OBSTETRICS IN GENERAL PRACTICE

Equipment for Domiciliary Obstetrics

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A general practitioner's equipment for domiciliary obstetrics can be grouped under three headings—furniture, instruments, and drugs. The range of equipment carried will depend on local conditions, such as the distance to the nearest hospital maternity unit, and also on the availability of obstetric and neonatal Flying Squads, and of facilities such as a sterile syringe service. The choice of drugs and the type of instruments to be carried will depend partly on the doctor's experience and judgment. It is not suggested that every general-practitioner obstetrician should carry everything listed below. On the other hand stethoscope and sphygmomanometer are not listed because they are carried for other purposes anyway. Yet although the same is true of some drugs, these *are* listed here because most doctors find it more convenient to keep a separate supply in their midwifery bag.

The doctor should not rely for some equipment (e.g., cord ligatures, catheters) on the unfailing attendance of the midwife. Sooner or later he will be called out to see a woman because of abdominal pain only to find the foetal head awaiting him on the perineum. It is for this reason that, for example, a small trichlorethylene inhaler is included.

Many of the items listed (those not marked by an asterisk) will not be discussed further in this article because their place and use are the subject of other contributions to this series—for example, general anaesthesia, forceps delivery, use of oxytocics. The emphasis will be on the increasing range of presterilized disposable articles (listed in *italics*) and on equipment with which some general practitioners may not be familiar.

List of Obstetric Equipment

Furniture

1. *Two *transfusion sets* with bottle of fluid for infusion.
2. *Portable light.
3. *Obstetric helper or portable lithotomy table.
4. *Sparklets infant oxygen resuscitator.
5. *Trilene inhaler.
6. *Midwifery bag containing: sterilizer; instruments; drugs; two bottles for blood samples; plastic or nylon apron; *face masks*.

Instruments

1. Operative: artery forceps, two large and two small; scissors; toothed dissecting-forceps; needleholder; *Hamilton's hook or Kocher's forceps or *Gelder's forceps (to puncture forewaters); light obstetric forceps; specula—Sims's or Coldlite; *Collins's self-retaining.

2. *Sutures: *catgut 0 or 1 (with needle attached)*; *nylon or braided silk (with needle attached)*.

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3. *Needles: Gordh or adaptor; suture; *hypodermic*; 3 in. (7.6 cm.) 19 G. for pudendal block.

4. *Syringes: 2 ml., 5 ml., 10 ml., 20 ml.

5. *Gloves: two pairs rubber; *polythene gloves*; *polythene two-finger stalls with skirt*.

6. *Catheters: 14 F.G. *plastic*.

7. For anaesthesia: mask; mouth gag; tongue forceps; drip bottle; airway.

8. For urine testing: for albumin (*Albustix*); sugar (*Clinistix*); acetone (*Acetest*); bile (*Icotest*); phenylketonuria (*Phenistix*).

9. For baby: **cotton tapes or plastic clamps*; infant airway; **mucus catheter*; low-temperature thermometer; **icterometer*.

Drugs

1. General anaesthetics.
2. Local anaesthetic: 1% or $\frac{1}{2}$ % lignocaine.
3. Oxytocic ampoules: ergometrine; Syntometrine (ergometrine and synthetic oxytocin).
4. Stimulant ampoules: adrenaline; nikethamide; Methedrine (methylamphetamine); Lethidrone (nalorphine).
5. Sedative ampoules (for (pre-) eclampsia): paraldehyde 5 ml.; phenobarbitone 3 gr. (180 mg.).
6. Analgesic ampoules: pethidine 100 mg.; pethidine 100 mg. with hyoscine 0.4 mg.; Pethilorfan (pethidine and levallorphan) 100 mg.; Omnopon 20 mg. with scopolamine 0.4 mg.; morphine 15 mg.; atropine 0.6 mg.
7. Analgesic tablets: barbiturates; ? tranquillizers.
8. Obstetric antiseptic cream.
9. Evacuant suppositories.

Furniture

Transfusion Sets. Carrying two of these is a partial insurance against forgetting to replace a used set; and against an unsuccessful first attempt at setting up an intravenous infusion rendering one drip set unserviceable.

The type of fluid to be carried may be debated. If every general practitioner practising obstetrics were to carry plasma, an enormous amount of that commodity would be immobilized and a large proportion perhaps never used before expiry date. Dextran may render subsequent blood grouping and cross-matching difficult, and is suspect by some as a possible aggravating factor in hypofibrinogenaemia. For general purposes, therefore—to tide the patient over and keep a vein open until more appropriate fluid can be given, either at home by the Flying Squad or in hospital—isotonic glucose saline may be the best choice.

In any case, before transfusing, some blood should be taken off into a small "universal" 10 ml. glass bottle for grouping and cross-matching. The same type of bottle is carried to collect cord blood when the mother is known to be rhesus-negative.

A **Gordh needle or adaptor** (Fig. 1) is useful for enabling access to a vein to be maintained for short intervals between injections—for example, if the first bottle of fluid infused is finished before another is available; or between giving atropine pre-medication before anaesthesia for manual removal of the placenta and injecting ergometrine at the conclusion of the operation. The Gordh needle is available with either Luer or Record end.

FIG. 1.—Gordh needle and Gordh adaptor.

A **portable light** is a necessity. Some favour the miner's headlamp type, but the flat-iron type (e.g., the Ever Ready Space Beam, or Hunter Lantern—weight $2\frac{1}{2}$ lb. (1.1 kg.))—has the advantage of being useful for other purposes, such as finding the right house. Batteries should be leak-proof. And while considering lighting, it is useful to keep a spare shilling or two in the midwifery bag.

A **portable lithotomy table** is easier to handle and more satisfactory to use than the collection of web strapping often

FIG. 2.—The Chester portable lithotomy table. (From *Brit. med. J.*, 1964, 2, 109.)

known as the "obstetric helper." Handfield-Jones¹ and Goodman² have described lithotomy stands which can be assembled in the home. A simpler and much lighter ($8\frac{1}{2}$ lb.—3.9 kg.) contrivance has recently been described (Fig. 2).³

A **Sparklets Infant Oxygen Resuscitator** is now part of the standard equipment of the district midwife in some areas, but

the doctor may prefer to carry his own. It weighs $6\frac{1}{2}$ lb. (2.9 kg.). The standard fitting has a face funnel, but an adaptor for fine Jacques's catheters, and the catheters, can be bought as extras.

A **Trilene inhaler** is also usually part of the midwife's equipment, but the doctor may consider it wise to carry his own. The Cyprane model weighs $1\frac{1}{4}$ lb. (0.6 kg.).

The **midwifery bag** comes in a variety of shapes and sizes. It should have a washable lining and a stay-open top and contain a portable sterilizer. In addition to instruments, drugs, and face masks, it should contain a waterproof apron long enough to protect the trouser cuffs and shoes.

The instruments can be kept unsterilized in the sterilizer, or stored in a metal box which can be sterilized at home in a domestic oven. A bag $19 \times 8 \times 10$ in. ($48 \times 20 \times 25$ cm.) with full contents weighs about 20 lb. (9 kg.).

Instruments

Hamilton's hook (Fig. 3), probably less well known than it should be outside the Liverpool area where it originated, is a useful and inexpensive instrument for puncturing the forewaters. It weighs only 2 oz. (56 g.). An alternative is Gelder's amniotomy forceps (Fig. 4),⁴ but this is much more costly.

FIG. 3.—Hamilton's hook.

FIG. 4.—Gelder's amniotomy forceps. (From *Brit. med. J.*, 1964, 1, 422.)

Collins's speculum resembles a large "sugar-tongs" nasal self-retaining speculum. Its use enables a clear view to be obtained when inserting stitches into the posterior wall of the vagina. As, however, it puts the tissues on the stretch, such sutures should all be inserted with the speculum in position, but not tied until the speculum has been removed.

Sutures. It is most convenient to use double-foil packed, presterilized lengths of 0 or 1 catgut and preferably, to save time and trouble, those with needle attached. Nylon and braided silk are available in similar packages. The disadvantage of the attached needle is that it may not be robust enough for the average needleholder. Care is necessary to avoid bending or breaking the needle. In particular the needle on the nylon thread would be more acceptable if stouter and of greater radius.

Syringes and Needles. If a sterile syringe service is not available, the best choice may be presterilized disposable syringes for 2 ml. and 5 ml., and boilable nylon syringes for 10 ml. and 20 ml.

For paraldehyde injections, however, it is safest to use a glass syringe, because disposable syringes made from polystyrene and polymethyl methacrylate react with paraldehyde and only those made from polypropylene—for example, Steristar—are safe for this purpose.

Disposable presterilized hypodermic needles are available in strip form, but a 2-ml. plastic syringe is obtainable with needle attached.

Cord Ligatures. Sterile cotton tapes are available in tubes, each tube containing three tapes. The tubes will probably soon be replaced by foil packs.

Disposable plastic cord clamps (Fig. 5) were introduced by Kariher and Smith⁵ in the U.S.A. Their "Hollister clamp," 5.5 cm. in length and 2.5 g. in weight, is sterilized by auto-

FIG. 5.—Hollister clamp for umbilical cord.

FIG. 6.—Hollister cord clamp *in situ*.

claving. In this country prepacked sterile clamps are available—for example, the Navel Clamp (Henley's) and the "Steri-Clamp" (Creighton). The clamp can be removed any time after 12 hours by cutting through the hinge end by a special clipper, or can be left on till the cord stump separates (Fig. 6). The advantage of the clamp over tape is that it insures against shrinkage of the cord allowing the ligature to become loose.

Mucus Catheter. The Macrae presterilized double-packed disposable mucus extractor⁶ consists of a disposable whistle-tip 7 E.G. rubber catheter, plastic mucus trap, rubber connexion, and plastic mouthpiece with a pipestem end (Fig. 7). A completely plastic presterilized mucus extractor (Johnson) is satis-

factory and less expensive, but would be better with a larger capacity mucus trap.

The Icterometer (Fig. 8) is a simple but useful device made of perspex for assessing the degree of neonatal jaundice and thereby recording whether it is deepening or fading.⁷

FIG. 7.—Macrae disposable mucus extractor.

FIG. 8.—Icterometer.

Drugs

Local Anaesthetic. Lignocaine $\frac{1}{2}\%$ or 1% solution is suitable for local infiltration and pudendal block. If ampoules of 10 ml. and bottles of 20 ml. are carried, waste can be minimized. Adding hyalase and adrenaline to the solution adds little if anything to effectiveness and slightly increases the chances of a reaction.

Suggestions

In conclusion, three constructive suggestions are offered. The first is that there should be added to the standard maternity pack, supplied by the local health authority and deposited in the home by the midwife, an extra package containing the following presterilized disposable articles: 1 plastic catheter, 1 2-ml. syringe with needle, 2 plastic cord clamps, 1 mucus

catheter. This would add about 5s. to the cost of each maternity pack.

Secondly, the general-practitioner obstetrician should be encouraged to make full use of time-saving presterilized disposable equipment by being allowed to prescribe such articles for a specific patient on an E.C. 10.

Thirdly, in some areas, just as he has open access to hospital x-ray and laboratory services, the general practitioner can, without charge, use the hospital syringe service and first obtain and later replace transfusion equipment. These facilities are presumably made available by local arrangement between hospital management committee and N.H.S. executive council. If so, such commendable liaison should be extended to all areas.

I have been greatly helped by discussions with general practitioners M. Goodman (Liverpool), R. W. Attwood, B. A. Thompson, and V. Tonge (Chester), C. R. Kay (Didsbury), and D. A. P. Cooke (Ellesmere Port). I am indebted to Dr. Cooke for the photographs for some of the illustrations; and to Mr. J. G. Roberts, Ph.C., M.P.S., group pharmacist, Chester Hospitals, for much information regarding drugs and instruments.

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TO-DAY'S DRUGS

Guanoclor

This new antihypertensive drug is marketed by Harvey Pharmaceuticals under the trade name of Vatenol. It has been reported to have both enzyme inhibitory (dopamine β oxidase) and adrenergic neurone blocking properties.

Chemistry

Guanoclor is an amino-guanidine compound, [(2-(2,6-dichlorphenoxy) ethyl) amino] guanidine sulphate. Its structural formula is shown below.

Pharmacology

In animal experiments Vatenol has been shown to have the following actions: (a) adrenergic blockade, (b) amine depletion, (c) enzyme inhibition—blocking the conversion of dopamine to noradrenaline, (d) other antihypertensive actions such as a reduction of the tyramine pressor response.

In humans the mechanisms by which it reduces blood-pressure are not yet fully understood, but clinical results suggest that there are at least two actions—(1) adrenergic blockade, (2) inhibition of dopamine β oxidase activity. It is not known whether the first is due to interference with the synthesis, storage, or release of the transmitter at the nerve endings. In single doses the drug begins to produce a fall in blood-pressure in three to four hours. This reaches a maximum in six to eight hours and lasts approximately 12 hours.

Clinical Use

Guanoclor has been shown to produce a satisfactory fall in blood-pressure in 79% of those patients treated in hospital and 74% of those treated as out-patients. About 40% of the patients in each of these categories required the addition of the thiazide diuretic polythiazide to achieve this control. All of these patients (200) had a resting diastolic blood-pressure above 120 mm. of mercury.¹

It seems to be effective in various types of hypertension (unknown aetiology, renal, and malignant). It affects both systolic blood-pressure and diastolic blood-pressure. Although it reduces pressures when patients are recumbent, it is more effective when they are standing.

Satisfactory results have been obtained in about 45% of patients who have not responded to other forms of hypotensive therapy—guanethidine or α methyl dopa—and the addition of a thiazide diuretic raised the percentage of satisfactory results to 75%. So far no data are available on the effectiveness of guanethidine or α methyl dopa on these patients who did not respond to Vatenol therapy.

Dosage

A satisfactory regimen is as follows:—*In-patients*: An initial dose of 10 mg. b.d., increasing by increments of 10 mg. every second or third day until a satisfactory response is obtained. *Out-patients*: An initial dose of 5 mg., increasing by 5–10 mg. at intervals of not less than three days until a dose of 20 mg. b.d. has been reached. Thereafter the dose may be increased by 10 mg. b.d. The average daily dose has been found to be in the region of 75–80 mg., but may vary between 10–200 mg. Dosage must be adjusted to individual needs. If satisfactory control of blood-pressure has not been obtained or side-effects are proving troublesome, a thiazide diuretic should be tried—for example, polythiazide, 1 mg. thrice weekly. In such cases it is desirable to halve the dose of guanoclor before adding the thiazide. In severe hypertension it is desirable to start with combined guanoclor and thiazide therapy.

Side-effects

Side-effects are not infrequent but have not as yet proved unduly troublesome. To date no deleterious effects on cardiac or renal function have been shown. The possibility that amine depletion of the heart might have an adverse effect on cardiac efficiency in some cases of hypertension must be kept in mind. Blood urea has been shown to rise in a small proportion of cases, but the patients did not appear to be affected by this. Creatinine clearance values may rise slightly, remain steady, or fall slightly on guanoclor therapy.

So far no case of fluid retention has been shown to occur. Blood-volume studies in a small series of cases, using R.I.S.A., have shown no change in plasma volume before and during