

## *Dried human umbilical cords and study of pollutants*

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Sir, — Ingeniously, Nishigaki and Harada<sup>1</sup> used dried umbilical cords from up to 48 years ago to determine methylmercury and selenium levels in relation to water pollution and an epidemic in the 1950s of a severe neurological disorder due to methylmercury (Minamata disease).<sup>2</sup> In Japan dried umbilical cords were traditionally stored, usually without preservatives, to prepare a folk-medicine for serious illness. The report brings to mind other possible uses of dried umbilical cords.

In the Jintzu and Ichi River basins of Japan, similar studies could be made to chronicle the levels of cadmium from drinking-water, a contaminant which is thought to contribute to development of a new painful bone disorder (*Itai-itai byo*, the English translation of which is “Ouch-ouch disease”).<sup>3</sup> In Kyushu the cords could be examined for the presence of polychlorinated biphenyls (PCBs), a heat-transfer agent, which leaked through pin-hole erosions from pipes in which the PCBs were contained into cooking oil during its manufacture, and caused an epidemic in which 1291 persons developed chloracne,<sup>4</sup> and 13 newborn babies (2 of them stillborn) were cola-colored, small-for-date, and had other abnormalities.<sup>5</sup> PCBs have recently been reported to induce hepatocellular carcinoma in rats.<sup>6</sup>

Umbilical cords are readily available, and can be stored easily and inexpensively. When epidemics occur from chemical contamination in areas of the world where umbilical cords are not traditionally stored, they could nonetheless be obtained for study later under optimal conditions, e.g., the epidemic of methylmercury poisoning in Iraq in 1971-72, from the misuse of fungicide-coated wheat for making bread.<sup>7,8</sup> In Michigan, contamination of cattle and dairy products with polybrominated biphenyls (PBBs) caused no known human disease,<sup>9</sup> but because of the similar chemistry to PCBs the population should be evaluated for late effects. Until more sophisticated studies can be initiated, dried umbilical cords could be put aside for future study if needed. Study can be made of agents that are deposited during pregnancy in the umbilical cord and persist for a long time. Most pesticides are in this category.

Dried cords might be collected in Glasgow, where lead from pipes enters the tap-water, and is thought to affect the intelligence of the child,<sup>10</sup> as in El Paso, Texas, where the lead is airborne from smelters.<sup>11</sup> When children born now are old enough to be tested, comparison could be made of those with high vs. low IQs with respect to lead levels in their cords.

Cords systematically collected and stored might be used as a biological dosimeter for changes in the levels of pollutants over time — as was done in the Minamata area. In selected health-care systems, a relationship might be sought between certain etiologically puzzling diseases of childhood and chemical analysis of the cord. There are no doubt many more possibilities than have been suggested here.

### References

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