

Activities of Quail Eggs in Female Anaemic Hypertensive Subjects in Ogwa Imo State, Nigeria.

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Abstract: Many health benefits have been claimed in favour of Quail egg consumption by individuals 36 female subjects of age range 30-60yrs were selected for this study. They were grouped into 3 groups viz: Group A (12 subjects) consist the control group, Group B (12 subjects; anaemic subjects) and Group C (12 subjects; hypertensive anaemic subjects). Their average weight is 50-70kg. The test groups B and C were administered with 3 cooked Quail eggs thrice daily for 21 days while the control group A did not receive any quail egg but had a normal blood level concentration and blood pressure.

Results of the study after careful experimentation of the hematological and biochemical parameters revealed increment in the blood concentration of anaemic subject in group B 15.2 ± 1.42 as against 8.5 ± 0.54 in the first day of the test. The cholesterol level in Group B and C subjects were highly increased (300 ± 40 group B), 280 ± 24 (group C) compared to their corresponding control (160 ± 28). Consumption of quail egg has no effect in blood sugar level or blood pressure ($p > 0.05$). The increment in cholesterol level in the test subject could be because all food containing animal fat contains cholesterol to varying extents.

Key words: Quail egg, cholesterol, anemic hypertension, haemoglobin, platelets, blood sugar.

I. Introduction

The scourge of high blood pressure, heart disease and syncope among the middle age and elderly people has driven people in search of immediate remedy to alleviate their sufferings.

In most developing countries like India, china, Indonesia, Malaysia, Nigeria and other sub-Saharan part of African, people mostly depend on herbal medical care. Herb extracts from herbal root, juice and edible foods have been virtually used in preventing and curing diseases being under the direction of ethno medical practitioners. These herbs are mostly administered orally through the GIT or can be applied topically as ointment. Extract of fruits, roots, stem, bark and leaves of some medicinal plants have been known to have effects against the most dreaded pathogenic organisms.

Quail eggs are considered a delicacy in many countries including Western Europe and North America (Wikipedia, 2010). In Japanese cuisine, they are sometimes used raw or cooked as tamago in sushi and often found in bento lunches.

In some other countries, quail eggs are considered less exotic. In Columbia and Venezuela, a single hard-boiled quail's egg is a common topping on hot dogs and hamburgers, often fixed into places with a toothpick. In the Philippines, 'kwek-kwek' is a popular street food delicacy, which consists of soft-boiled quail eggs dipped in orange-colored butter before being skewered and deep fried (Back packer, 2010).

In the Far East records of Quail go back as far as 770BC, the scientific name of quail bird is *Coturnix ypsilophorra* and its atlas number is 11. Quail is of different types namely the brown quail and the similar stubble quail. The brown quail is a small, plump ground-dwelling bird. It is variable in color ranging from red brown to grey brown with fine white streaks and black barring above, and chest nut brown below. The eyes are red to yellow, the bill black and the legs and feet orange-yellow. In Tasmania, this species is called the Swamp quail and tends to be larger and may be more heavily marked with black and paler below than the males. young birds are like adult females, with less distinct markings and dark brown eyes. Quail rarely fly, preferring to hide unless an intruder flushes them, then they fly low to the ground with a rapid whirring flight.

Nutrients And Biochemical Contents Of Quail Eggs

They are enriched with phosphorous, protein, vitamin B, vitamin D, E, essential fatty acids, vitamin B2 (riboflavin) vitamin A (retinol), vitamin B12, vitamin B6, vitamin B1, vitamin C, omega 3, omega 6-fatty acids, selenium, choline. It is rich in minerals (Dobrass, 2012) such as magnesium, folic acid, iron, and zinc.

Medicinal Health Value Of Quail Eggs:

Quail eggs have been claimed to be used as a treatment to obtain a healthy skin. Hence it cures eczema, psoriasis, skin damage etc. it is used to improve sexual potency because of its chemical content of phosphorous, proteins, vitamin B, vitamin D and vitamin E. it strengthens the heart muscle which in turn boosts libido better sexual performance.

It is good in anaemic conductions, diabetes, ulcers, gastritis and inhibits cancer growth by producing cells from the free radical damages due to its natural content of selenium and antioxidants.

Blood pressure is the force with which the heart pumps blood through the blood vessels to various parts of the body.

A higher pressure is generated when the lower chambers of the heart contract and squeeze the blood through the arteries. This pressure is known as systolic. When the heart relaxes, a lower pressure is generated and this is called diastolic pressure. The blood pressure is written as systolic over diastolic i.e. Systolic. Diastolic mmHg.

When the blood pressure measured in millimeter of mercury (mmHg) is above the normal range the person is said to have high blood pressure or hypertension (Akubue, 2000). The blood pressure maybe below the normal range and the person is said to have low blood pressure or hypertension.

Hypertension is often referred to as a silent killer because in the early stage of the disease, there are no symptoms. The only way to detect the disease is by measuring the blood pressure. The World Health Organization and the international hypertension society (WHO – IHS) adopted the values of blood pressure of 120/80mmHg as optimal and normal BP is classed as less than 135/85mmHg (Akubue, 2000).

When high blood pressure remains untreated for a long time or is poor controlled, it will have damaging effects on the important organs in the body viz the heart, the brain, kidneys and eyes. This research work is aimed at authenticating the acclaimed facts by Quail egg consumers and ethno medical practitioners that Quail egg boost haemoglobin concentration in anaemic subjects, lower high blood pressures, improve diseased heart, improve packed cell volumes and other biochemical profiles in anaemic hypertensive subjects.

II. Materials And Methods:

Subjects Selection

The subjects for this research consist of persons coming to our clinics and laboratories. They were made to undertake tests based on their complaints. Those with low haemoglobin concentrations, and having high blood pressure were the most suitable for the research study. Thirty-six (36) subjects were screened and confirmed to be anaemic subjects and some are anaemic with hypertension. They were screened with the standard laboratory tests.

Experimental Design:

Thirty-six (36) female subjects of age range 30 – 60yrs diagnosed with anaemic hypertension were used for this study. They weighed about 50- 70kg. They were grouped in three (3) groups. Group A is the control subjects (12) of age range 30-40yrs. Group B is anaemic subjects (12) of age range 40- 50yrs and Group C is anaemic and hypertensive subjects (12) of the age range 50 – 60 yrs.

The test groups B and C were administered with 3 cooked quail egg (Health solution provides, 2012) thrice daily for 21 days consecutive days while the control group A did not receive any but it was confirmed with diagnostic procedure that they have a haemoglobin concentration (14-16g/dl) and normal blood pressure of 70mmHg (systolic) and 116mmHg (diastolic pressure).

Preparation Of Quail Eggs And Its Consumption:

Quail egg were purchased from poultry farm in our region of Enugu state Nigeria. They were washed properly with clean water before cooking. They can also be fried or the fluids in the shell can be drank raw. One should not worry about Salmonella with quail eggs as quails are resistance to infection due to their increased content of lysozyme (Health solution provider, 2012) that kills harmful bacteria.

The quail eggs were distributed to all the subjects in groups B and C to be eaten three to five pieces each morning for 21 days duration of study

Determination Of Haematological And Biochemical Profile

Blood samples collected into EDTA sequestrene bottles were used for the hematological studies while those collected in plain tubes were allowed to clot and later their serum samples were separated and then used for biochemical analysis. The haemoglobin concentration was estimated according to the cyanmethaemoglobin method as described by Alexander and Griffiths. The packed cell volume was determined according to the haematological method described by Alexander and Griffiths (1993). White blood cell counts, platelet counts,

mean cell volume and mean cell haemoglobin concentration were estimated according to the visual method of Dacie and Lewis (1991). The biochemical analysis was carried out as described by Baker and silverton (1985)

Statistical Analysis

The results obtained in the study for HB concentration, WBC count, platelet count, packed cell volume, protein, lipids, iron, cholesterol and sugar estimations were represented as mean and standard deviation (mean \pm S.D) while students' t-test was used to compare the results of the control and tests. A P-value of less than ($p < 0.05$) or equivalent to ($p = 0.05$) was considered significant.

III. Results

Table 1: The haematological profile of female subjects on daily meal of Quail eggs.

GROUPS	Hbg/100ml \pm S.D	PCV % \pm S.D	WBC/mm ³ \pm S.D	PLATELETS X 10 ⁹ /L \pm S.D	MCHC %
Control n=12 Group A	14.3 \pm 0.67	42 \pm 1.81	5170 \pm 242	190 \pm 58	33
Test groups before Quail egg. Group B n=12.	8.5 \pm 0.54	25 \pm 1.51	2568 \pm 14	110 \pm 42	36
Group C n=12 (anaemic and hypertensive)	7.3 \pm 0.62	21 \pm 1.81	2104 \pm 82	108 \pm 24	32.6
Test groups 21 days after quail egg. Group B n=12 (anaemic subjects)	15.2 \pm 1.42	45.6 \pm 421	5850 \pm 103	188 \pm 32	33
Group C n=12 (anaemic and hypertensive).	14.8 \pm 2.06	43.0 \pm 6.1	5660 \pm 75	170 \pm 24	34
P -value	P<0.05	P<0.05	P<0.05	P<0.05	P<0.05

TABLE 2: Biochemical profile of female subjects on quail egg administration.

GROUP	Cholesterol mg/dl \pm S.D	Blood Sugar g/dl \pm S.D	Systolic mmHg \pm S.D	Diastolic mmHg \pm S.D
Control n=12 (Group A)	160 \pm 28	86 \pm 12	70 \pm 8	110 \pm 5
Test Groups before Quail egg. Anaemic subjects (Group B)	162 \pm 30	84 \pm 6	78 \pm 4	104 \pm 12
Anaemic and hypertensive subjects (Group C)	164 \pm 15	86 \pm 10	125 \pm 6	230 \pm 16
Test Groups 21 days after quail egg anaemic subjects (Group B)	300 \pm 40	87 \pm 18	76 \pm 8	105 \pm 10
Anaemic and hypertensive (Subjects Group C)	280 \pm 24	85 \pm 6	122 \pm 12	228 \pm 14
P value	P<0.05	P>0.05	p>0.05	P>0.05

IV. Discussion

The activities of quail egg in the female anaemic and hypertensive subjects have been analyzed. Many claims have been laid on the quail egg as healing food, (Health providers, 2012). These claims have driven anxious sick subjects wanting recovery to embark on the usage of quail eggs.

On closer looks on the results obtained in this study (Table 1&2 respectively). There is a marked variation in the results between the control groups (Group A) and the test groups (Group B and C). On the hemoglobin concentration (Table 1) the result indicated improvement in the blood level of anaemic subjects (Group B) and anaemic hypertensive subjects (Group C) with a percentage difference of about 90% increment ($p < 0.05$) in the test subject after the administration of egg. Anaemia is a disease condition known to be responsible in decreasing oxygen carrying capacity of red blood cells leading to a state of anaemic hypoxia in long term. Anaemic hypoxia is a type which the arterial PO₂ is normal but the amount of haemoglobin available to carry the oxygen is reduced. The administering of quail egg in the test subjects is restored, hence Quail egg maybe boosting erythropoiesis and immune system as the white blood cell count and platelet counts were restored to normal counts. The presence of protein, Vit. B6, Vit. E, Vit. B12, iron, folic acid in quail egg could be contributing to its ability to improve erthropoiesis and increase blood level in anaemic subjects.

Cholesterol, an organic molecule, a sterole, an essential component of animal cell membrane that is required to establish proper membrane permeability and fluidity was studied as a component of quail egg and its activity in test subjects B and C (Table 2). It was observed in this research that they were increased in the test subjects (B & C) $p < 0.05$, who eats or drinks Quail egg as a remedy for their hypertension, anaemia, heart

disease etc, but does not increase or decrease blood glucose level. Within the cell membrane, cholesterol is the precursor molecule within the cell in several biochemical pathways. In the liver, cholesterol is converted to bile, which is then stored in the gallbladder. Bile contains bile salts, which intestinal absorption of fat molecules as well as the fat-soluble vitamins A, D, E and K. cholesterol is an important precursor molecule for the synthesis of vitamin D and the steroid hormones including the adrenal gland hormones cortisol and aldosterone.

The result obtained from this study showed increase in cholesterol level (Table 2) in both anaemic and hypertensive anaemic subjects compared to their corresponding control, quail egg does not reduce cholesterol level, rather it increases it leading to cardiovascular disease risk. Again it does not lower high blood pressure (Table 2) or increase it ($P < 0.05$). Quail egg helps in anaemic conditions to increase the blood levels. Fat intake also plays a role in blood cholesterol level increment. Animal fats are complex mixtures of triglycerides with lesser amounts of phospholipids and cholesterol. As a consequence, all foods containing animal fat containing cholesterol to varying extents (Christie, 2003). major dietary sources of cholesterol include cheese, egg yolks, beef, pork, poultry, fish, and shrimp. (USDA, 2008). Human breast milk also contain significant quantities of cholesterol (Jensen et al 1978). The American Heart Association recommends testing cholesterol every five years for people aged 20 years or older (Retrieved 2013).

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