

Letters to the Editor

Discussion of "Failure of Use of Cemental Annulations in Teeth to Determine the Age of Humans"

Dear Sir:

I have a comment in regards to the paper "Failure of Use of Cemental Annulations in Teeth to Determine the Age of Humans" [1]. Although I do not disagree with the conclusions of the paper I think that the presentation is scientifically incomplete.

Although regression lines are drawn, the correlation and the linear analysis statistics are not given. Plot 6 is particularly misleading since the slope of the line seems to be at or near zero and thus the line is nonsignificant.

It is not sufficient to suggest a "high correlation coefficient" without giving the statistic and the associated p value.

I suggest that the reviewers of papers in the odontology section be more persuasive in their attempts to coax scientific structure from authors.

Lewis Lorton
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Reference

- [1] Miller, C. S., Dove, S. B., and Cottone, J. A., "Failure of Use of Cemental Annulations in Teeth to Determine the Age of Humans," *Journal of Forensic Sciences*, Vol. 33, No. 1, Jan. 1988, pp. 137-143.

Authors' Response

Sir:

We appreciate the letter from Dr. Lewis Lorton and would like to thank the editor for allowing us the opportunity to respond. The statistical data requested was previously calculated and analyzed, but unfortunately omitted. We agree with Dr. Lorton that it should have appeared in the original article for completeness. The data requested is as follows.

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|----------------------------------|---|
| Figure 4—All specimens | Slope = 0.20 |
| | Coefficient of correlation (R) = 0.20 |
| | Coefficient of determination (R^2) = 0.10 |
| | F ratio = 4.4 |
| | p value = 0.04 |
| Figure 5—Under-35-year age group | Slope = 0.52 |
| | Coefficient of correlation (R) = 0.78 |
| | Coefficient of determination (R^2) = 0.61 |
| | F ratio = 6.3 |
| | p value = 0.07 |

Figure 6—Over-35-year age group Slope = 0.01
 Coefficient of correlation (R) = 0.01
 Coefficient of determination (R^2) = 0.0
 F ratio = 0.01
 p value = 0.94

We also agree with Dr. Lorton that the slope of the line in Plot 6 is near zero (slope = 0.01) which indicates that the regression model does not accurately predict the age of these individuals. The p value of 0.94, determined by the Fisher test, indicates the lack of significance of the regression equation for the over-35-year age group.

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Discussion of "Embolization of Cotton Pledgets Following Insertion of Porcine Cardiac Valve Bioprostheses"

Dear Sir:

I read with interest the report in your journal by Lifschultz et al. describing embolization of cotton packing material following insertion of porcine cardiac valve bioprostheses [1]. I recently assisted in the investigation of a similar fatal case. The patient was a 61-year-old white male with a long history of rheumatic valvular heart disease and mitral stenosis. One month before his final admission he was admitted to the hospital with chest pain and evidence of heart failure. He was stabilized and discharged with a recommendation to undergo cardiac catheterization. This subsequent study confirmed mitral stenosis and pulmonary capillary wedge hypertension and mitral regurgitation. There was no evidence of coronary atherosclerosis. He was then readmitted for surgical treatment of his mitral valve disease. Commissurotomy and annuloplasty were not successful, therefore the valve was replaced with a No. 33 Carpentier-Edwards porcine bioprosthesis. While the patient was on cardiopulmonary bypass, material which grossly appeared to be clotted blood was noted in the left main coronary artery. The aorta was opened and this material was removed from the left main coronary, the left brachial artery, and both femoral arteries. However, the patient could not be weaned successfully from the bypass pump and was pronounced dead shortly after surgery.

Material removed from the obstructed coronary artery was later examined under polarized light. Birefringent ribbon-like fibers characteristic of cotton were seen. Further investigation determined that this material came from packing material which had not been removed from the bioprosthesis before insertion. Though no autopsy was performed, the diagnosis of cotton embolus was made from the surgical specimens obtained and sent to the independent pathology laboratory.

This case represents another example similar to those reported in *The Journal of Forensic Sciences* and *Human Pathology* and brings to four the number of such cases described in the literature [1,2]. Since that time American Edwards Laboratories has discontinued packing their porcine bioprostheses in cotton.

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References

- [1] Lifschultz, B. D., Donoghue, E. R., Leestma, J. E., and Boade, W. A., "Embolization of Cotton Pledgets Following Insertion of Porcine Cardiac Valve Bioprostheses," *Journal of Forensic Sciences*. Vol. 32, No. 6, Nov. 1987, pp. 1796-1800.
- [2] Tubbs, R. R., Picha, G. C., Levin, H. S., Groves, L., and Barenberg, S., "Cotton Emboli (Cellulose II Polymorph, 'Rayon') of the Coronary Arteries," *Human Pathology*, Vol. 11, No. 1, Jan. 1980, pp. 76-80.

Authors' Response

Dear Sir:

We thank Ms. Crimboli for bringing this case to the attention of the readers of the *Journal of Forensic Sciences*.

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Do Electronic Bone Healing Devices Interfere with Breath Testing Instruments?

Sir:

Recently, a driving while intoxicated (DWI) defendant propounded a novel defense in which it was argued that the Electro Biology, Inc. (EBI) bone-healing device on his person interfered with the proper operation of the Intoxilyzer 5000. The EBI Bone Healing System® is purported to "promote(s) healing by inducing weak pulsing electrical currents at the fracture site. They are generated by a low energy electromagnetic field created by passing specific current wave forms through the treatment coil" [1]. Use of such devices appears to be gaining in popularity. This prompted us to evaluate the influences, if any, such a system exerts on the reliability of Intoxilyzer 5000 readings.

A Model 510 EBI Bone Healing System, consisting of an S2 coil, style C010 control unit, and style BA10 battery unit, was borrowed from the manufacturer.¹ The evidentiary breath testing instrument was a Federal Signal Corp./CMI, Inc. Intoxilyzer—Alcohol Analyzer Model 5000 (Serial Number 64-000213).

Before the study it was established that the radiofrequency interference (RFI) detecting capability of the Intoxilyzer 5000 was functioning properly. This was accomplished by placing a hand-held Motorola radio (Model HT440) at various distances from the instrument

and running tests in the ABACA mode using a 0.100% ethanol simulator solution. Up to a distance of 4 ft (1.2 m) "Invalid Test," "Inhibited—RFI" printouts were obtained. With the radio 8 ft (2.4 m) away, the Intoxilyzer 5000 gave 0.000% subject test and air blanks and a reading of 0.103% for the calibrator check.

The EBI coil, control unit, and battery pack were positioned at six different locations while the Intoxilyzer 5000, operating in the ABACA mode, tested an individual who was negative for ethanol. The calibrator check was a 0.100% ethanol simulator solution. The EBI system locations were selected to approximate conditions that might be encountered in actual practice. They included placement on left arm, right arm, left leg, right leg, and hands behind the back as would be the case for a handcuffed person. In all instances subject tests and air blanks were 0.000%. The simulator checks ranged from 0.100 to 0.105%.

In other tests a subject provided positive breath samples via breath tube through the simulator solution. This was done both with and without the bone healing units in place. Without the bone healing system, the air blanks were 0.000%, the subject test was 0.097%, and the calibrator check was 0.104%. With the bone healing coil and control unit actually touching the breath tube, the readings were: air blanks—0.000%, subject test—0.098%, and calibrator check—0.105%.

These observations lead us to conclude that the EBI Bone Healing System does not interfere with the proper operation of the Intoxilyzer 5000.

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¹Generously supplied by John Moore, EBI Medical Systems, Parsippany, New Jersey.

Reference

- [1] Product Information, Rev. 7/87, EBI Medical Systems, P.O. Box 346, 6 Upper Pond Rd., Parsippany, NJ 07054.