

Cost of multiple pregnancy in developing countries

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Multiple pregnancy is becoming a National health problem in developing countries

- i. Assisted reproduction techniques going from IVF, GIFT, ZIFT or ICSI and related procedures are intended to make life better and also easier.
- ii. In the industrialized world, these techniques have been tested, more or less regulated and assessed.

Multiple pregnancy

In developing countries

- i. These techniques have spread without any control and we should think more of risks, and quality of life for beneficiaries of these techniques and their families.
- ii. In Lebanon, population is around 4 millions.
- iii. 6 medical Universities, and 4 University Hospitals, 3 being ruled by religious Christian or Moslem not appreciating or refusing those ART.
- iv. 65000 deliveries estimated in 2003.

In 2015

- a. 75000 deliveries are expected in 2015 in Lebanon.
- b. Bigger problem is that due to situation in Syria, 75000 Syrians and Palestinians children are to be delivered also in Lebanon in 2015.
- c. Most of these deliveries being done in rural and border areas in centers not equipped for this situation receiving up to 400 deliveries per month when they classically received not more than 50
- d. Situation leading to a high level of neonatal mortality and a higher level of psycho-motor delay due to mismanagement at birth and lack of equipment and bad quality of available equipment
- e. Almost 20 centers using ART techniques spread all over Lebanon.
- f. Almost none in a University Medical Center.
- g. Most of them without a NICU in same location.
- h. Only one available Mobile NICU available for transport in Lebanon rarely used.

Danger

- a. June 2000, we received from a referral hospital 3 newborns result of ICSI, 24 weeks of GA, weight between 600 and 750 gr.
- b. Cerebral US and MRI were performed. 3 babies had ventricular hemorrhage and leucomalacia. 3 babies lived and developed later cerebral palsy.



Figure 1 Social determinant of health.¹⁷

Fetal complications associated with multiple pregnancies

- a. Preterm deliveries ; Average length for a term is 39 weeks, 35 weeks for twins and 33 for triplets.
- b. Preterm occurs in 50% of twins and 90% of triplets.

Fetal complications associated with multiple pregnancies

- a. Multiple pregnancy has a fourfold increase in the rate of preterm deliveries and VLBW compared to single pregnancy.
- b. These babies are more likely to suffer serious lesions, lifelong health problems such as cerebral palsy and disability. Risk is 8 times > in twins and 47times > in triplets than in single pregnancy
- c. LBW more frequent in multiple. The lifelong disability is over 25% of babies weighing < 1 kg.
- d. Stillbirth rates and neonatal death rates is for a single <1%, for twins 4,7% and for triplets 8,3%.
- e. Birth defects are twice as common as single
- f. LBW more frequent in multiple. The lifelong disability is over 25% of babies weighing < 1 kg.
- g. Stillbirth rates and neonatal death rates is for a single <1%, for twins 4,7% and for triplets 8,3%.
- h. Birth defects are twice as common as single (Table 1).

Table 1 Fetal complications associated with multiple pregnancies

Weeks of pregnancy	23	24	25	26	27	28
Moderate to severe handicap	65%	33%	25%	20%	15%	<10%
Survival rate	15%	45%	60%	75%	80%	>90%

Costs of ART techniques

- i. Average cost for IVF series in USA is 12400 USD according to American Society for Reproductive Medicine.
- ii. In France average cost of IVF series plus delivery of one baby is estimated around 12876 Euros, double if twins...
- iii. In Lebanon average cost is around 2000 USD by series. Delivery being added depending if C/S or vaginal....

Health care cost

- I. According to Am Soc for Reprod. Med. Health care cost for delivery and newborn care for twins is four-fold higher when compared to singleton and twelve-fold higher for triplets.
- II. Cost of caring of children with lifelong disability is high.
- III. Cost for raising multiples is likely higher than cost of raising same number of single.

Costs for NICU

- A. In USA according to same sources, one day in NICU is 2000 USD, double it for a twin pregnancy or 3 times more for triplets.
- B. Average duration of stay for premature in NICU in USA is estimated between 40 to 70 days, estimated cost being between 80000 and 140000 USD per baby meaning average 200000 USD for twins and 300000USD for triplets.

Cost for NICU in Lebanon

- a. Estimated cost for one day in Lebanon for NICU is between 300 and 500 USD per day.
- b. There is no or almost no insurance policy covering preterm.

- c. NSS covers 165 USD per day and private hospitals which are not interested in losing money almost refused to admit those patients.
- d. Ministry of health covers babies in NICU with 200 USD per day but payments are done 2 or 3 years after exit of the patients which also is not a satisfaction for private hospitals.
- e. An average stay of 50 days would cost an average of 400 USD/ day , with 50 days represent around 20000 USD per stay for one baby, 40000 USD for twins and 60000 for triplets knowing that minimal salary in Lebanon is 300USD/month.

Costs for raising a child

- a. Costs for multiple pregnancy should include the potential need for surgery, specialized health care providers, surveillance for sight and hearing abnormalities, physical therapies for treatment related to developmental delay, learning difficulties, decreased motor skills, speech and language difficulties.
- b. Each hour of one therapy being between 30 and 50 USD in Lebanon.
- c. Monthly costs for a VLBW infants are estimated to be 3-60 times those of the average child during the first 3 years of life according to Keith and al.
- d. Moreover, these studies have indicated that the direct medical costs in the first year of life average 10139 USD for VLBW compared to 179 USD for control term infants.

Social costs of multiple pregnancy

- a. Many times the social cost is very high.
- b. Famous case is woman delivering quadruplets, 3 of the 4 children were severely handicapped.
- c. The husband left home.
- d. Mother and children were at public assistance because they had no money for food, diapers, renting apartment, clothes, medications...

Conclusion

- I. Researchers concluded that a high frequency of multiple births is the main factors that led to adverse outcomes not ART techniques itself.
- II. Worldwide trend to transfer fewer embryos (2) to reduce multiple gestations to have a better prognosis.
- III. A selective abortion can be performed but emotional scars of selective abortion is never forgotten by parents.
- IV. Infertility should be recognized as a disease and expenses for ART and Infants completely covered by insurance companies.
- V. ART should not be only for the rich able to pay but to everybody willing to have a child.
- VI. Ante-natal steroids have been proven safe and very efficient for preventing RDS, which means less mortality and morbidity, less Bronco-pulmonary dysplasia , less complications as cerebral palsy and conclusively a much lower cost for raising an infant and we should widespread the use of ante-natal steroids.
- VII. We should never forget that the purpose of ART is to give children to parents with fertility problems, but life should not be given at any price.

VIII. Bringing happiness to a family and make their dreams come true should not turn into a nightmare and a catastrophe.

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Conflicts of interest

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