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Effectiveness of structured teaching programme on knowledge regarding prevention of congenital anomalies: A systematic review

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Abstract

Introduction: Congenital anomaly was defined as a permanent change produced by an intrinsic abnormality of development in a body structure during prenatal life. An estimated 6% of babies worldwide are born with a congenital anomaly, resulting in hundreds of thousands of associated deaths.

Methods: This article follow the review of text on congenital anomalies dated 2012 to 2016 found in internet searches and library studies with the keyword effectiveness, structured teaching programme, knowledge, congenital anomalies, using data base such as MEDLINE, CINAHL and ISI which index the vast majority of published journal and publication.

Results: The results of the review of 23 articles showed that knowledge level about congenital anomalies is inadequate, and structure teaching programme create effective outcome for knowledge level.

Conclusion: By reviewing many studies the researcher conclude that there was a serious inadequacy of knowledge about congenital anomalies and structure teaching program make effective outcome for improve it.

Keywords: structured teaching programme, knowledge, congenital anomalies

Introduction

Children with significant birth defects need more medical care, require more frequent hospitalizations, need community support services, and often require special education programmes. The happiness of a family depends on the health of the children. In order to prevent anomalies, there are measures that help include avoidance of teratogenic exposures and radiation, smoking, drinking alcohol, medical treatment of maternal illnesses, good nutrition, and routine obstetrical care.

Congenital anomaly was defined as a permanent change produced by an intrinsic abnormality of development in a body structure during prenatal life. A congenital anomaly may be viewed as a physical, metabolic, or anatomic deviation from the normal pattern of development that is apparent at birth or detected during the first year of life.

An estimated 6% of babies worldwide are born with a congenital anomaly, resulting in hundreds of thousands of associated deaths. However, the true number of cases may be much higher because statistics do not often consider terminated pregnancies and stillbirths.

The causes of congenital anomalies are divided into four broad categories, genetics, environmental, multifactorial and unknown. A genetic cause is considered to be responsible in as many as 10–30% of all congenital anomalies, environmental factors in 5–10%, multifactorial inheritance in 20–35% and unknown causes were responsible for 30–45% of cases. Considering the importance of knowledge regarding congenital anomalies the current study aim to be systemeic review regarding congenital anomalies in india and world. Based on WHO report (2012), about 3 million fetuses and infants are born each year with major congenital anomaly worldwide. The impact of the congenital anomalies on the fetus and newborn infant is great as they are responsible for 495,000 deaths worldwide. The great majority of these deaths occurred during the first year of life and thus contributes mostly to infant mortality rate. Several large population-based studies place the incidence of major congenital anomalies at about 2–3% of all live births. It accounts for 15–30% of all pediatric hospitalizations and they exert a proportionately higher health care cost than other hospitalizations i.e. they impact a significant burden to families and society. The actual numbers of children with congenital anomalies vary from country to country; it was reported

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to be as low as 1.07% in Japan and as high as 4.3% in Taiwan. Congenital anomalies account for 2% in England, 1.49% in South Africa and 3.65% in India.

Methods

This article follow the review of text on congenital anomalies dated 2012 to 2016 found in internet searches and

library studies with the keyword effectiveness, structured teaching programme, knowledge, congenital anomalies, using data base such as MEDLINE, CINAHL and ISI which index the vast majority of published journal and publication. Out of the large amount of quantitative and qualitative studies found article about congenital anomalies were selected and their result are summerized in table

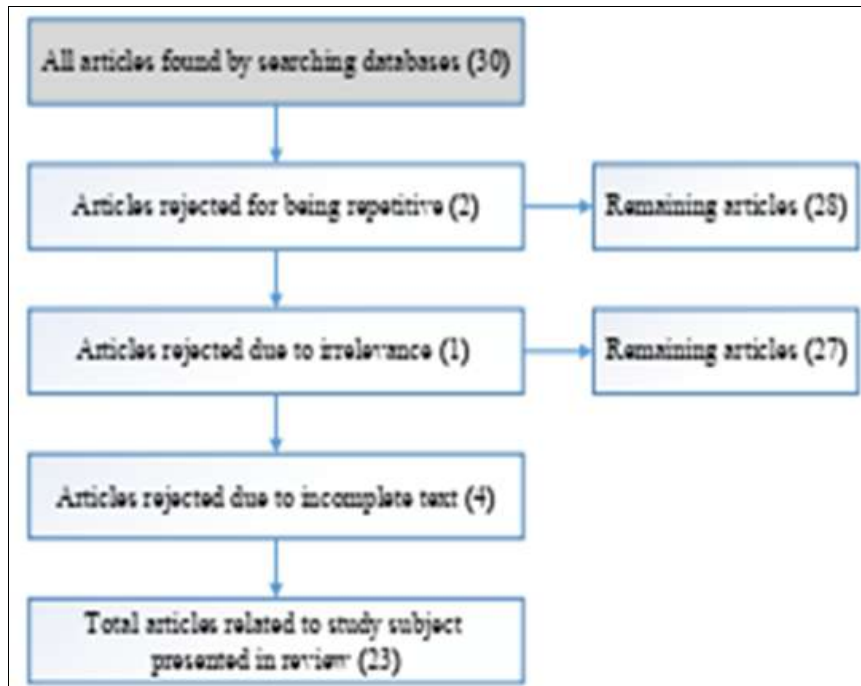


Fig 1: input and output diagram of primary studies to final synthesis

Table 1: Information on prevention of congenital anomalies

Study results	Sample size	Place	Study title	Year	Author
There is a relatively high incidence of NCD in children with CHD and inadequate knowledge of staff nurses of NCD in children with CHD	320	Buraydah,	Association of noncardiac defects (NCD) with CHD	2016	Femi Olufemi Jaiyesim
The need for research exists in the area of valganciclovir's impact on sensorineural hearing loss as well as potential vaccines to protect against CMV transmission. Research is also being conducted in the area of passive immunity via administration of CMV-specific hyperimmune globulin therapy to pregnant women diagnosed with a primary CMV infection	300	United state	Knowledge on congenital Cytomegalovirus	2016	Mestas E
Pre-maturity is a major risk factor found in this study. The study concluded that there is a lack of knowledge regarding congenital abnormalities of staff nurses.	3000	Wardha	Spectrum of congenital malformations in new borns from Rural Maharashtra at Mahatma Gandhi Institute of Medical Sciences, Wardha	2016	Chaturvedi P, Banerjee KS
The most frequent type of CHD was found to be VSD (40.47%) followed by ASD (19.06%), TOF(13.38%) and PDA (9.53%). It is clear that the maximum chds were detected in the first year of life when compared to the later years of life. It is an important disease which needs an immediate medical attention. It is one of the leading causes of mortality in the first year of life. The study concluded that inadequate knowledge of CHD	1000	Mysore	A study on Prevalence of heart diseases in Mysore	2016	Smitha
The prevalence rate was higher in age group 0-4 years & 5-9 years in boys whereas it was higher in adolescent age group. The study concluded lack of knowledge regarding CHD	11833	Dehli	A community based survey of CHD	2015	S.L. chadda
Out of 6985 patients, 3790 (54.3%) had CHD. 2386 (63%) of these cases had ASD, VSD and PDA. Among them 367 (15%) had pulmonary arterial hypertension of various grades. The results revealed that there is lack of knowledge.	6985	Banglore	Frequency of various CHD'.	2015	V.L. Suresh
A woman who has had one child with a neural tube defects such as spina bifida, have about a 3% risk to have another child	300	Russia	Multivitamin or folic acid supplementation	2015	Milunsky A

with a neural tube defects. This risk can be reduced to about 1% if the woman takes high doses (4 mg/day) of folic acid before and during pregnancy. Lack of folic acid is a contributing factor in the pathogenesis of neural tube defects			in early pregnancy reduces the prevalence of neural tube defects		
The possible risk factors found in this study are maternal age, parity, pre-maturity and consanguinity. The study concluded that there was inadequate knowledge regarding congenital abnormalities.	2409	Ballabharh, Haryana	Congenital malformations in live born infants in Rural Community, comprehensive Rural health project Hospital	2015	Kulshreshta R, Nath LM,
The study conclude that the knowledge of staff nurses regarding congenital orthopedic anomalies was inadequate.	100	Punjab	A study on the knowledge of congenital orthopaedic anomalies among staff nurses	2015	R. L. Mittal
Overall incidence – 3.7%.3.2% among live borns & 15.7 among 45 still borns.Musculoskeletal system – 9.69 per 1000 births,Cutaneous - 6.33 per 1000 births,Genito urinary – 5.47 per 1000 births,CNS – 3.99 per 1000 births,CVS – 2.03 per 1000 births.Incidence of malformation was significantly higher among male babies	12,797	Punde cherry	A prospective study Congenital Malformations at birth at Department of pediatrics JIPMER	2014	Vishnu Bhat B, Lokesh Babu
The incidence of severe CHD that will require expert cardiologic care is quite stable at about 2.5 to 3/1,000 live births. The moderately severe forms of CHD probably account for another 3 per 1,000 live births, although another 13/1,000 live births have Bicuspid aortic valves that will also eventually need cardiologic care. The majority of minor forms of CHD do not need specialized cardiologic care, and indeed many of these, such as the tiny VSD or ASD and the small PDA, may either close spontaneously or never cause medical problems.	62	Online review	A study designed to determine the reason for the variability of the incidence of CHD	2014	Julien I.E. Hoffman
Overall incidence-0.88%.37 babies had some anomalies. Central nervous system is commonly involved. Consanguinity had no much effect on incidence. Incidence of anomalies higher in mothers > 30 yr. The study concluded that the incidence of congenital abnormalities was higher in more than 30 years of age and lack of knowledge about congenital abnormalities.	4210	Sir S T hospital	A descriptive, crosssectional study of new borns and stillborn babies delivered at sir S T hospital	2014	Akruti parmar, Rathod SP
The study revealed that prevalence of congenital heart disease was more but knowledge of staff nurses regarding congenital heart disease and how to prevent the congenital heart disease was inadequate.	10,641	Kanpur	A study on knowledge and Prevalence of Congenital Heart Disease	2014	Rashmi Kapoor
The study revealed that knowledge of congenital malformations in rural children among staff nurses has insufficient	1371	Chandigarh	A study on knowledge of congenital malformations in rural children among staff nurses	2013	Kumar V
Eighteen percent of the parents failed to describe their child's malformation correctly. The study found that parental understanding of the heart defect correlated with parental education. Future prenatal diagnosis was considered by 88% of families, and termination of pregnancy by 40%. Only 40% of children were aware of their heart problem. Children of parents who were ignorant about the condition tended to lack knowledge themselves. 68% of Jewish families turn to non-medical personnel for medical advice.	74	Hadassah University Hospital	A study of knowledge on mothers of children with CHD.	2016	Maurit Beerl
It was found that the effectiveness of Structured Teaching Programme was improved than pretest	88	Netherland	A study on effectiveness of Structured Teaching Programme among staff nurses with congenital deficiencies in leg	2015	Boonstra
201 (98%) parents knew the correct name of their child cardiac condition, and 48 out of 50 (92%) knew the names of their child current medication. 113 out of 176 (64%) parents with at risk children were aware of measures to prevent endocarditic. It was concluded that though the parents knew the names & current medication of their child heart lesions the knowledge of endocarditic and BEP was limited. Therefore an intensified education and awareness programme are needed in order to prevent potential major morbidity & mortality for paediatric patient with CHD	205	Riyad	A study on parents of 205 patients attending the paediatric cardiology clinic at King Khalid University Hospital,	2014	Abdullah

Prospective study of 10,415 consecutive births. Incidence of NTD and CTEV was pre-dominant. Overall incidence of 4.42/1000 live births. Incidence decreases with increasing birth order and age of the mother. The study concluded that if provide the education programme regarding congenital abnormalities, decrease the risk of congenital abnormality. Therefore education programme regarding congenital abnormality was effective to improve the knowledge.	1,15,851	Calcutta and Malda.	Retrospective study and at 5 different hospitals in Calcutta in collaboration with human genetic unit, centre of advanced study, cell and chromosome research, Department of botany, university of Calcutta and Sardar Hospital	2013	Arati Roy Choudhury Madhumita Mukherjee
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Discussion

The maximum study shows that there was a lack of knowledge about congenital anomalies in different sample and different studies, Femi Olufemi Jaiyesim (2016) ^[1] conducted a study on knowledge association of noncardiac defects (NCD) with CHD, S.L. Chadda (2015) ^[5] a community based survey of congenital heart disease, Vishnu Bhat B, Lokesh Babu (2014) ^[10] a prospective study Congenital Malformations at birth at Department of pediatrics JIPMER, and Kumar V (2013) ^[14] all denote that there were inadequate knowledge among the sample.

Maurit Beeri (2016) ^[15] a study of knowledge on mothers of children with

CHD. Boonstra (2015) ^[16] a study on effectiveness of Structured Teaching Programme among staff nurses with congenital deficiencies in leg. Abdullah (2014) ^[17] a study on parents of 205 patients attending the paediatric cardiology clinic at King Khalid University Hospital, and Arati Roy Choudhury (2013) ^[18] Retrospective study and at 5 different hospitals in Calcutta in collaboration with human genetic unit, centre of advanced study, cell and chromosome research, Department of botany, university of Calcutta and Sardar Hospital, all study were reflected that structured teaching programme were effective on knowledge regarding prevention of congenital anomalies

Conclusion and Recommendations

By reviewing many studies the researcher conclude that there was a serious inadequacy of knowledge about congenital anomalies and structure teaching program make effective outcome for improve it.

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