

FRUSEMIDE (LASIX) IN THE TREATMENT OF TOXAEMIA OF PREGNANCY AND PREMENSTRUAL TENSION

by

S. TANDON,* M.S. (Obst. & Gynec.)

The toxaemias of pregnancy are common complications of gestation occurring in 6-7% of all late pregnancies. They are one of the great triad of complications (haemorrhage, toxaemia and sepsis) responsible, for the majority of maternal deaths and themselves account for about 1/3rd of the maternal fatalities each year. Considerable advance has been made in prevention of toxaemia with resultant reduction in mortality as a result of good ante-natal care.

Abnormal weight gain is one of the earliest sign and a gain of more than two pounds in any one week should be looked upon with suspicion. The next important sign is a rise of blood pressure. Albuminuria is the last sign to appear. Headache, visual disturbances, epigastric pain and vomiting are signs of impending eclampsia. As we are not aware of the exact etiology, the symptomatic therapy consisting of sedation, salt restriction and diuretics form the back bone of treatment in toxaemias of pregnancy.

A short acting, very effective diuretic Frusemide (Lasix) related to thiazide and chlorthalidone, acts like them on Na and H₂O excretion though it is much more powerful. Potassium loss is about the same. It can be administered orally (40 mg tablet) or I/M or I/V. Action comes on quickly and lasts for about 4 hours.

Material and Methods

Present study was undertaken to evaluate the effect of short acting frusemide in toxaemias of pregnancy and premenstrual tension. For convenience, cases of toxaemia of pregnancy were divided into three groups.

1. *Mild pre-eclampsia*: This group included those patients showing hypertension upto 140/90 mm of Hg. with oedema or albuminuria of mild type.

2. *Severe pre-eclampsia*: This group comprised of patients showing hypertension above 140/90 mm of Hg., severe oedema or albuminuria, or both. Patients with blood pressure up to 140/90 mm of mercury but with severe oedema and albuminuria were also included in this group.

3. *Eclampsia*: The third group consisted of patients who went into eclamptic convulsions before, during or after confinement, labelled as pre-natal, intra-natal and post-natal eclampsia.

Frusemide was administered to 56 patients. Of these 30 cases were of mild pre-eclampsia, 9 cases of severe pre-eclampsia, 9 cases of eclampsia and 8 of premenstrual tension.

Patients suffering from toxaemias of pregnancy were hospitalised, while those suffering from premenstrual tension were treated as out door patients. On admission cases were examined in detail. Toxaemia chart (containing B.P., foetal heart rate, daily weight record, albuminuria and uri-

*Lecturer in Obstetrics and Gynaecology, G. S. V. M. Medical College, Kanpur.

Accepted for publication on 28-6-1975.

nary output) was maintained in each case. Urine examination, haemoglobin, blood urea, uric acid and serum Na, and K estimations were done in all patients. Urine analysis was done every day, blood urea, uric acid, serum Na and K levels were repeated at the end of trial.

Results and Observations

A. Pre-eclampsia: In cases of mild and severe pre-eclampsias the average weight loss in 10 days was 2 lbs although some patients lost more than 2 lbs. The average blood pressure which was 140/90 mm Hg. before commencement of therapy, settled down to an average of 120/80 mm of Hg by the tenth day.

Pretreatment blood urea level ranged between 19 to 26 mg per cent with an average of 21 mgm per cent, by tenth day it ranged between 18-22 mg per cent with an average of 20 mg per cent. The pretreatment blood uric acid ranged between 4.6-6.4 mgm per cent with an average of 5.2 mgm per cent, by tenth day it had fallen to 3.8 mgm per cent. The mean pretreatment serum Na level of 150 meq/litre had fallen to 142 meq/litre by tenth day; however fall in serum K was insignificant, 3.7 meq/litre to 3.5 meq/litre.

B. Eclampsia: There were 7 cases of antepartum and two cases of postpartum eclampsia. The blood pressure fell from the initial average of 180/100 mm Hg to 120/80 mm Hg by 10th day.

Blood urea ranged between 30-50 mgm per cent with an average of 40 mgm per cent. Blood uric acid ranged from 4.2 to 8 mgm per cent with an average of 6 mg per cent, serum Na level ranged from 140 to 150 meq/litre with an average of 148 meq/litre and serum K level ranged from 4-4.4 meq/litre with an average of 4.2 meq/litre.

Blood urea and uric acid came to normal, that is 20 mg per cent and 4 mgm per cent by 10th day. Serum Na level fell from 148 meq/litre to 140 meq/litre, serum K fell from 4.2 meq/litre to 3.6 meq/litre; 6 cases showed marked improvement.

C. Premenstrual Tension: Out of 8 cases treated, 4 had dramatic relief of their symptoms, while 2 cases were practically relieved and 2 cases showed no improvement. Except weakness no other adverse reactions were noticed in any of the patients.

Discussion

As we all agree that excessive weight gain and oedema is due to retention of sodium and water in blood, early cases of toxæmia dramatically respond to diuretics and sedatives. The diuretic of choice today is frusemide as it has a quick onset, the intensity of diuresis is directly proportional to the dose used and its relatively short duration of action does not inconvenience the patient.

In present series, out of 39 cases of pre-eclampsia, oedema improved in 31 (80%). Several authors Tanaka *et al* (1966), Wu *et al* (1966), Yuasa *et al* (1965), Phillips *et al* (1974) have reported elimination of oedema fluid in 70-100% of cases. Kanda *et al* (1966) reported average fall in body weight by 3.4 kg with 80 mg frusemide given in divided doses. Tanaka *et al*, 1966 found an average weight reduction of 2 kg. while Wa *et al* (1966) report a fall in body weight by 1.5 kg. In the present study the average weight lost was 1.5 kg.

In 42 cases out of 48 cases blood pressure was elevated. It improved in 34 cases (80%) within a week without the addition of any antihypertensive agents. This can be attributed to rest,

sedation and sodium and water elimination.

Albuminuria was present in 8 cases. In 2 cases (25%) it cleared up together with improvement in biochemical findings. Phillips *et al* (1974) reported improvement in albuminuria in 9 cases out of 10. Yuasa *et al* (1965) and Kanda *et al* (1966) did not find any improvement in albuminuria in their cases.

There was a definite fall in serum Na, blood urea and uric acid level, while there was no change in serum K level. Our findings are in agreement with Decco (1965) and Phillips (1974).

Nine cases of eclampsia were treated successfully. Pregnancy had to be terminated in all the cases of prenatal eclampsia. Phillips *et al* (1974) treated all cases of eclampsia and managed all cases of medical treatment without having to terminate pregnancy. Wu *et al* (1966) treated 2 cases of eclampsia with frusemide with satisfactory results.

In premenstrual tension in most of the cases psychoneurosis plays a part. In some cases there is definite sodium retention and increase in extracellular body fluid, probably the result of excess of oestrogens. These women may gain as much as 4-5 lbs, Jeffcote (1962). In such cases diuretics have a definite place in the treatment schedule, and give a dramatic relief in the symptoms. In our series 4 out of 8 patients had dramatic relief but the drug has to be administered in every menstrual cycle.

Summary

In present study 38 cases of pre-eclampsia were treated with sedation, diuretics (frusemide) and rest. Oedema improved in 80% cases. Blood pressure came to normal in 80% cases within a week. Albuminuria cleared up in 25% of cases. There was distinct fall in serum Na, blood urea, uric acid levels by 10th day, while serum K levels were hardly altered.

All 9 cases of eclampsia showed improvement but in all 7 cases of prenatal eclampsia pregnancy was terminated.

Out of 8 cases treated for premenstrual tension 4 i.e. (50%) had dramatic relief of their symptoms while 2 cases were partially relieved and 2 cases showed no improvement.

References

1. Dececco, L.: *Minerva Medica*. 56: 6, 1965.
2. Jeffcote, T. N. A.: *Principles of gynaecology*, Ed. 2, London, 1962. Butterworth & Co., P. 23.
3. Kanda, N., Sanka to Pujinka (*Obstetrics & Gynaecology*), 41: 1541, 1966.
4. Phillips, C.: *J. Obst. & Gynec. India*. 24: 138, 1974.
5. Ratnam, S. S., Siva Samboo, R., Lean, T. H. Tiat, Ch. H., Sidhu, M. S. and Dick, Ch. K.: *Bull. Kandang Kerbau Hospital. Singapore*. 5: 52, 1966.
6. Tanka, T.: *Sanko to Fujinka (Obstetrics & Gynaecology)*. 41: 914, 1966.
7. Yuasa, M.: *Shenryo to shin Yaku (Treatment & New Drugs)*. 2: 123, 1965.
8. Wus, C., Lee, T. and Kao, S.: *J. Obst. & Gynec. of Republic of China*. 5: 318, 1966.