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African care for congenital central nervous system disorders: Falling far short of global management standards?

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Dear Editor,

Congenital central nervous system (CNS) disorders are anatomical or functional abnormalities of the CNS that arise during pregnancy and are present at birth[1]. There is a wide range of congenital CNS disorders but the most common types are the neural tube defects. Anencephaly, encephalocele, and spina bifida are the most common types of neural tube defects[1].

Birth defects continue to be a major global concern due to their high mortality rate, accounting for more than 20% of all infant deaths[1]. Reports on the prevalence and risk factors of congenital defects, particularly CNS disorders, are insufficient in Africa due to a lack of data from the countries' National Birth Defect Registries[2].

There are no definite causes associated with 50% of congenital disorders, but the main causes have been identified as chromosomal anomalies, teratogens, intrauterine abnormalities, and single gene disorders[3]. Aside from the major causes of congenital CNS disorders, consumption of naturopathic medicine, which is primarily made up of herbs from unknown sources, has been identified as one of the major causes in the context of Africa[3]. These herbal medicines contain teratogenic substances that may harm the fetus. Other factors such as viral or bacterial infections, folic acid deficiencies, periconceptional exposure to high doses of irradiation, and chemicals also play a significant role in the development of congenital anomalies in Africa[4].

Although Africa lags in the management of congenital CNS disorders, there has been significant progress in recent years. Certain African countries, including South Africa, Ghana, Nigeria, and Cameroon, have implemented a mandatory folic acid fortification policy, with the knowledge that folic acid supplementation during pregnancy can help prevent a variety of congenital malformations[5]. Despite this, a large proportion of the African population remains without these policies, especially those based in Eastern Africa, and thus do not receive this standard of care[3].

The substandard management of congenital CNS disorders in Africa has several contributing factors. First, the scarcity in specialists trained in the management of these conditions causes patients to resort to treatment by nonspecialists. Many patients do not have access to routine care; this leads to an inconsistent level of care[6]. Second, a lack of a central vaccine administration programs for infections like *Haemophilus influenzae* type B and conjugate pneumococcal results in the continued prevalence of diseases like meningitis which has largely disappeared in high-income countries. Meningitis is known to be responsible for causing congenital CNS disorders, and its prevalence along with other preventable infections leads to a heightened risk for CNS disorders[6].

Poverty and illiteracy are major contributors to the burden of managing congenital CNS disorders in Africa[2]. It is well known that the majority of the African population is still impoverished; for example, 57% of those in sub-Saharan Africa remain poor[2]. Due to the lack of reliable diagnostic centers and equipment, people often disregard antenatal services, and folic acid supplements are rarely available.

Precise and definitive diagnosis is at the heart of the management of congenital CNS disorders[3]. Quality diagnosis necessitates the reliance on highly skilled medical personnel such as neurologists, neurosurgeons, radiologists, and others, as well as cutting-edge neuroimaging technology[3,7]. Only a few countries, such as Egypt and South Africa, have centers that provide prenatal screening, diagnosis, treatment, and follow-up services, and even those that do exist either have outdated equipment or are not accessible to the economically disadvantaged[3].

The dearth of well-founded information on congenital CNS cases in Africa indicates the huge research gaps in Africa to critically assess the issue[3].

While the incidence of congenital anomalies is decreasing in developed countries, Africa continues to be burdened with this problem. It may be seen that the preventative measures adopted by other developing and developed countries that have led to such positive outcomes are unfortunately absent or insufficient in African nations. The burden of these diseases remains high in

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African nations, and this emphasizes the need to determine strategies to alleviate this burden on African countries. One such strategy is that governments should be encouraged to develop healthcare policies that emphasize the importance of prenatal care so that pregnant women get access to regular care and monitoring to improve fetal development. This could be achieved by implementing an educational framework to raise awareness in the population.

To ensure quality management, African countries can also benefit from making healthcare facilities and well-trained physicians more accessible to bridge the treatment gaps. The shortage of healthcare professionals, particularly neurologists, neurosurgeons, and radiologists for complex CNS cases should be improved by establishing more training centers. More medical schools should be established in Africa to train more medical personnel to alleviate the burden of physician shortages in African countries. Also, the working conditions of healthcare workers in Africa need to be improved to avoid the emigration of professionals in the health sector to high-income nations.

Furthermore, African governments should ensure that diagnostic centers are not limited to urban areas; thus, diagnostic centers should be fairly distributed across the continent, particularly in rural areas. The majority of Africa's population are found in rural areas so more emphasis should be placed there. The cost of accessing diagnostic services for fetal screening should be accessible and affordable to all pregnant women, regardless of socioeconomic status.

Africans can address the problem of illiteracy and lack of knowledge about proper antenatal care by providing consistent public education and raising public awareness. It will be important that the population is educated about the critical importance of folic acid and a well-balanced diet during pregnancy. They must also be well-informed about the teratogenic effects of herbal medicine, alcohol, and certain drugs on fetuses. This can be achieved either via government-backed programs, distribution of pamphlets, or through discussions with their local physicians.

Finally, effective National Birth Registries should be set up for all African nations to efficiently monitor all congenital cases. Policies should be enacted to ensure that all births are accounted for and to avoid the data gaps that have been noted traditionally. The recorded data from these registries could serve as a good foundation of quality research activities on the continent to effectively assess congenital anomalies and improve outcomes.

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A.A.W. contributed to conceptualization ideas. All authors were involved in data curation, writing of the initial draft, review and editing, and approved the final manuscript.

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