

## Letters to the Editor

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Multiple choice questions in Sudan Medical Schools: Teachers views.

Sir,

Multiple choice questions (MCQs) examinations are well established and widely used in a large number of medical schools. Multiple choice questions are considered to be the most objective, and valid tool for student evaluation.<sup>1</sup> Reasons of popularity of MCQs among medical teachers include their ability to test factual recall, interpretation of sets of data and problem solving.<sup>1</sup> Also MCQs test a wide area of knowledge and are of easy and objective scoring. With the rapid growth of medical schools in Sudan during the last 5 years our great concern is to achieve at least acceptable standards of student performance. Examinations are important tools for assessment of these standards. In our situation (many schools, large numbers of students, shortage of staff) MCQs seem a rather practical and even economic means of assessment. In this letter we will discuss the views of teachers on MCQs as an efficient assessment tool in different medical schools in Sudan.

The authors asked 60 medical teachers (lecturers, assistant and associate professors) of different subjects (preclinical and clinical) to address the following points in their replies: 1. The source of MCQs in the teacher's department. 2. To list the problems each teacher encounters regarding the MCQs as an assessment tool. 3. If the teacher thinks that MCQs can obviate the need for the traditional essay questions. 4. The authors sent unheaded MCQs papers of previous examinations to the teachers to comment on the construction of the question.

The authors received replies from 52 teachers. The MCQs are usually (50%) prepared by the head of the department after collecting questions from every member. Some departments tended to depend on material from other schools. Few departments (10%) had regular meetings to discuss the MCQs construction and to update their question banks before examinations. There is an agreement for the need for the traditional essays as well as the MCQs in our evaluation system (70%). Problems of MCQs construction included improper wording, difficulty in writing 5 proper items in certain topics, use of confusing figures in laboratory investigations, misprinting and weak grammatical structures. Problems other than construction included destroyed secrecy of MCQs stores, poor answering techniques and cheating. The major problem of the MCQ construction is the improper wording. Terms like 'always', 'invariable', or 'never' should be avoided totally, as the correct answer here is almost always the false response. Even without reading the items

the student will score at least 90% by answering 'false' to such questions. Ambiguous MCQs are a rich source of complaints among students. Inclusion of more information will render the questions more specific and less ambiguous. Instead of asking 'the common causes of shortness of breath are...' why not add 'in a young girl of 19 years', or 'in a man of 75 years'? Some teachers complain that they discard some important topics from the MCQs paper as they find it difficult to write 5 well constructed items for such topics. Sometimes they are obliged to add 2 or 3 poorly constructed items. In reality each item (of the 5) is a single separable question, and there is no reason to group them always in 5. We should encourage using MCQs of 2 or 3 items to solve such a problem. Some minor issues regarding construction need addressing. We need to quote both 'mg' and 'SI' units (they are both used in Sudan). Use of figures is to be, in general, discouraged; if needed in some situations we should give a wide range of percentages or fractions. Use of negatives is a source of unnecessary confusion. There is a feeling, among our teachers for the need for continuity of essay questions in conjunction with the MCQs. Abilities like organization of ideas, self expression and reasoning skills are better tested by essay questions than MCQs.<sup>2</sup> Currently in Sudan there is a decline in the student standards of English language. We advocate this as a strong cause for the continuity of essay questions in our examinations. We agree that medical schools are not language schools, but every doctor is expected for example, to write a clear report about his patients or even a job application! We suggest modification of the traditional essays by provision of cues because they may lead to improvement of the student performance.<sup>3</sup>

Some MCQs problems are student-related. Cheating is a poorly studied real problem in our schools. In MCQs paper the cheating (copying from a nearby student) is easier than the essay paper, and is made more possible in a setting of crowded examination rooms like ours. Some students use poor techniques in answering the MCQs. Our students are not usually rehearsed to deal with such questions. Failure to appreciate the relationship between knowledge and the answering techniques may significantly affect the candidates performance in the examination.<sup>4</sup> Some students tend to smuggle copies of the question papers out of the examination room, or memorize the questions immediately after the session. Thus the secrecy of the examination question store will be destroyed. The situation is worse in the schools which depend on MCQs banks that are used repeatedly without updating or even rewording for years. The authors do not advocate the strict secrecy of the MCQs since it keeps questions

limited in number, and thus the object of the examination will be lost.<sup>5</sup> The writing of well constructed MCQs is not an easy task especially for the hurried or unskilled examiner. Nothing frustrates the examinee more than the badly constructed MCQs. The examiners should meet before the examination to confirm the topics, number, contents, construction, relevance, variability and answers of the questions. A guideline on MCQs construction should be provided especially to the inexperienced. Even the most experienced can sometimes write questions containing ambiguities and only the others will notice. After the examination, the concerned department should obtain critical views on the construction of the questions from both teachers and students. Above all, the objectivity and efficiency of MCQs as an assessment tool remains beyond doubt.

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Necrotizing fasciitis of abdominal wall after cesarean section.

Sir,

This report discusses a rare case of necrotizing fasciitis which complicated the healing of post cesarean section wound. A 20 year old primipara Omani woman underwent emergency cesarean section for cephalopelvic disproportion. Laparotomy was performed through a Pfannestiel incision. On day 2 after surgery, she developed a fever, which reached 39.5°C and was complaining of pain around the

wound. She was put on antibiotics: Cefotaxime and Metronidazole. On the following day she was still pyrexial. Clinical examination revealed severe wound induration and tachycardia of 100/min. The uterus was well contracted, cervix was closed, lochia normal. Ultrasound examination did not show any abnormalities. Blood culture and HIV were negative. Because her hemoglobin had dropped from 10.6g/dl to 7.9g/dl, she was transfused with 2 units of packed cells. She was complaining of lower abdominal pain and remained pyrexial but stable for the next few days. Wound induration seemed to decrease. On day 7 after surgery she deteriorated, became dull and looked very sick. Her temperature rose again to 39.5°C, pulse rate was 120/min, blood pressure 100/60 mmHg. Uterus was still well contracted. The area around the wound was exquisitely tender and swollen, but there was no fluctuation. Skin looked slightly inflamed. Ultrasound examination detected a collection of fluid 5 cm x 3 cm x 1 cm in the abdominal wall.

The patient was taken to the theater for wound debridement. Operation revealed necrotizing fasciitis and myonecrosis of the rectus abdominis muscle. The wound was aggressively debrided, the muscle partially resected. Histopathology result confirmed the clinical diagnosis and culture isolated from the tissue grew *Pseudomonas aeruginosa*. After the surgery the patient was transferred to the intensive care unit and intravenous antibiotics, Meropenem and Amikacin were commenced. The patient remained pyrexial for the next 2 days, but then she stabilized and made a good recovery. She was discharged on day 12 post re-operation. The case illustrates the diagnostic difficulties with necrotizing fasciitis. Wound induration is relatively common after cesarean section, but usually it well responds to conservative treatment. The medical team caring for the patient is often reassured that this conservative treatment will be successful, but it is essential to make the decision about exploration and surgical debridement "right on time". It is well proven that early and radical surgical treatment is the most important factor affecting outcome of this life threatening illness.<sup>1</sup> Our patient was a previously well individual, with no risk factors, so we cannot explain why she has developed such a fulminant illness. *Pseudomonas aeruginosa* is also very uncommonly cultured from the wounds affected by necrotizing fasciitis, which makes our case even more unique.<sup>2,3</sup>

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A clinico-dosimetric characteristic of radiotherapy in patients with early stages of breast cancer.

Sir,

In the last 2 decades, much ground was gained by the principle of conservative treatment for patients with early stages of breast cancer. The use of radical resection with post-operative irradiation preserves the breast, diminishes the number of local recurrences of a tumor without altering the 5-10 year survival of the patients.

We studied the results of postoperative radiotherapy in 266 patients who were treated at the Cancer Research Center of the Russian Academy of Medical Sciences in 1989-1995. The women were from 28 to 73 years old, averaging 47. The first stage was determined in 37% of the patients, and the second (A and B) in 63%. Axillary lymph nodes were revealed in 104 patients (39%) while in 66 patients (25%) the primary tumor was in the internal or central parts of the breast. The last 2 factors underlined the indications for including the relevant regions (parasternal, supraclavicular, infraclavicular, axillary) into the volume of irradiation.

Radiotherapy was begun on average 20 days after radical resection and thorough morphological analysis of the removed breast segment, lymph nodes, and fatty cellular tissue, with the determination in most patients of receptors of estrogens and progesterone. The generally adopted procedure was irradiation of the entire breast with the inclusion of the scar from 2 tangential fields, and with the corresponding indications, of a separate volume of the parasternal or the supra- and infra-clavicular region, or both. Regional zones were irradiated in 90 patients, and in 50 of them - the parasternal lymph nodes. Radiotherapy was conducted from 21 to 65 days, on an average 34. Gamma radiation in  $^{60}\text{Co}$  installations was used for 138 patients, photon emission of accelerators with an energy of 6-18 MeV for 128. In an overwhelming

number of patients, single doses of 2 Gy and total ones of 50 Gy (82 TDF units) were the rule. Doses exceeding 54 iGy and under 46 iGy were each used for 25 patients. Special attention was given to analysis of the radiation load on the front parts of the lung at the irradiated side. In the studied patients, the total doses within the limit of 40 iGy (the median) were at an average depth of 1 cm. Early skin reactions (erythema, dry and wet dermatitis) were noted by the end of treatment in 199 patients (75%), in 86% with gamma radiation and in 51% of the cases with photon irradiation. We gave special attention to planning irradiation with a view to the prolonged survival of most patients (average follow-up period was 52 months). Initially, this was planned according to an atlas. It was conducted for 61 patients, mostly in 1989-1990. For 205 patients, planning was conducted in the central section on a computer system. We are currently searching for the optimal configuration of the fields and energies of irradiation on the basis of the dose distributions in volume calculated according to a series of computer tomograms. Next, it is planned to use the Monte Carlo method for calculating the dose distributions, including the skin, with an accuracy of the order of magnitude of 2%, and to determine the probabilities of healing and radiation complications on the basis of models of the response of organs and tissues to nonuniform irradiation.

The planning of irradiation in breast cancer is one of the most complicated tasks. This is due both to the involved nature of the shape of the target and to the inaccuracy of the models of calculating the dose available in practice. Even modern computer systems of planning with moving beams have an error of calculating the dose at the point of normalization of 5% and more. They are in general incapable of calculating the dose in the skin. This is why, by using volume dose distributions (calculated from a series of computer tomograms) and our own and published data on the building up of doses in a region until electron equilibrium sets in, we analyzed the radiation loads in the region of joining of the fields and near the skin surface. For this end, we selected detailed computer tomograms obtained when studying 2 patients with typical anatomical forms: a large breast and a flat one spreading out along the chest wall. We planned irradiation with  $^{60}\text{Co}$  beams and bremsstrahlung at 6 and 18 MeV. We determined the uniformity of the dose distribution the breast tissue (not including the region of joining of the fields), the maximum dose in the region of joining to the parasternal field, and the doses in the skin on the axis of tangential fields at depths of 0 to 5 mm. We found that the difference between the maximal and average dose in the breast tissue does not depend practically on the conditions

of irradiation and is 10%. The maximum dose in the region of joining with the parasternal field ranges from 115 to 135% and diminishes with an increasing energy of the radiation. The doses in the skin at depths of 0, 1, 2 and 5 mm were: with  $^{60}\text{Co}$  - 50, 87, 100 and 100%, with 6X - 50, 72, 80 and 92% and with 18X - 48, 60, 65 and 75%. These figures are not accurate and relate only to a narrow region on the axis of the tangential fields. Similar estimates of the skin doses at other spots are impossible because of the complicated distribution of the secondary electrons. Our attempts to measure surface doses on

patients with the aid of TLD detectors having a characteristic dimension of 1 mm confirmed this and revealed the uselessness of direct dosimetry under the conditions of the absence of electron equilibrium.

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