hydatid cysts of sheep lung was found to contain all four minerals (Mg^{+2}, Ca^{+2}, Sc^{+} and Cu^{+}) and protein, their mean values were (8.38 / 29.11 / 30.21 / 32.11 and 137.20 mmol/L) respectively.

The same specific method was used for the detection of these minerals and protein of hydatid cyst fluid from (24) livers of sheep their mean values were (7.90 / 25.70 / 32.22 / 40.23 and 145.40 mmol/L) table (1).

The mean values of the same minerals and protain detected from cysts of (25) cow's lung were (3.90 / 12.40 / 33.70 / 38.17 and 185.80 mmol/L). However in (14) cow's livers cysts, the mean values were (2.60 / 9.40 / 33.30 / 39.60 / and 90.35 mmol/L) respectively table (2).

Table (1):- L Show the range and mean values of minerals and total protein in lung and liver of sheep.

Organ	Species of animal	Ca^{+2}	Mg^{+2}	Se	Cu	T. protein mg/100 ml
Lung	Sheep	29.11	8.38	30.21	32.11	137.20
Liver		25.70	7.90	32.22	40.23	145.40

Table (2):- Show the range and mean values of minerals and total protein in lung and liver of cow.

Organ	Species of animal	Ca^{+2}	Mg^{+2}	Se	Cu	T. protein mg/100 ml
Lung	Cow	12.40	3.90	33.70	38.17	185.80
Liver		9.40	2.60	33.30	39.60	90.35

DISCUSSION

The hydatid cyst fluid is known to contain proteins, lipid, glucose, enzymes and some trace elements found in organs in which they grow[6]. The present study included the analysis of four minerals and whole protein amonunts in the hydatid cysts of the liver and lung which obtained from sheeps and cows. The minerals were (Mg, Ca, Se, Cu) their mean values in sheep lungs and livers measured in (mg/100ml) were (8.38 / 29.11 / 30.21, 32.11 in 137.20 l 7.90 / 25.70 / 32.22 / 40.23 and 145.40 mmol/L) respectively.

[7]Reported that (Mg, Ca, Sc and Cu are present in the cysts fluid of *E. granulesus* where their quantities were (9.6 / 171 / 151and 0.9 mmol/L)[8] mentioned that some in organic substance like (Mg, Cu, Ca) were isolated from calcareous corpuscles but did not make aquantitative analysis of these minerals. A ccording to[9] the calcareous bodies are found in the cells of internal germinal layer of the hydatid cysts. When the evaluated the quantity of the minerals cheeked by us we found that the level of (Ca^{+2} , Mg^{+2}) in the hydatid cysys fluid obtained from sheep are higher than those of cow, this might be associated with the the fact that the over (90%) of the hydatid cysts in sheep are fertile compared with only about (10%) of cow[10], or the high levels of salts in water which feeding by the sheep another reason may be due to the calcification degree of the hydatid cysts wall which the (Ca^{+2}) may be found free or conjugated with other tissuses[11]. The differences in concentration chemical between hydatid cysts fluid of sheep and cow was reported in Egypt and Lebanon this might be due to differences in ecological and nutritional factors which varies from city to another[12] also might be due to differences of strain of parasite from region to another based on natural and biological conditions. The fertility rate of sheep was higher than others types of animals and this reflects that the sheep is an important intermediate host for hydatid cysts from the

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epidemiological view which play an important role in dissemination of infection[13] another reason that the fertility rate of sheep was greater than the cow this reflect the cows is consider as secondary important intermediate host for hydatid cyst this agree with that reported in Kuwait[14].

Concering that total proteins amount in the cysts fluid of sheep lungs and livr their mean values were (137.20 and 145.40) however in cysts fluid of cow's lungs and livers thein mean values were (185.80 and 90.35mmol/L) respectively these finding agree with[15] estimation that the hydatid cysts contain from (17 – 200mg/100ml) these differences in values may be at ributed to the differences in cow physiological factors from the other host.

قياس بعض العناصر النزره وكمية البروتين السائل لأكياس المائية في الأغنام والأبقار

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الخلاصة

شملت الدراسة قياس اربعة عناصر نزره وهي (المغنسيوم ، الكاليسوم، السيلينيوم والنحاس) على التوالي وكذلك كمية البروتين الكلية لسائل الأكياس المائية المأخوذ من رئات وأكباد الأغنام والأبقار ظهر آن نسبة المغنسيوم والكالسيوم في سائل الأكياس المائية للأغنام أعلى منه في الأبقار حيث بلغ (8.38 ، 29.11 ، 7.90 ، 25.70) على التوالي بينما لم يظهر السيلينيوم والنحاس اختلافاً كبيراً في كلا النوعين كذلك فقد ظهرت كمية البروتين الكلية مستويات عالية من الاختلاف حيث بلغت (137.20 ، 145,40 ، 185.80 ، 90.35) في رئات وأكباد كلا النوعين وعلى التوالي.

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