

MIDTRIMESTER ABORTION WITH 20% HYPERTONIC SALINE ESTIMATION OF SERUM ELECTROLYTES

by

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Induction of abortion in midtrimester pregnancy with 20% hypertonic saline has become a widely used procedure in recent years with a considerable amount of success. Not much is known about variations in serum electrolytes after instillation, which might have a bearing on the complications or side effects which may emerge after this procedure. Only a few studies have been conducted for evaluation of electrolytes with conflicting observations (Wein-gold *et al*, 1965; Pathak, 1968; Anderson and Turnbull, 1968; Brewer *et al*, 1968; Kerenyi 1969; Esterling *et al*, 1972).

In this study, estimation of the electrolytes 6 hours and 24 hours after instillation of 20% hypertonic saline in varying amounts was done on 18 patients. The results have been compared with pre-instillation values.

Material and Methods

Twenty per cent hypertonic saline was instilled intraamniotically by the abdominal route in 18 cases under study. The cases having kidney, heart disease or with any medical disorder were excluded.

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The age ranged from 14-45 years. The duration of pregnancy was from 14-20 weeks. The quantity of saline instilled was between 50-180 cc depending upon the size of uterus with regard to the duration of pregnancy after careful amniocentesis. (Agarwal and Basu, 1979).

Estimation of sodium, potassium and chlorides was done before instillation, 6 and 24 hours after instillation of hypertonic saline. These values were statistically analysed using student differential 't' test.

Observations

All patients aborted successfully and spontaneously within 30-48 hours, mean interval being 36.0 hours. No complications were encountered. The values of sodium, potassium and chlorides pre and post instillation are recorded in (Table I). It can be seen that before instillation sodium ranged from 125-140 meq, potassium from 3.5-5 meq and chlorides from 90-100 meq per 100 cc of blood.

The mean sodium values at 0, 6 and 24 hours were determined to be 132.89, 131.72 and 134.00 meq respectively. The variations of sodium 0 and 6 hours and 0 and 24 hours were not statistically significant. The mean values for chloride contents 0, 6 and 24 hours were 95.11, 96.22 and 95.67 meq/100 cc. of blood respectively. These values were also

TABLE I
Pre- and Post Instillation Values of Sodium, Potassium and Chlorides

SODIUM CONTENT			POTASSIUM CONTENT			CHLORIDE CONTENT		
0 Hour	6 Hours	24 Hours	0 Hour	6 Hours	24 Hours	0 Hour	6 Hours	24 Hours
1	2	3	1	2	3	1	2	3
135	140	145	3.5	4.0	3.0	90	94	96
125	130	130	4.2	3.8	3.7	90	96	94
140	140	135	3.9	3.7	3.4	98	96	94
125	125	130	4.4	4.2	4.1	98	96	94
130	132	137	3.7	4.2	4.0	90	96	96
142	137	132	4.0	4.2	4.0	90	94	90
127	130	125	3.6	3.4	3.2	98	100	98
138	127	131	3.8	3.9	3.3	98	96	98
125	130	125	3.4	3.7	3.8	98	96	98
135	125	135	4.0	3.7	3.8	96	96	96
135	130	135	5.0	3.6	4.0	100	100	96
125	130	130	4.2	4.0	4.0	90	90	90
130	135	135	3.8	3.2	3.5	98	98	100
140	140	142	3.6	3.4	3.4	98	98	96
130	135	135	3.6	3.2	3.4	94	100	98
140	130	140	4.8	4.0	3.9	90	90	102
135	125	135	4.0	3.7	3.8	96	96	96
135	130	135	5.0	3.6	4.0	100	100	96

(1) Normal Value of Na = 136-148 meq. per 100 CC.

(2) Normal Value of Chloride = 95-105 meq. per 100 CC.

(3) Normal Value of Potassium = 3.8-5 meq. per 100 CC.

statistically not significant. Mean potassium values of 0, 6 and 24 hours were 4.03, 3.75 and 3.68 meq respectively. Potassium content was reduced from values of 4.03 ± 0.49 to 3.75 ± 0.32 at 6 hours to 3.68 ± 0.33 at 24 hours. The values between 0 and 6 hours were calculated to be statistically significant at 5% level (P value < 0.05), whereas the values between 0 and 24 hours were significant at 1% level (P value < 0.01).

Discussion

Since no complications were encountered, it appears that the method of induction is easy, safe and effective regardless the age of the patients, parity and duration of pregnancy. Our results on 18

cases show that there is no notable variation in serum electrolytes when 20% hypertonic saline is used after good selection of cases, careful amniocentesis and amount instilled is kept below 200 cc (Agarwal and Basu, 1979). Post-instillation values of sodium and chloride were not found to be different from pre-instillation values. This supports the observation of some previous workers who have also not found appreciable change in the values of the above electrolytes (Weingold *et al*, 1965; Pathak 1968; and Esterling *et al*, 1972). Pathak (1968) and Esterling *et al* (1972) have observed increased urinary excretion of sodium and chlorides but reduced potassium excretion following saline instillation with-

out a change in serum potassium level. Our finding on serum potassium indicates a steady decline over a period of 24 hours which was found to be statistically significant. The clinical significance of this remains unknown, since the reduction has not shown any adverse effect on our patients. Further studies may throw more light on this subject.

Brewer *et al* (1968); Anderson and Turnbull (1968) have reported increase in serum values of sodium, potassium and chlorides following intra-amniotic instillation of saline. They also claim that this increase is transitory and values return to normal after abortion. However, it appears that induction of abortions with 20% saline does not seriously alter the serum electrolytes. It is probably due to

speedy excretion by the kidneys. Body makes its own adjustments without being detrimental to the system.

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The mean value of Na⁺ is 138-140 mEq per 100 CC.
 The mean value of K⁺ is 3.5-4.0 mEq per 100 CC.
 The mean value of Cl⁻ is 95-100 mEq per 100 CC.

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