Gall stone in pediatric
بأهمية الدكتور أسامة إسماعيل المشهداني

الطلبة الباحثون:

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Gallstone disease is a common problem in elderly women and there has been a very well known association of this disease with obesity and multiparity.

The disease has been found very infrequently in children. There is a dramatic change in the overall spectrum of this disease and a global increase in the incidence in young children.

This has been attributed to:

- better understanding of acute pediatric problems
- coupled with efficient use of Ultrasonography.
A number of conditions have a proven association with formation of gallstones in children including:
- TPN
- Haematological disorders
- Sepsis
- Hepato biliary disease
- The use of ceftriaxones is also claimed to act as strong factor causing cholelithiasis in children (1).

This study documents an alarming increase in the incidence of cholelithiasis in children.

Retrospective Cohort’s study done by group of 7 medical students 5th stage, Nineveh College of medicine in Mosul University

Gallstone cases under 15 years of age, were followed in privet clinic and Al-Khansa’a Teaching Hospital in Mosul

The information have been taken in general neglecting names of patients and site of living

Taking into consideration the pediatric surgeon who had carried out the operation and the gender of the patients
Total number of patients is (42) (30) idiopathic gall stones → laparascic cholecystectomy.

(5) long term use of ceftriaxone → no intervention resolved spontaneously.

(7) congenital hemolytic an. → cholecystectomy and splenectomy

The age range between 14 months to 14 years (median 6 year).

No significant post operative complications.

Follow up period range between (6 ms _ 60 ms)
42 cases
Gall stone

30
Idiopathic

laproscopic cholecystectomy

5
Long use of ceftriaxone

No intervention
Resolve spontaneously

7
Congenital hemolytic an.

Cholecystectomy
splenectomy
Idiopathic
\[ N = 30 \text{ (71%)} \]

Congenital hemolytic disease
\[ N = 7 \text{ (16%)} \]

Ceftriaxone
\[ N = 5 \text{ (12%)} \]
Five patients presented with a symptomatic multiple small gall stones, all of them had recurrent chest infection or U.T.I and received long term ceftriaxone injection,

Those patients followed by doing two weekly U/S with clinical assessment,

The five patients had no gall stones within 2-4 months and followed for 4-30 months with no recurrence of gall stones.

Seven patients underwent cholecystectomy with splenectomy at the same session through laparotomy, they have hemolytic disease (4 have thalassemia and 3 have spherocytosis).
Ceftriaxone is one of the most commonly used 3rd generation parenteral cephalosporins because:

1. wide spectrum of anti-microbial activity,

2. long plasma half-life that allows once-daily administration.

Ceftriaxone could have potential complications and these are biliary sludge but these complication may be reversible upon discontinuation of the drug.

Cases can be managed conservatively by observation.
The mechanism of ceftriaxone associated GB sludge is as follows:

1. A liver that produces thick bile
2. A gallbladder that doesn't fully contract
3. Cholesterol crystals that keep growing into stones

1- the concentration of ceftriaxone in the GB can become 20 to 150 times greater than that in the serum

2- excretion of ceftriaxone could disturb the excretion of the bile acids

3- The concentration of ionized calcium in the bile is elevated and ceftriaxone can precipitate with calcium, like what occurs with bilirubin,

4- so ceftriaxone-associated biliary sludge is mainly composed of a calcium-ceftriaxone complex.

Additionally, ceftriaxone itself could affect the contractility of the GB.
In general, biliary sludge can be expected to take 3 to 22 days after beginning ceftriaxone therapy and it may reversible upon discontinuation of the drug with a range of 2 to 63 days after the end of treatment.

In our cases, we confirm that there was no GB stone initially, and GB stone was detected after the ceftriaxone was started.

The ceftriaxone-associated GB stone completely disappeared 1 month after discontinuation of the drug.
3-22 day

2-63 days

Disappearance of gall stone
The sludge may serve as the nidus for gallstone pathogenesis, the sludge commonly appears as a hypo-echoic layer without acoustic shadowing.
There was **GB sludge and no stone** for the ultrasonographic findings of some cases.!!

This might be due to the interval between when this was first diagnosed via CT and the follow-up ultrasonography; the ceftriaxone had already been discontinued,

so the stone may have resolved and became sludge.

**In conclusion,**

GB stones can occur after ceftriaxone therapy. Most of these resolved spontaneously after discontinuation of the drug.

Clinicians, and especially surgeons, should be aware of this complication and they should avoid unnecessary surgical interventions.
The percentage of Gallstone in pediatric has been increased in the previous few years and become a common problem present & usually the presentation of children was a vague abdominal symptoms.
Unfortunately, the Development of pseudolithiasis after cefotriaxone administration is not uncommon and should be known by pediatricians and radiologists in order to avoid unnecessary surgery or additional consultations.

But good news, there is no need to intervention and it resolve spontaneously which is a big difference form gallstone in adult which is the treatment usually is surgery.
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Thank you to be patient …
Sorry if boring you…. 