Correspondence

Cloning and genetics

Sir,

I read with interest the article by Benatar that was recently published in your Journal. It is very important to discuss the ethical implications of advances in genetics and other biomedical sciences. I agree with the author that the progress of science cannot be stopped, and that cloning will be continued. I also agree with the author that ‘environment and experience play important roles in the formation of persons’. However, the role of genetic factors in the personality development and human behaviour should not be underestimated.

It has long been recognized that behavioural disorders run in families. In 1621, Robert Burton wrote in his book ‘The Anatomy of Melancholy’ that the ‘inbred cause of melancholy is our temperature, in whole or part, which we receive from our parents’. Evidence from contemporary twin, family, and adoption studies and molecular genetic research supports the Burton’s point of view that behavioural disorders have a firm genetic basis. Some behavioural disorders may have larger genetic component than medical diseases such as hypertension or ischaemic heart disease.

Behavioural genetic research has demonstrated that there is a very considerable genetic component to normal personality traits. Between 30% and 60% of the variance in many personality traits is inherited. In the ‘Minnesota Study’ on measures of interests, skills, and personality traits the identical twins reared apart had correlations between 34% and 78%. Fraternal twins studied by the same researchers had correlations between 7% and 39%. It has been found in studies of young twins that fearfulness (behavioural inhibition) and shyness are heritable. An interaction between the dopamine D4 receptor gene and the serotonin 2C receptor gene has a substantial effect on the trait of reward dependence (sentimentality and sensitivity to others). An association between the dopamine D4 receptor gene and the personality trait of novelty seeking has been found in two independent studies of normal volunteers. A functional polymorphism in a regulatory sequence for the serotonin transporter gene is associated with the emotional triad of neuroticism, depression and anxiety. There are many more studies and observations which suggest considerable influence of genetic factors on personality traits.

Benatar writes that ‘a servile mentality is (most effectively) formed by experiences not DNA’. I am sure that many people will like a movie in which individuals cloned to be slaves become rebels and successfully fight for their dignity and freedom. But can this happen in real life? We do not know what is more important: experiences or DNA. Human behaviour has a genetic basis most likely involving the interaction among different genes and between the expression of these genes and the environment. Possibly, most people who are cloned from very obedient originals will always be more or less obedient in any environment. A servile mentality (as well as any mentality) is related to the genetic structure. Future research may clarify the role of genetic and environmental factors in the mechanisms of human behaviour.

L. Sher
5901 Montrose Road, #5408
Rockville, Maryland 20852
USA

References


© Oxford University Press 1998
Sir,

Dr Sher takes issue with my claim that ‘a servile mentality is (most effectively) formed by experiences not DNA’. He suggests that genes play a role in normal personality traits. Nothing I say contradicts that moderate claim. While he acknowledges, that environmental factors also have an influence, he speculates that ‘possibly, most people who are cloned from obedient originals will always be more or less obedient in any environment’ (my emphases). That speculation suffers from a vagueness which renders it impotent as an objection to my claim. Just how likely does Dr Sher think it is that desired degrees of obedience can be produced genetically, irrespective of environment? My claim stands if one answers the following question affirmatively: given all the currently available evidence, would somebody seeking to produce an obedient servant be advised to clone another obedient servant or to rear one in an environment that induces servility?

D. Benatar
Philosophy Department
University of Cape Town

Digoxin revisited

Sir,
The mini-review entitled ‘Digoxin revisited’ by Drs Li-Saw-Hee and Lip (April 1998) made me cast my mind back to early post-war teaching, when every great cardiologist in London seemed to be Welsh. Perhaps, Evan Jones and William Evans were the most memorable in this great clinical teaching era. On a ward round, Evan Jones asked his students to name the earliest symptom of Digitalis overdosage. My suggestion that it was nausea was firmly rejected and he pointed out that anorexia occurred earlier; initially, this seemed to me to be a question of splitting hairs. Later, as his house physician, the importance of his teaching became apparent. He also taught the other important fact about digoxin which was that the drug was cleared at a fixed rate and not like most drugs which are cleared exponentially. If these two facts were not remembered, patients would be repeatedly re-admitted to hospital and the following sequence of events would occur: congestive heart failure with atrial fibrillation and a rapid ventricular response—digitalis increased—ventricular rate slows—signs of heart failure resolve—discharge—symptoms such as nausea—digoxin dosage decreased—heart leached of digoxin—ventricular rate increases—heart failure recurs—re-admitted to hospital. Since digoxin is cleared at a fixed rate, the likelihood is that the patient is either getting a little too much digoxin in which case overdosage will eventually occur, or too little, in which case the body is cleared of the drug. The rule is to give a dose which is slightly more than that excreted for 5 or 6 days in a week or with more intelligent patients, the explanation that the drug should be discontinued for 24 to 48 hours after anorexia develops, so that the amount in the body can be reduced and then the digoxin started again in the same dose as before, with the emphasis that the dose should not be reduced.

Lord Taylor recalled that Bradford Hill said that statistics were a waste of time for confirming the obvious. When atrial fibrillation is associated with a fast ventricular response, the beneficial effect of digoxin is obvious.

Dr P.B.S. Fowler
152 Harley Street
London

References