Clinical Topics

How to take blood from patients who have hepatitis B

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Junior medical staff are often advised to "be careful" and to "take care" when taking blood from patients with hepatitis B or from carriers of the hepatitis B virus. Unfortunately, such advice is rarely more specific and no doubt usually causes more worry than reassurance. Additionally, it should not be forgotten that many patients may be unsuspected carriers of the hepatitis B virus, and "routine" bloodletting can never be considered to be entirely without risk of hepatitis B infection.

As there is a surprising lack of specific advice I have given the problem of safe bloodletting much thought, and I think the following scheme the most sensible approach. Nevertheless, I would welcome both constructive and other comments on my suggestions.

Preparation

(1) Complete the blood forms indicating clearly whether the patient is, or may be, hepatitis B virus positive and attach a

"danger of infection" label. Label all the blood bottles and calculate exactly how much blood has to be taken.

(2) Place on a disposable tray a single syringe large enough to take all the blood required, the needle, a venepuncture swab, the labelled blood bottles, a pair of disposable gloves, an extra glove, a piece of cotton-wool or gauze that has been drawn out into a watering shape, and an opened specimen bottle with a screw top (fig 1).

(3) Obtain a suitable two-pocket self-sealing polyethylene bag and insert the blood forms into the outer pocket. Attach a danger of infection sticker to the polyethylene bag.

(4) Leave the polyethylene bag(s) in an adjacent uncontaminated position with the inner pocket gaping so that blood bottles may be inserted directly without touching the outside or entrance of the bag.

(5) Gown up* and put on the pair of disposable gloves.

(6) Place a disposable paper towel beneath the venepuncture site—which should preferably be in the antecubital fossa. Place the drawn-out cotton-wool on the patient's skin one to two inches (2-5 cm) distal to the venepuncture site and at right angles to the anticipated axis of the needle.

FIG 1—Arrangement of disposable tray.

*A gowning procedure is detailed in the *Code of practice for the prevention of infection in clinical laboratories and post-mortem rooms*.¹ It is a moot point whether such recommendations should apply on the wards.

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Venepuncture

(7) Swab the puncture site and perform the venepuncture (fig 2).

(8) After taking *only the exact amount of blood required*, release the tourniquet (if one was used it should be disposable), slide the shaped cotton-wool (or gauze) beneath the needle,

FIG 2—Position of arm for the venepuncture.

advancing it until it encircles the needle at the site of venepuncture (fig 3). Pinch the ends of the cotton-wool together while pressing gently downwards on the skin.

FIG 3—Withdrawal of the needle from the arm.

FIG 4—Withdrawal of syringe from the bottle.

(9) Withdraw the syringe and needle while exerting very slight withdrawal traction on the syringe plunger (so that blood will not drip from the end of the needle): the cotton-wool will dry the needle tip and immediately prevent any blood spillage from the venepuncture site. Then ask the patient to flex the elbow to compress the cotton-wool. Never use an antiseptic swab after venepuncture—the antiseptic will sting the patient and the swab invariably becomes bloodstained.

After venepuncture

(10) After sucking any remaining blood from the needle into the syringe, put the plastic needle sheath over the needle and remove the unsheathed needle from the syringe, placing them into the specimen bottle.

(11) *Slowly* fill the blood bottles (to prevent foaming) and, before taking the end of the syringe out of each bottle, touch the inner surface of the bottle with the syringe tip (so that any terminal drips enter the bottle). Then withdraw the syringe from

the bottle, again exerting slight traction on the plunger (fig 4). If the syringe has to be set down between filling blood bottles arrange for the tip to be in the entrance of the specimen bottle on the tray.

(12) Screw on the top of each blood bottle immediately after it has been filled.

(13) Place each bottle into the appropriate gaping polyethylene bag.

(14) Retrieve the cotton-wool and place it on the tray. Screw on the specimen bottletop.

(15) Remove the pair of gloves and gown. Wash your hands and, using the remaining disposable glove, dispose of the tray plus contents into the appropriate receptacles followed by the glove itself.

(16) Return to collect and close the self-sealing polyethylene bags, *touching them only on the outside*.

(17) The polyethylene bags should be placed within a further polyethylene bag or appropriate transport container. The outer polyethylene bag(s) should be sealed with sellotape *never with staples* (which would not prevent leakage and which might puncture skin).

Although this account is rather long, in practice the whole procedure takes less than five minutes. A simplified version serves for routine bloodletting. Using this technique I have eliminated blood spills and have remained negative for hepatitis B surface antigen and antibody despite occupational exposure to many patients with hepatitis B.

The above suggestions are my personal practice and do not necessarily represent the policy of any particular hospital.

Reference

¹ *Code of practice for the prevention of infection in clinical laboratories and post-mortem rooms*. London: HMSO, 1978. (Howie Report).

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A woman patient has been found to have only one kidney, a defect her father also had. What investigation, if any, should be carried out and what health precautions should she take?

A single kidney without previous surgery but due to congenital absence is not very rare (1 in 1250). A familial history is not common, probably because relatives have never had the absence of a kidney noted, as solitary kidneys are unlikely to be diagnosed in life without urography. The family history in this patient makes congenital absence of the other kidney probable, but it would be wise to confirm this. The other kidney may not have been noted due to disease, and cystoscopy to confirm absence of a ureteric orifice is the simplest definitive test; if a ureteric orifice is seen either renal scanning or retrograde pyelography, or both, is indicated. If these confirm the diagnosis, with urine analysis and a simple renal function test such as a blood urea and creatinine normal, no other action is needed by either doctor or patient. The ultracautious individual might choose to wear a "Medic-Alert" pendant or brooch with the defect registered by that organisation, making it less likely that the single kidney is removed after damage in an accident. This should not happen as preoperative demonstration of two kidneys should be routine whenever nephrectomy is contemplated. Kidney failure will not develop significantly earlier with one kidney than with two (the mathematics of which is an interesting exercise), and surgically treatable structural disorders are now often successfully dealt with by autotransplantation—the removal of a kidney, surgical repair or removal of defect or tumour, and reimplantation as if it were a donated kidney. These possibilities are statistically remote and present a real problem to nephrologists and urologists only once or twice in their career.

*Medic-Alert: Medic-Alert Foundation, 9 Hanover Street, London W1R 9HF.