How can clinical research in Africa help?

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Do we need clinical research to tackle the burden of blinding diseases in Africa?

- Cataract
- Glaucoma
- Trachoma
- Onchocerciasis
- Vitamin A deficiency / measles
Or, is clinical research an essential ingredient of medical activity in Africa?
Or, is clinical research an essential ingredient of medical activity in Africa?
Vernal keratoconjunctivitis in Rwanda

- Prevalence 3.98% (population based study in primary schools)
- Debilitating eye condition
- Mostly limbal form
- Current standard treatment not very satisfactory

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TOPICAL CYCLOSPORINE IN THE TREATMENT OF VERNAL KERATOCONJUNCTIVITIS IN RWANDAN EYE CLINICS; A PROSPECTIVE, RANDOMIZED, DOUBLE-MASKED, STANDARD TREATMENT CONTROLLED CLINICAL TRIAL.

Applicants and their institution of affiliation:

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Destructive epidemic Neisseria gonorrhoeae keratoconjunctivitis in African adults.

L Schwab and T Tizazu

Abstract

An epidemic of Neisseria gonorrhoeae keratoconjunctivitis in African adults occurred in Malawi in 1983. Sixteen patients, seven females and nine males, aged 18 to 60 years, were admitted to the inpatient ocular services at Queen Elizabeth Central Hospital in Blantyre from 1 February to 28 May 1983, all with severe bilateral purulent keratoconjunctivitis and concomitant venereal infection secondary to N. gonorrhoeae. Corneal melting, corneal perforation with iris prolapse, and endophthalmitis occurred in 10 eyes, of which five required enucleation.
Destructive epidemic Neisseria gonorrhoeae keratoconjunctivitis in African adults.

L Schwab and T Tizazu

Treatment for all the patients consisted of procaine penicillin 3.0 ml intramuscularly for nine days; crystalline penicillin eye drops to both eyes hourly for the duration of the hospital infection...

= WHO guidelines
In vitro antimicrobial sensitivity of Neisseria gonorrhoeae from Rwanda.
Bogaerts J, Vandepitte J, Van Dyck E, Vanhoof R, Dekegel M, Piot P.

Abstract

The in vitro sensitivity of 104 isolates of Neisseria gonorrhoeae to six antimicrobial agents was tested. More than 50% of the isolates produced penicillinase. Of those that did not produce penicillinase, 26% were resistant (minimum inhibitory concentration (MIC)) greater than or equal to 0.5 mg/l), and 68% showed a decreased sensitivity for penicillin G (0.06 less than or equal to MIC less than or equal to 0.25 mg/l).
Promote the idea that clinical research is an essential ingredient of good clinical practice

Provide future medical doctors with the tools to conduct clinical research:

- Notions of public health (to ask the relevant questions)
- Notions of epidemiology / statistics (to learn how to translate these questions in valid research protocols)
Risk factors for open–angle glaucoma in 260 black subjects in Congo.

Kaimbo Wa Kaimbo D, Missotten L.

Source
Department of Ophthalmology, University of Kinshasa, Congo.

Abstract

OBJECTIVE:
To identify possible risk factors for open–angle glaucoma (OAG) among 260 black subjects in Kinshasa (Congo).

METHODS:
Between May 14, 1996 and June 14, 1996, 260 persons, aged 24–60 years old, working at a factory in Kinshasa, have been examined. Twenty–two patients with OAG and 238 controls were identified. Data were obtained through interviews and clinical examinations. OAG was defined by the presence of both optic disc damage and characteristic visual field defects.

RESULTS:
The frequency of OAG was 8.5%. Associations were found with intraocular pressure greater than 21 mmHg (Odds ratio (OR) = 119.4, 95% confidence interval (CI), 17.62 to 4960.64), current cigarette smoking (OR = 2.77, 95% CI, 1.04 to 7.34) and Mongo ethnic subgroup (OR = 3.195, 95% CI, 0.93 to 9.57).

CONCLUSION:
Mongo ethnic subgroup seemed to be another risk factor for OAG in Congo.
Examples of intriguing findings from simple epidemiological clinical research in Africa

- HIV is a risk factor for conjunctival malignancies in African patients
- CMV retinitis is much less common in black AIDS patients
- Wet AMD is less prevalent in the black population
- Retinoblastoma is far more prevalent in African children
Implications?

- Cervical and limbal squamous cell carcinomas are associated with HPV infection → vaccination recommended
  ◦ Not necessarily in African patients!
- AMD = combination of environmental and genetic factors
  ◦ What is different in African patients?
- → solving more complex problems requires North–South collaboration
Ethical issues concerning research in developing nations

- 1997: comparison of HIV research on vertical transmission to the Tuskegee syphilis study (M. Angell, NEJM: “The ethics of clinical research in the third world”)
- an ethical framework for multinational research should minimize exploitation


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Research in Africa and by African scientists is a must

Public health, epidemiology and statistics are indispensable tools

Collaborative North–South partnership, mandatory to solve complex issues, should adhere to strict ethical principles to avoid exploitation

Promotion of the clinician–scientist model may counteract brain drain and offer the motivation to work in the national health service