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The Life and Legacy of Greg Alexander

HAMISU SALIHU: The second was somewhere called Buffalo, New York and then the third one was down, down, down on the list was Alabama, the University of Alabama, Birmingham--the University of Alabama at Birmingham.

So I went for the interview--I went to San Diego I was really interested in that because you know, we sat down and said yeah, that's the place to go.

Something strange happened to me there. And maybe you will understand coming from an African perspective why I was really--I was shocked what I saw. I was sitting down in my hotel--a very beautiful hotel really--having breakfast. All of the sudden something strange occurred. My plate started to move and I couldn't understand. I say what is really happening.

And I thought it was like a kind of--I was having some delusional kind of--you know I was going neurotic. Then I sat down. I look at it again, then it moved back and the table started shaking a little bit. Then I went downstairs. I complained to the guys at the reception desk. They said, oh, no, no, no, that's nothing. That's just a small earthquake. I said, earth quake? They said yes. So immediately when I came back that was canceled from the list and of course there was no way my wife would go there with me.

So the second place actually was Buffalo, New York. Actually the people are-- they were very nice people but I went during the time when it was extremely cold and that reminded me of Berlin. I think--because I studied in Germany but I was-- usually what they did is when you're going to Germany they try to take you to the place where you feel more comfortable and I was actually at the border with France. I was in (inaudible) which was quite a nice climate actually for me. So I didn't feel the terrific cold weather in Germany up to the time I finished my training until I went to Berlin. And that was when I had the greatest--what do you call it--the greatest--it was like Siberia for me.

So I felt--I caught some cold, caught some pneumonia, was treated and then I left Berlin forever. So going to Buffalo it reminded me--you know it recalled--you know that my stay in Berlin. So when I came back I told my wife, look, we're going to Berlin. This is Berlin Buffalo. She said no we're not going. So we cancelled it.

So the only thing that remained was Birmingham, Alabama. So I went for an interview in Alabama, Birmingham and Greg Alexander was the chair of the Department of Maternal and Child Health at that time. And I met with him. All these interviews nobody had ever asked--I mean they try to make you feel comfortable. Oh, we have the best this, the best--oh we have everything. But nobody really tries to make you uncomfortable with questions until I met Greg.

We sat down there and he continued asking me all kinds of questions theorizing, how about this--sympathizing--what about if this were--if it were like this--what about if we're wrong. And somehow it's part of my neurotic nature, which is what my wife calls me. I like things that I don't know. I like people to ask me questions I don't know. So when I came back I told her what happened and I was very, very excited to go to Birmingham, Alabama. Needless to say that the following morning when I went to meet my friend, I told hey, Rich, you know what. He said, what? I'm going to Birmingham, Alabama, most likely if they accept me. He said ala what? I said Alabama. So he didn't like it but I think it was a very-- subsequently of course Greg called me. We had a chat, so on and so forth and I accepted the position, went there and I think that was--even though it was a difficult decision because imagine going from Florida, the beautiful beaches, going from Florida to Alabama, you know, but I think I really had one of the most exciting and most beneficial times of my life in Birmingham, Alabama.

So we had tons of publications. We had a great time. We built a great team which used to be called at that time the Alabama Team although now it's going to be Florida Team very soon. So that is what I remember very much about my career path and how I came into contact with Greg Alexander. And today I don't look at him as say--as a co-investigator, he was my mentor. He was my mentor and I think we had--I don't know how many publications we had together but it has to be tons and tons and tons.

Okay that said, I hope I can see the presentation today because I have some-- what do you call it--some drops in my eyes, which I put every morning. But that said, we'll go to the passion of Greg which is publication. Now even in his--during the time when he was severely ill we continued to talk about--by the way I left Alabama, went for my residency, then he--we had the chat with Greg and he convinced me to come down to Florida, and of course that's where I work right now. That's how I came to Florida.

And when I came--even when he was ill we discuss a lot. Sometimes I felt really bad because he was really ill and we're still discussing about scientific stuff which to me didn't matter anyway because his health was more important but he thought there was the case. And when he died we had a couple of publications still ongoing, including this one which has been accepted which will come out in January.

When he died it was a great shock to me. But my problem at that time was what do we do with these publications and which--I mean most of them he had substantial input. I spoke with a number of people. I spoke with the ethical committee, the RRB people. I spoke with some journal editors and all convinced me that if he had substantial contributed then his name deserves to be there. And so you see his name today and subsequently.

Now to the presentation. Black/white disparity in neonatal mortality. We do know that obesity is one of the most important public health problems we're facing. We're facing an epidemic. We're facing an epidemic. For the past two decades the prevalence of obesity has doubled. That is obesity in general if you look at it as a homogenous entity. Of course obesity is not a homogenous entity.

We do know that obesity is an array of disease conditions and we try as much as possible to capture that it originated by classifying obese woman or obese people or obese individuals and the greatest increase in terms of this epidemic is the increase in the so-called morbidly obese person, individuals that have a BMI-- BMI is the bottom line in terms of definition of obese people--so BMI greater than 40. This is where we've experienced quadrupling of obese people, extremely obese people. So for the past two periods--two decades this group of people have--the proportion of obese people in this group has quadrupled.

Now as a result--the importance of this is of course the fact that we do know the burden of obesity in terms of chronic illnesses, the burden of obesity in terms of associated costs to society, the burden of obesity in terms of mortality. And because of this it becomes very important to really identify ways and means of reducing this epidemic, but also we have to understand what the pathological-- what the causality pathways are linking obesity with these chronic illnesses.

But probably what you will notice in the literature is that there has been in this debate about obesity probably the one that I've been talking about is the relationship of maternal obesity and birth outcomes, especially neonatal infant mortality. Very few literature published on that, especially from the United States, even though we know that women are disproportionately affected by the obesity epidemic, especially black women.

So because of that we decided to undertake this study with the following objectives. One, to determine the impact of maternal obesity on neonatal survival and two, to determine whether neonatal survival is really a function of the severity or a function of the graduation or a function sometime or (inaudible) of obesity. And thirdly, of course, which is what was very dear to Greg whether there is any disparity in terms of race, especially black/white disparity.

We used the famous Missouri dataset from 1978 through 1997 singlet birth within the gestational age range of 20 to 44 weeks. And we defined body mass index the way everybody else defines it. Then we classified obesity based on BMI into three subtypes. Class one obesity, class two obesity and extreme obesity, which is class three. We also looked at differences between obese and non-obese women based on certain characteristic--sociodemographic characteristics, race, maternal age, marital status, educational status, cigarette smoking during pregnancy, adequacy of prenatal care.

I used the same index that Martha told you about which is the revised index which was proposed--or created and proposed by Greg Alexander.

We also look at certain pregnancy complications and medical complications during pregnancy. These we must say are not very, very reliably reported and the specific sensitivity of the birth certificate to capture good diagnosis regarding these complications is not very good. But still we tried to look at this and especially within the period of 1989 to 1997 because the report of this on the birth certificate became consistent as from 1989 in the United States.

The outcome of interest was neonatal mortality which we defined as death from day zero which is the day the baby was born to day 27. And we further sub-classified this entity or this outcome into two. One is early neonatal mortality, which runs from day zero to day six and then late neonatal mortality which is from day 7 to day 28. Then we--the relationship between obesity and neonatal mortality, in other words the relative risk was estimated using the Cox proportional hazard regression model and the reason--well I don't need to go into the reason now, maybe that will come during the question time. And we generated just estimates taking into consideration likely, potentially, confirmed in factors and confirmed as that may not have been reported but we thought were biologically relevant.

And because this was a longitudinally maternally linked dataset it meant then that you had women that had successive pregnancies and therefore you have some kind of sibling effect and interclass type correlation and we adjust it for this (inaudible) estimate. This study was approved by the office of the RRB. Over time I've become very afraid of this institution so each time I write something the first thing I write on my paper is RRB, or else I don't go forward.

Results, the prevalence of this, of obesity in this dataset was 9.5% with a great proportion among African Americans, 12.8 versus 8.9. Now we must be very careful. This was data that was that represent an aggregation of data from 1978 to 1997. So we should interpret most of this with that bearing in mind, this long period of investigation or this long period full of different cohorts that must have been exposed to different cohort effects over time.

The greatest proportion of course were class one obesity, 5.9, 2.3 class two, 1.3 class three and when you look at blacks and whites of course you have a preponderance of blacks in each of the classes, class one, class two, class three, but mostly blacks have--the disproportionate representation of black was most pronounced in the extremely obese individuals.

So these are the comparisons between obese and non-obese persons. We note that obese individuals are more likely to be older and more likely to have parity and more likely--less likely to be smokers, less likely to be married but more likely

to have adequacy of prenatal care based on the index that we used which may not be representative--which may not capture quality of care, but it's just a quantitative estimation of care received.

And comparison of complications of pregnancy between the two groups show that you had a preponderance of obesity associated complication which we very well know like insulin dependent diabetes mellitus, other forms of diabetes mellitus, chronic hypertension, preeclampsia. And here we have the results of the association between obesity and neonatal mortality. As you can see, obese women have--20% have likelihood of having neonatal mortality.

And two things I want us to learn from this table. The first is that as the severity of obesity increases, in other words, as a woman graduates from class one into class two, up to class three, the severity of the risk--there is risk or there is a monotonic increment in risk for neonatal mortality upwards.

The second thing I want us to go home with from this slide is that if you look at it very well early neonatal mortality is the most important period where obese women tend to have this preponderance or this elevation of risk in terms of mortality. Sorry, the infants of obese women, not the obese women, the infants of obese women.

And this is what we were shocked--we did not expect this result. But this for us shows that the--if you look at obesity and that of course underscores the importance of defining populations when you do research. In other words, we represent a heterogeneous population and given homogenous estimates may not help because this one shows that actually the differential of risk differential to the disadvantage of obese women is only noticeable, is only present among black women.

In other words, if you look at white women, an obese white woman has the same risk as a non-obese white woman in terms of neonatal mortality. But that risk differential elevation in terms of neonatal mortality was only observed in this study among black women. And this risk or this disparity or racial disparity increases with increased--with a certain obesity class. And that of course we think is very important in terms of public health interventions and in terms of really narrowing the gap between black and whites in terms of infant mortality because we know that most of the--most neonatal mortality is part of the-- contributes also to the racial differential or racial gap in infant mortality.

So this is the summary what I've just said so I don't need to go through that. And of course there are so many reasons but I think we should take home. Access to care may be important even though we control for prenatal care. That does not take into consideration factors that might have been operational after delivery.

That's one. Two, we were with this index there was no way we could tell how the quality of care was delivered. So probably that's an important consideration.

We also know that there is from previous publications black women tend to have a preponderance of complications during pregnancy, a preponderance of medical complications that remain untreated during the preconception period and become pregnant now with all the burden of complications that they have had during the enter pregnancy period. So even if--even after controlling for these you still have that disparity between blacks and white in terms of neonatal mortality associated with obesity.

So there are limitations of course with this dataset, the long period of 1978 to 1997 which we--there was no--we do know that of course care over time and also the--there has been improvement over time no doubt in terms of care for women, obstetric care, perinatal care, there was no way we could capture this other than just to adjust for the year of birth, which we thought might control for the differences or variation across time as we said with the estimates.

We are unable to talk about Hispanics. That would have been very, very interesting because the dataset the way it was constructed there was no way we could tease out the Hispanic population correctly. So it would be very--very interested to look at that because the Hispanic population also is affected by the obesity epidemic.

There are certain strength in the dataset. This is a domain that is poorly understood and I think the data, this data has teased out an area for practicable application. In other words, we know that this is modifiable and I think we know that disparity is a big problem and putting this one and two together I think there is hope that some of these modifiable factors could be tied in for intervention to narrow the risk differential to the disadvantage of black infants in terms of infant mortality. Thank you very much.