Implementation of Screening Program for Early Diagnosis of Developmental Dysplasia of Hip Joint in Kirkuk City

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Abstract:

Back ground: screening program is vital for the early diagnosis and treatment of developmental dysplasia of the hip (DDH) in infants to avoid disability. The aim of the current study is to audit the implementation of the program after setting up the program.

Material and method: In between 2010-2012; a questionnaires was distributed to 280 mothers, and 120 health professionals, in order to obtain feedback about the effectiveness and the existence of preventive program for early detection of DDH in Kirkuk. During the same period, two workshops were organized for the health professionals about the screening program for DDH, the data were collected during the workshop. Also the medical notes of 200 new born baby delivered in Azadi hospital were also reviewed to determine the existence of the screening program. In order to check the effectiveness of the screening program, an audit on 32 children was performed, looking through medical files of children with DDH managed by the pediatric unit in the rehabilitation unit of Azadi teaching hospital.

Result: The incidence of awareness of the DDH screening program was (21%) among health professional, and was (14%) among the mother. In the neonatal care unit, none of 200 newborn babies was screened for DDH.

The DDH screening program was better implemented by the vaccinators.

Conclusion: It is better to rely on vaccinators to lead the program rather than medical doctors. Referring children with risk factors to a pediatric unit, is more practical than relying on the performance of Ortolani and Barlow test, in the health centers. Yearly workshops and media awareness of DDH prevention is useful.

***Key words*:** DDH, Screening, Implementation, Azadi, hospital, Ortolani, Barlow.

Introduction:

There is no doubt that early screening program and treatment using Pavlik harness is effective in treating dysplastic unstable hips in infants with developmental dysplasia of the hip (DDH). The incidence of avascular necrosis (AVN) of femoral head is (60%) if Pavlik Harness is not used for DDH in late diagnosis [1,2].

Pavlik harness is dynamic splint which is considered to be better than static splints. It prevents hip extension and adduction but allows flexion and abduction of the hip, this leads to reduction and stabilization with (95%) success rate and less than (1%) incidence of avascular necrosis (AVN) of the femoral head [1,2,3] (figure 1).

Early diagnosis by using ultrasound scan of the hip in the first 6 months of life is the gold standard [5]. Plain radiographs of the pelvis is unhelpful in the first 6 months of life as the femoral head is not ossified to visualize [6,7].

The aim of the current study is to audit the implementation of a screening DDH program a year after setting it up.

Material and methods:

In 2010: Because of high incidence of DDH in the city of Kirkuk, a plan was made to start a screening program for the early diagnosis of this condition.

Series of workshops was organised for the doctors and head of the health centres of Kirkuk. The workshops were carried out by the paediatric and the orthopaedic departments.

A flow chart as how to act after suspecting DDH and a booklet written in Arabic and Kurdish to raise alertness was distributed. A poster was distributed for education of parents (figure 2). Plans were also made to train radiologists to perform ultrasound scans of the hip; this was eventually provided to the orthopaedic outpatient department.

Audit: (October 2011 – march 2012), medical students of Kirkuk studied the implementation of the screening program for the early diagnosis of DDH in the following areas:

Medical Health Centers, Azadi Teaching Hospital (Pediatric Unit), Pediatric Hospital in Kirkuk city, Neonatal; orthopedic; and radiological departments.

Current system flaws were apparent in the system:

1. Ultrasound scan diagnosis in the first 6 months of life has not been started in the hospital. The reasons behind this are that the radiologists demand training in the field, this has not as yet been provided by the health directorate

The local radiologists consider that the current standard of ultrasound scanning of children's hip in Iraq, of poor quality to learn from and they prefer training abroad.

2. Neonatal care unit in Azadi hospital

200 questionnaires were filled according to the numbers of deliveries in NCU in (Azadi and Kirkuk) Hospitals.

Upon enquiring, it seemed that the health professionals were aware of the DDH screening program, including Barlow & Ortolani tests, but has not consistently implemented.

3. The Pediatric Kirkuk Hospital: No DDH screening is taking place; the program seemingly was not communicated to them.

4. Health professionals in the primary health care:

A questionnaire was distributed among 120 health professionals (16 doctors & 104 other health staff such as nurses), enquiring about their awareness of the screening program set in the city. Only 26 health professionals were aware of the screening program.

The questionnaire result revealed that 16 health professionals implement the screening program.

Ironically, those who were implementing a DDH screening program were not aware of the workshop and those who were not implementing the program, have attended the workshop.

5. Mothers:

Among the 280 mothers only 41 (14.6%) they knew about DDH. The mothers who knew about DDH belong to one of these groups:

1- Positive family history (0.97%).

2- They heard about subject in community (6.34%).

3- Saw TV programs about the screening programs (12%).

Results:

Children with DDH referred to Azadi teaching hospital were treated mainly by the paediatric and the orthopaedic department. During the current study, 32 Cases: 23 females & 9 males were

managed in the unit using different methods (table 1).

The Orthopaedic surgeons of Azadi teaching hospital, at the time of the study were four surgeons, one performed conservative management of DDH, and one performed open reduction in older infants and children, referring to each other.

Referrals were also received from the pediatric rehabilitation department and health centers.

Cure rate treating DDH in the Rehabilitation unit, in Azadi hospital was not well recorded for infants referred from the health centers in the first one year of life.

Forty four open DDH surgeries were performed, including containment osteotomies within 2010-2012. The outcome of surgery was good within the first two years of age, and fair in older children.

In the view of poor implementation of the screening program, a round table discussion with the experts about the screening program was carried out in April 2012. It was concluded that, the focus should be on education and media, looking for risk factors rather than asking for Ortolani and Barlow test and also t open a unit for early detection of disabilities in children in each hospital dealing with children. According a workshop was prepared for the vaccinators, who were taught about the risk factors and another flow chart was set up. The receiving centers were increased and the health directorate promised resources.

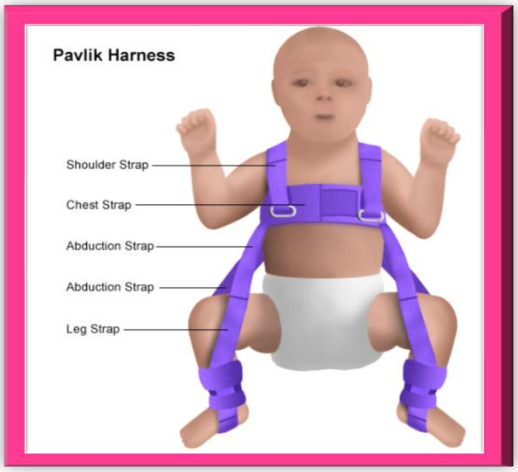


Figure (1): Pavlik harness.

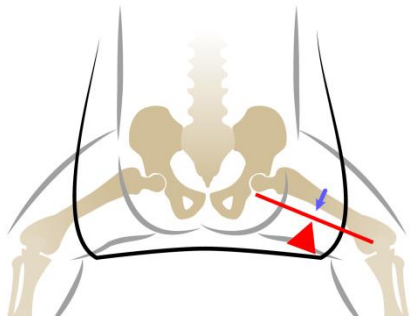
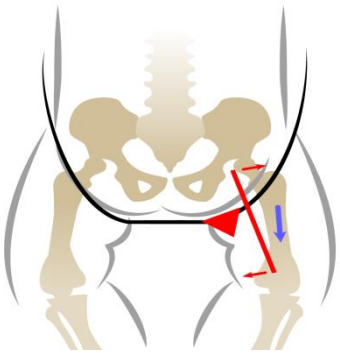
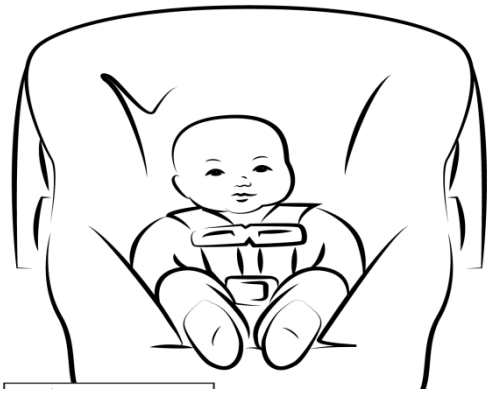
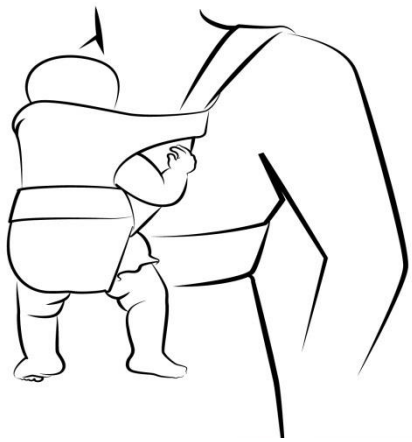
Correct posture	Incorrect posture
	
	
	
	

Figure (2): Poster illustrating the correct posture the parents have to use in order to avoid DDH.

Table (1): Management policy in Azadi teaching hospital according to age of children with DDH.

Treatment	Number of cases	age
Double dipper	8	birth-3 mo.
Pavlik harness	9	3 mo.-1 y.
Surgery	15	More than I y.

Discussion:

There are some concerns about the effectiveness of the screening program for the early diagnosis of DDH, some of these concerns are financial and others are over treatment or lack of interest [(1)].

There is no doubt however that improper setup of the screening program will lead to late diagnosis. A rigorous population-based hip surveillance program is no doubt important for early diagnosis and the prognosis of DDH [(1,2,3,4)].

In Iraq the consequences of late diagnosis of DDH is far more grieve than the costs of screening program this undoubtedly is true for the third world countries.

There is no quality assurance, no enough expertise in the field of Pediatric orthopedic hip problems and where there is lack of awareness of the disease among the people. It is unclear from the current study, why the health professionals are not taking the matter seriously and start implementing the screening program; also it is unclear why the local health directorate is unaware of this lack of implementation.

Some of the other issues are over crowded clinics and poor outpatient organization.

Lack of specialized centers with expertise, unwillingness of some of the health professionals to improve and the negative influence of private sector on the desire to improve the public sector.

Conclusion:

Setting up a screening program for DDH is daunting. Perseverance, patience and re-auditing are required. It is important that both parents and health professionals will cooperate and all taskforces work together.

References:

1. Patel H. Preventive health care, 2001 update: screening and management of developmental dysplasia of the hip in newborns.CMAJ.2001 Jun 12; 164(12):1669-77.

2. Walton MJ. Isaacson Z, McMillan D, Hawkes R, Atherton WG. The success of management with the Pavlik harness for developmental dysplasia of the hip using a United Kingdom screening program and ultrasound-guided supervision. J Bone Joint Surg Br.2010; 92(7):1013-6.

3. Wood W. Lovell, Robert B. Winter, Raymond T. Morrissey, Stuart L.
Developmental dysplasia of the hip, Lovell and winter's pediatric orthopaedics, 2006, volume 2, 6 edition, chapter 24, Lippincott William and Wilkins, 425-430.

4. Azzopardi T, Van Essen P, Cundy PJ, Tucker G, Chan A. Late diagnosis of developmental dysplasia of the hip : an analysis of risk factors. J Pediatr Orthop B.2011 Jan; 20(1); 1-7.

5. Babcock, DS, Hernandez, RJ, Kushner, DC, et al. Developmental dysplasia of the hip. American College of Radiology. ACR Appropriateness Criteria. Radiology 2000; 215 Suppl: 819.

6. Grainger RG. Grainger & Allison's Diagnostic Radiology: A Textbook of Medical Imaging, 4th ed. Churchill Livingstone, Inc. Edinburgh, UK, 2001.

7. Pettersson H. The Encyclopedia of Medical Imaging, Volume.VII. Oslo, Norway, 2004.